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November 30, 2004

To the Members of the House Agriculture, Livestock, and Natural Resources Committee and to the Members of the Senate Agriculture, Natural Resources, and Energy Committee

House Bill 04 -1359 required that a collaborative study be conducted by the *Department of Natural Resources (DNR)* and the *Colorado School of Mines (CSM)* relating to the possible relocation of the *Colorado Geological Survey (CGS)* and the manner in which the *Survey* could most effectively serve the needs of the State of Colorado.

The bill required that both DNR and CSM appoint four people to conduct this study. The appointments made by DNR Executive Director Russell George and CSM President John Trefny included:

Department of Natural Resources

- Shane Henry, Assistant Director of DNR for Lands, Energy and Forestry
- Vince Matthews, Colorado State Geologist (CGS)
- Matt Sares, Manager of Environmental Geology Section (CGS)
- Patricia Schindler, Manager of Administration and Business Services (CGS)

Colorado School of Mines

- Murray Hitzman, Professor and Department Head for Geology and Geological Engineering
- Dan Montez, Associate Vice President for Finance and Operations
- Terry Young, Professor and Department Head for Geophysics
- Bob Weimer, Professor Emeritus and Consultant

The bill also required:

- One public meeting to seek input on the scope of the study;
- One public meeting after completion of the study to seek input on the study's findings from affected interests; and
- A report, due on November 30, 2004, of the findings of the study and a summary of the public input received at the required public meetings.

The Committee has been working on the study since early September. During this time the Committee:

- Held fourteen committee meetings;
- Met with the principles involved, including Rep. Ramey Johnson, DNR Executive Director Russ George, and CSM President John Trefny;
- Held a public meeting to gather feedback on the proposed scope document;
- Toured both the current space of the Colorado Geological Survey in Denver and key areas of the Colorado School of Mines' campus;
- Worked with key personnel from Mines and the Survey regarding issues pertinent to the study such as space and infrastructure needs (i.e. IT support); personnel-related items (i.e. differences in personnel systems); library capabilities; etc.;
- Created a dedicated website for the study: http://www.is.mines.edu/fo/Geo_reloc/;
- Had facilitated discussions on the specific items listed in the legislation;
- Conducted a study of the surrounding western states regarding how their Surveys are currently structured;
- Held a second public meeting to gather feedback on the DRAFT report; and
- Has now completed the required report and summary of public input.

On behalf of the Committee, we are submitting the attached report as required by House Bill 04-1359.

Sincerely,

Vince Matthews, Co-Chair
CGS Director and State Geologist

Dan Montez, Co-Chair
CSM Associate Vice President, Finance and Operations

The Joint Study of the Colorado Geological Survey Relocation per HB 04-1359

By

The Department of Natural Resources
and
The Colorado School of Mines

Submitted to

The House Agriculture, Livestock, and Natural Resources Committee
and
The Senate Agriculture, Natural Resources, and Energy Committee

November 30, 2004

Report of the Joint Study of the Colorado Geological Survey Relocation per HB04-1359

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Report of the Joint Study of the Colorado Geological Survey Relocation per HB04-1359

I. EXECUTIVE SUMMARY

House Bill 04-1359 requires that a collaborative study be conducted by the *Department of Natural Resources* (DNR) and the *Colorado School of Mines* (CSM) relating to the possible relocation of the *Colorado Geological Survey* (CGS) and the manner in which the Survey could most effectively serve the needs of the State of Colorado. The study was conducted by four people each from the Colorado Geological Survey/Department of Natural Resources and the Colorado School of Mines and included public comment in the form of written submissions and discussion at two public meetings. The committee studied the benefits and disadvantages of three options:

- No change in location or administrative structure;
- A physical change of location and a change in administrative structure; and
- A physical change of location, but no change in administrative structure.

While each of the three options has both benefits and disadvantages for DNR, CGS, and CSM, the committee was unable to reach a consensus view on a possible relocation of the CGS.

After considering all of the factors identified by the committee, the DNR members of the committee concluded that remaining physically and administratively in the executive branch of government is the proper place to most effectively carry out its mandates, mission, and responsibilities to serve the people of Colorado. The DNR members of the committee believe that there is no compelling reason to disrupt the personal and professional lives of a group of dedicated state employees and that the identified benefits of moving to a new location do not outweigh the costs and disadvantages.

The CSM members of the team are genuinely interested in having CGS on campus. The CSM members favored the option of physically moving the CGS to CSM but retaining the current management structure with CGS reporting to DNR. This would allow severance tax funding to be retained by CGS and would preserve their close ties to other state agencies. An office for the State Geologist in the DNR office would further enhance close ties. A physical move to CSM would allow close collaboration between CGS and CSM personnel, CGS access to CSM analytical and computing facilities, and significant potential for increased federal funding support, based on the experience of other state surveys co-located with universities.

Both groups felt that significant questions remained regarding the currently available space for the CGS at CSM. If a move is to occur, the best solution would be to provide purpose-built space on campus that would meet the needs of the current survey and would take into account future needs.

See page 35 for *Report Findings and Recommendation*.

II. PROJECT BACKGROUND, ISSUES, PURPOSE, AND SCOPE

a. House Bill 04-1359

House Bill 04-1359 (Appendix A), sponsored by Rep. Ramey Johnson and others and passed in the 2004 legislative session, required that a collaborative study be conducted by the Department of Natural Resources (DNR) and the Colorado School of Mines (CSM) relating to the possible relocation of the Colorado Geological Survey (CGS) and the manner in which the Survey could most effectively serve the needs of the State of Colorado.

The bill required that both DNR and CSM appoint four people each to conduct the study. The appointments made by DNR Executive Director Russell George and CSM President John Trefny are as follows:

Department of Natural Resources

- Shane Henry, Assistant Director of DNR for Lands, Energy and Forestry
- Vince Matthews, Colorado State Geologist (CGS)
- Matt Sares, Manager of Environmental Geology Section (CGS)
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- Murray Hitzman, Professor and Department Head for Geology and Geological Engineering
- Dan Montez, Associate Vice President for Finance and Operations
- Terry Young, Professor and Department Head for Geophysics
- Bob Weimer, Professor Emeritus and Consultant

Short biographical information for the committee members is provided in Appendix P.

The bill also required:

- One public meeting to seek input on the scope of the study;
- One public meeting after completion of the study to seek input on the study's findings from affected interests; and
- A report, due on November 30, 2004, of the findings of the study and a summary of the public input received at the public meetings.

b. Background on the Colorado Geological Survey

The Colorado Geological Survey (CGS) is an agency of state government within the Department of Natural Resources whose mission is to help reduce the impact of geologic hazards on the citizens of Colorado, to promote the responsible economic development of mineral and mineral fuel resources, to provide geologic insight into water resources, and to provide geologic advice and information to a variety of constituencies.

The CGS provides a multitude of services to federal, state, and local government agencies, Colorado's mineral and energy industries, and private citizens. Services include: geologic mapping, including digitized data for identifying geological hazards

and mineral resources; technical assistance on topics like swelling soils, and school site and land use reviews; research and geologic advice on Colorado's water resources and underground storage potential; research and economic development information on Colorado's mineral and energy industries; and responding to inquiries from citizens, media, researchers, teachers, and students. The CGS is also the home of the Colorado Avalanche Information Center, which provides avalanche hazard forecasting, education, and research. The CGS publishes and distributes its geology-related research in the form of maps and technical reports such as the *Groundwater Atlas of Colorado*, as well as non-technical publications such as *Messages in Stone: Colorado's Colorful Geology*.

CGS is an agency committed to its statutory obligations to consult with local boards of education, local planning commissions, and state agencies regarding the geologic suitability of proposed school sites, construction activity larger than 5 acres, and hazardous waste disposal sites. CGS is further committed to its statutory requirement to annually prepare a report on the status of the mineral industry in the state.

The State Geologist and director of CGS is required by statute to direct the survey to provide assistance to and cooperate with the general public, industries, and agencies of state government, including institutions of higher education, in pursuit of the following objectives:

(a) To assist, consult with, and advise existing state and local governmental agencies on geologic problems;

(b) To promote economic development of mineral resources;

(c) To conduct studies to develop geological information;

(d) To inventory and analyze the state's mineral resources as to quantity, chemical composition, physical properties, location, and possible use;

(e) To collect and preserve geologic information;

(f) To advise the state and act as liaison agency on transactions dealing with natural resources between state agencies and with other states and the federal government on common problems and studies;

(g) To evaluate the physical features of Colorado with reference to present and potential human and animal use;

(h) To prepare, publish, and distribute reports, maps, and bulletins when necessary to achieve the purposes of this part 1, but in accordance with section 24-1-136, C.R.S.;

(i) To determine areas of natural geologic hazards that could affect the safety of or economic loss to the citizens of Colorado;

(j) To advise the state engineer in the promulgation of rules and regulations pursuant to article 90.5 of title 37, C.R.S., and to provide other governmental agencies with technical assistance regarding geothermal resources as needed; and

(k) To promote safety by reducing the impact of avalanches on recreation, industry, and transportation in the state through a program of forecasting and education conducted by the Colorado avalanche information center.

c. Background on the Colorado School of Mines

The Colorado School of Mines is a public research University devoted to engineering and applied science. The role of the School is written in the Colorado statutes as:

> *The Colorado School of Mines shall be a specialized baccalaureate and graduate research institution with high admission standards. The Colorado School of Mines shall have a unique mission in energy, mineral, and materials science and engineering and associated engineering and science fields. The school shall be the primary institution of higher education offering energy, mineral and materials science and mineral engineering degrees at both the graduate and undergraduate levels.*
>
> *- Colorado Revised Statutes, Section 23-41-105*

Colorado School of Mines has remarkable strengths in its history, programs, and people. With an exceptional reputation, Mines ranks nationally in accomplishment and value. Among its greatest assets are the students it attracts, its specialized identity and capabilities, its connectedness, and its focus. While the School has already made a worldwide impact through its alumni and scholarly contributions, it is poised to further enhance its influence through the strategies presented in its 2004-2014 Strategic Plan.

With rapidly escalating global demand for energy, technology, and natural resources, Mines has both an opportunity and a responsibility to magnify its contribution to the worldwide community by asserting its leadership position in areas of expertise and reinforcing its long tradition of academic excellence. To achieve these objectives in a dynamic and rapidly evolving economic and technological environment, the School has developed a seven-part strategic plan (See Appendix S) for the next decade that will optimize, consolidate, and align institutional resources in support of key programmatic areas such as earth, energy, materials, and environment.

> *The Colorado School of Mines is a world-class institution, enhancing its leadership in knowledge creation, education, services, and solutions to serve its varied constituencies – individual and corporate, public and private – comprehensively and internationally, and especially in its areas of expertise in engineering and applied science related to Earth, Energy, Materials, and Environment.*
>
> *- Vision Statement: 2004-2014 Strategic Plan*

d. Scope of the Study

The Committee developed the scope document provided in Appendix B based on the Committee's analysis of HB04-1359. This document was presented at the initial public meeting to solicit comment from interested parties. It includes several general and specific items that would be studied within the context of three potential scenarios:

- No change in location or administrative structure;
- A physical change of location and a change in administrative structure; and
- A physical change of location, but no change in administrative structure.

e. Public Feedback

An initial public meeting was held on Tuesday, September 28th at the Colorado School of Mines and approximately fifteen people were in attendance, many of whom testified with regard to the scope of the study and the concept in general. A second public meeting was held on November 23rd at the Colorado School of Mines and eight people were in attendance. Both meetings were videotaped and are available for viewing by contacting the Colorado School of Mines or the Colorado Geological Survey. A summary of both public meetings along with information submitted to the Committee from the public is provided in Appendix J, K, and T.

The Committee developed a dedicated website to help keep the public informed of the progress of the study, to provide public notice and information on meetings, and to post the final DRAFT report for public review and comment.

The website can be visited at: http://www.is.mines.edu/fo/Geo_reloc/

III. COMPONENTS OF THE STUDY

A. INTRODUCTION

House Bill 04-1359 instructs the *Department of Natural Resources* and the *Colorado School of Mines* to collaboratively conduct a study relating to the location of the *Colorado Geological Survey* (Survey) and the manner in which the Survey can most effectively serve the needs of the State of Colorado.

The following sections of the report address the specific items to be examined as outlined in the bill.

The Committee focused on three alternative scenarios with regard to the potential relationship of the Colorado Geological Survey and the Colorado School of Mines:

1. **Maintain existing structure and location.** CGS remains in DNR and does not relocate to CSM.
2. **Change structure and location.** CGS physically moves to the CSM campus and administratively becomes part of the Colorado School of Mines.
3. **Change location but not structure.** CGS physically moves to the CSM campus but retains its reporting structure within the DNR.

Maintain existing structure and location.
The first alternative – not moving to CSM– has potential advantages to all three parties. This alternative minimizes short- and long-term disruption to CGS, CSM, and DNR, and allows CGS to continue fulfilling its mission in accordance with its enabling statutes. In addition, the study has identified areas for increased collaboration between CGS, CSM, and DNR that would be beneficial for all parties.

Change structure and location.
The second alternative – a physical and reporting move of CGS to CSM – has potential advantages to both CGS and CSM; however it would involve significant changes, as well as, short- and long-term disruptions for CGS, CSM, and DNR. This report will provide data relevant to such a move and evaluate possible effects to all three parties.

Change location but not structure.
The third alternative – a physical move of CGS to CSM, but maintaining its current reporting structure within DNR – has potential advantages for all three parties, but would involve significant short- and long-term disruption. It would allow CGS to continue fulfilling its mission in accordance with its existing enabling statutes. A physical move of the CGS staff to CSM would allow them the benefits of shared infrastructure with the university, potential access to new funding sources through faculty appointments, and co-location with the largest concentration of state employed geoscientists in Colorado.

It should be noted that in this third scenario, it would be prudent for CGS to maintain a physical presence with DNR in downtown Denver. Such a presence could include an office at DNR for the State Geologist and an administrative assistant, although this would necessitate an increase of one FTE. Such a physical presence at DNR is deemed critical to allow CGS to maintain and potentially expand contacts with its state agency constituencies. This scenario would also allow CGS to maintain reporting independence from any one state educational institution.

Cross-Cutting Issues
The Committee believed there are a number of possible improvements to the existing Survey that should be considered under all scenarios – we refer to these as "cross-cutting issues". We believe that decision makers should consider these, even under the status quo alternative.

- Clarify existing statutes
- Expand space to meet current and future needs
- Recognize uniqueness of CGS in the state personnel system
- Establish a CGS advisory committee
- Increase flexibility for pursuing grants

B. Current Status of CGS

It is the judgment of the Committee that the Colorado Geological Survey is already a strong, innovative, and entrepreneurial survey, and should continue to be the entity with geological expertise for the entire state. CGS is continually enhancing its service to the state and its citizens at all levels of government (municipal, county, and state).

Strong

- In a time of fiscal crisis, CGS' budget has remained strong.
- The survey has a strong record of producing quality publications that are recognized with national, regional, and local awards.
- Because the survey's statutorily-required, land-use-review work for counties is so successful, at least ten municipalities voluntarily request (and pay for) CGS reviews.
- The Colorado Avalanche Information Center is respected locally, nationally, and internationally; and saves the lives of citizens and visitors.
- Legislators praised CGS' efforts to help solve Colorado's water crisis and its *Groundwater Atlas of Colorado* was designated a "Notable Document of 2003" by the American Library Association (only five other states received such an honor).
- The staff is experienced, has a "can do" culture, and is highly qualified to carry out CGS' statutory responsibilities.

Because of CGS' strong performance and expertise in a broad number of areas, the survey has recently been contracted to conduct various investigations for the Colorado Department of Transportation, Colorado Department of Personnel and Administration, Colorado Department of Human Services, Colorado State Patrol, Colorado Water Conservation Board, Colorado Office of Emergency Management, Colorado Attorney General, Colorado State Land Board, Colorado Division of Minerals and Geology, Colorado Department of Military Affairs, Colorado Division of Parks and Outdoor Recreation, Colorado Department of Public Health and Environment, Colorado Division of Wildlife, Federal Emergency Management Agency, Bureau of Land Management, United States Geological Survey, Environmental Protection Agency, Office of Surface Mining, United States Forest Service, Independence Pass Foundation, and the Willow Creek Reclamation Committee.

Innovative

- CGS is noted for its innovation in using digital methods to prepare geologic maps. CGS' mapping techniques have recently been featured in a *Geotimes* article; the American Geological Institute's new book, *Meeting Challenges with Geologic Maps*; and in ESRI's magazine, *ArcNews*. For two of the past three years, the national STATEMAP evaluation committee has chosen CGS' grant proposal to send to the other 49 state geological surveys as an example of an excellent proposal.
- CGS was the first state survey to have an interactive, online publication, *The Late Cenozoic Fault and Fold Database and Map Server*.
- In two of the past three years, the Western States Seismic Policy Council presented CGS with its "Award for Excellence in the Use of New Technology".
- CGS' publication *A Guide to Swelling Soil for Colorado Homeowners and Homebuyers* is a multiple national award winner that has sold more than 210,000 copies, which far exceeds the single volume sale of any other state survey's publication.
- CGS' innovative publication, *Messages in Stone: Colorado's Colorful Geology*, has received three awards and has been adopted as a text at eight Colorado colleges.
- The Rocky Mountain Association of Geologists presented CGS with its 2004 Journalism Award for "its long history of outstanding achievements in producing educational and highly informative publications for the purpose of increasing public understanding and awareness of the geology and mineral resources of the State of Colorado."

Entrepreneurial

Over the past decade, CGS aggressively pursued competitive grants. During that time, federal funding to CGS increased six fold from $0.2 million to $1.2 million. Research grants have recently been received from NEHRP, NASA, DOE, USGS, and EPA.

CGS annual publication sales of $190,000 is significantly higher than any of our neighboring states and is nearly four times the average sales of our neighboring surveys. CGS markets its publications in a variety of ways. Among those who benefit from CGS publications are the mineral and mineral fuel industries, professional geology and engineering consultants, government agencies, public decision makers, outdoor recreationalists, hobbyists and rockhounds, students, and the general public. An online bookstore will become operational in November.

CGS' quarterly newsletter, *RockTalk*, is focused primarily on public education about geology-related topics of interest. From these newsletters, a variety of readers and decision makers may learn about such things as Colorado's diamond industry or ground water resources, or about how avalanche forecasting and geologic hazards planning can save lives and protect property. This popular newsletter, with a circulation of 13,000, has been an effective means of informing Coloradoans about CGS' resources and staff capabilities.

C. Addressing the Specifics of HB04-1359

The following sections address the specific items outlined in HB04-1359 to be included in the study:

a) A COMPARATIVE ANALYSIS OF THE BENEFITS AND THE DISADVANTAGES OF LOCATING THE COLORADO GEOLOGICAL SURVEY AT THE DEPARTMENT OF NATURAL RESOURCES OR AT THE COLORADO SCHOOL OF MINES, WHICH SHALL INCLUDE THE POTENTIAL EFFECTS ON THE SURVEY OF BEING RELOCATED TO THE COLORADO SCHOOL OF MINES.

b) AN ANALYSIS OF THE <u>BENEFITS OF RELOCATING</u> THE COLORADO GEOLOGICAL SURVEY TO THE COLORADO SCHOOL OF MINES OR MAINTAINING THE SURVEY WITHIN THE DEPARTMENT OF NATURAL RESOURCES, WITH THE GOALS OF IDENTIFYING WHICH LOCATION IS IN THE BEST INTERESTS OF THE RESIDENTS OF COLORADO AND WHICH LOCATION IS MOST LIKELY TO RESULT IN A STRONG, INNOVATIVE, AND ENTREPRENEURIAL SURVEY.

The Committee felt that these two sections of the legislation are best addressed together in terms of a comparative analysis. We will address benefits at both locations and also present analysis of specific issues in regard to location including physical location and infrastructure, personnel issues, ability to receive non-state grants and funding, and publications. Section IV of the report, *ISSUES RELATED TO RELOCATION*, provides a more detailed discussion on the issues relating to space, parking, transportation, personnel issues, publications, and the CSM library.

The committee believes that the disruption of the personal and professional lives of a group of dedicated state employees should be a significant factor in considering whether to move the already effective Colorado Geological Survey to a new location. However, the committee recognizes that making the Colorado Survey the most effective possible for the residents of Colorado is the primary goal of this report.

Option 1 - Remaining with the Department of Natural Resources and not relocate to the Colorado School of Mines

Remaining with the Department of Natural Resources and not relocate to the Colorado School of Mines	
BENEFITS	DISADVANTAGES
▪ Ability to easily interact with other state government agencies ▪ Lack of short- and long-term disruption of the CGS culture and personal lives of staff ▪ Little risk of losing severance tax funding ▪ CGS could continue to serve and collaborate with all institutions of higher education in the state including CSM ▪ Responsiveness to state needs would be maintained ▪ Maintains existing overhead structure ▪ Central location for multiple stakeholders	▪ Inadequate space ▪ Multiple layers of management ▪ Lengthy grant approval process

Benefits of Remaining in Denver with DNR and not relocate to the Colorado School of Mines

The personal lives of CGS employees would not have to be disrupted. The existing, close working relationships with other agencies within DNR could be maintained. The availability to respond quickly to legislative requests could be maintained. The loss of time and money associated with a major move would not have to be incurred. Continuation of the mission of applied science and public service would be assured. Central access for citizens, legislators, and the professional earth science community would be continued. Existing collaboration with CSM and ALL institutions of higher education in the state could be maintained and strengthened. Severance tax funding would not be put at risk. Access to the CSM library would still be available as it is to all state employees.

It should be noted here that having the CGS located in the Centennial Building in downtown Denver has advantages that are not readily apparent. For example, if the CGS should physically move to CSM but not administratively move, there would be a camaraderie lost between the CGS staff and the DNR staff in situations such as budget development, accounting questions/transactions, contract management, purchasing, interaction with the Executive Director's Office, etc. In addition, because of the physical location of the geologists, other DNR agencies have become aware of the skills of CGS and hire them to do work that may have been contracted out in other situations. This is evident in the amount of work that the agency has performed for the Colorado Water Conservation Board, the Division of Parks and Outdoor Recreation, the Division of Wildlife, the Division of Minerals and Geology, and the State Land Board. Some of this work comes about through chance meetings in the hallway or elevator.

Disadvantages of Remaining in Denver with DNR and Not Relocate to the Colorado School of Mines

Space needs could remain a problem. Multiple layers of management and the situation of a science agency being a part of a regulatory division would probably continue. Public testimony recommended that the State Geologist should be reinstated to Division Level status as outlined in CGS' enabling statutes. A burdensome process for applying for federal grants would remain in place. An Advisory Committee, that was abolished in 1998 and was recommended to be re-established in public testimony, might not be allowed.

Option 2 - Relocating and Reporting to the School of Mines

Relocating and Reporting to the School of Mines	
BENEFITS	DISADVANTAGES
▪ Ability to utilize faculty ▪ Ability to utilize student assistants ▪ Proximity to CSM library ▪ Access to laboratory and analytical facilities ▪ More flexibility in applying for federal grants ▪ Proximity to federal agency offices	▪ Short- and long-term disruption in operations ▪ Possible loss of response to state needs ▪ Perception of cultural differences ▪ Impact on funding ▪ Cost of relocation ▪ Availability of suitable space ▪ Logistical concerns

Benefits of Relocating and Reporting to the School of Mines

1. **Ability to Utilize Faculty**
   The most tangible benefit of a move of CGS to the CSM campus would be the co-location with the State's largest group of applied geoscientists and engineers. CGS would be able to engage existing faculty in a wide variety of fields to help with CGS projects. This pool of expertise would allow better examination of state problems and potential, for instance in the field of water resources and quality. Not only would CGS have access to the 28 faculty and research staff in the Department of Geology and Geological Engineering, but they would also be able to interact with faculty and staff in the Departments of Geophysics, Petroleum Engineering, Mining Engineering, Chemistry and Geochemistry, Chemical Engineering, and the Divisions of Engineering and Environmental Science and Engineering all of which have expertise that would be valuable to CGS and the State of Colorado.

2. **Ability to Utilize Student Assistants**
   In addition, CGS would have access to a large pool of motivated and talented undergraduate and graduate students familiar with the CGS mission who could provide cost-effective personnel for projects.

3. **Proximity to CSM Library**

   Co-location would provide CGS proximity to the CSM library that maintains a large collection of geoscience and engineering publications, is a designated federal government repository, and has a major collection of Colorado geoscience data. CGS would continue to have access to CSM's online library services, including GEOREF, which would allow cost savings from the current situation. CGS also maintains records that could either be added to the CSM library or which could remain separate within a new CGS facility.

4. **Access to Laboratory and Analytical Facilities**

   CGS would have access to CSM's aggregates preparation lab and the new geotechnical laboratory - CGS already utilizes the rock preparation facilities in the Department for thin sections. Other analytical equipment in the Department of Geology and Geological Engineering that would be available for CGS use at reduced cost would be the scanning electron microscope, the electron microprobe, X-ray diffraction, stable isotopic lab with a state-of-the-art mass spectrometer for measurement of solid, liquid, and gaseous materials, cathodoluminescence microscope with digital image capture, transmitted and reflected light microscopes with digital image capture, and the fluid inclusion laboratory.. Other departments on campus also have equipment and laboratories that could contribute significantly to the CGS mission including the Departments of Geophysics (ground penetrating radar, etc.) and Chemistry and Geochemistry (water analysis lab), and the Division of Environmental Science and Engineering (environmental analysis labs).

5. **More Flexibility in Applying for Federal Grants**

   While CGS has already been successful in applications for federal grant monies, a co-location with CSM could potentially enhance their success as it has at other state surveys co-located with universities. Closer ties to CSM faculty would also provide additional opportunities for both faculty and CGS staff to collaborate on grant applications, potentially making them stronger in the current environment which favors interdisciplinary and inter-agency research. Depending on CGS's reporting structure, CGS personnel might also be able to take advantage of CSM's Office of Research Services that aid faculty in writing and submitting grants to different federal agencies.

6. **Proximity to Federal Agency Offices**

   At CSM the CGS would be closer to the Federal Center where several federal cooperators with which they have many joint interests have offices. Prime examples are the US Geological Survey (USGS) and US Forest Service (USFS).

Disadvantages of Relocating to CSM both physically and administratively

1. **Short- and Long-Term Disruption in Operations**
   Planning and accomplishing a move of this magnitude would require staff time that would otherwise be devoted to more fruitful tasks. Lack of publication sales during this time period would result in a revenue decline. Disruption to the statutorily required deadlines for land-use reviews could seriously affect CGS service to counties and municipalities. A long-term disruption would result in the need for CGS geologists involved in land-use review to travel to the Centennial Building to use the mine subsidence library and state archives. The potential exists for losing highly qualified and experienced professionals who may not wish to make the move to CSM.

2. **Possible Loss of Response to State Needs**
   Being removed from the executive branch of state government would tend to make CGS less responsive to the needs expressed by the Executive Branch. The recent study of underground water reservoirs and aquifer recharge was an example where CGS, at the request of DNR, drastically re-ordered priorities in order to serve an important state need in helping with Colorado's severe drought. DNR would be less likely to ask CGS to perform such studies because they were no longer a part of DNR, and CGS would have less incentive to respond.

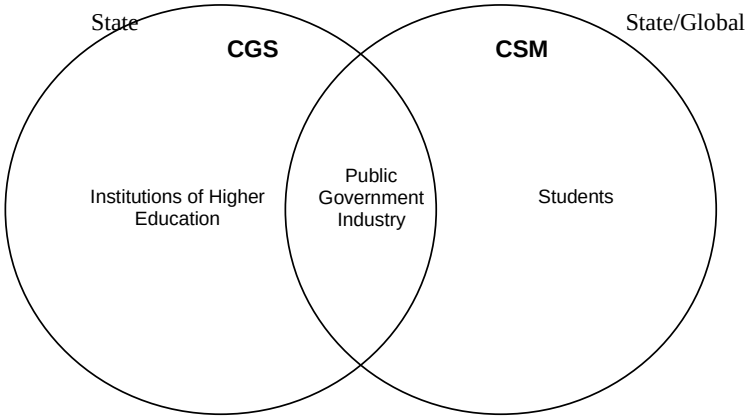
3. **Perception of Cultural Differences**
   CGS is a service organization whereas CSM is primarily an educational institution. These differences in mission may result in conflicting cultures. There is a serious concern on CGS' part that a move to CSM will change its applied science culture; CSM has few concerns about this issue and feels the CGS personnel would find a very welcoming atmosphere.

   CGS' neighboring surveys that are a part of an academic administrative structure average 54% of their staff with PhDs, whereas those that are part of the Executive Branch average only 22%. Surveys reporting to universities tend to conduct more basic research, as seen in the questionnaire sent out to surrounding surveys. Surveys in the executive branch report that 98% of their research is applied, whereas those in universities report that 78% of their research is applied. Although CSM is more oriented toward applied science and service than most academic institutions, the push to hire more PhDs may nevertheless be present.

   CGS and CSM have various constituencies some of which overlap. The following list and graphic summarize this situation.

CONSTITUENTS

CGS	CSM
General Public	Students (state/global)
Industries	Industries (state/global)
State Agencies	Government (state/global)
Institutions of Higher Education	K-12
K-12	



4. Impact on Funding

A strong concern in public testimony from CGS' constituents is whether its Severance Tax funding might be put at risk by moving to an academic institution. That funding allows CGS great flexibility in pursuing research such as the underground water storage study, and for providing matching funds in pursuing grant opportunities. Constituents also expressed concern that CSM's higher overhead rates, if applied, may have a negative impact on CGS' ability to obtain funding from state agencies and certain granting agencies, as well as a negative impact on CGS budget. However, CSM would be able to set overhead rates for CGS that might not be as high as those used for its academic research. It is possible that CGS might lose its grant to administer the Subsidence Library, which is used extensively in our Land Use Review work.

There may be a negative impact to CSM as some of the revenue sources from CGS may cause CSM to exceed the less-than-10% funding from state or local governments threshold in order to attain enterprise status.

5. Cost of relocation

The cost of the physical move of CGS to CSM would be substantial.

6. **Availability of suitable space**

   The CGS currently occupies a total of 6,638 net square feet (sq. ft.) of office space. CSM has approximately 6,500 sq. ft. of office space currently available at the Hall of Justice building that could accommodate CGS at approximately the same space it currently occupies. CGS office space needs were analyzed in 2001 and the study recommended 13,364 square feet of office space for the agency. Thus, to allow growth of CGS, it will be necessary to provide more space than is currently easily available at CSM. Other space options may exist at CSM. If a decision is made to go forward with a move, the recommendation should specify that all potential space options be considered. It is also possible that a decision to move CGS to CSM be made contingent upon new, purpose-built space be provided.

7. **Logistical Concerns**

   Because public transportation to CSM is less than ideal, more CGS personnel would be required to drive and park than they currently do in their downtown location. This will add additional parking needs on the CSM campus. While parking at CSM may currently not be adequate, it is something that can be easily addressed by CSM administration and is part of their long-range planning.

Option 3 - Benefits of Relocating to CSM physically, but remaining part of DNR administratively

Benefits of Relocating to CSM physically, but remaining part of DNR administratively	
BENEFITS	DISADVANTAGES
▪ Ability to interact more broadly with both state and university personnel ▪ Proximity to students ▪ Proximity to CSM library ▪ Enhanced cooperation ▪ No impact on funding ▪ Potential for increased federal grants ▪ Proximity to federal agency offices	▪ Short- and long-term disruption in operations ▪ Increased responsibilities for State Geologist and need for one additional FTE ▪ Loss of proximity to DNR Agencies ▪ Possible Loss of Subsidence Library ▪ Cost of relocation ▪ Availability of Suitable Space ▪ Computer access to DNR IT Infrastructure

Benefits of Relocating to CSM physically, but remaining part of DNR administratively

1. **Ability to Interact More Broadly with State and University Personnel**
   The most tangible benefit of a move of CGS to the CSM campus would be the co-location with the State's largest group of applied geoscientists and engineers. CGS would be able to engage existing faculty in a wide variety of fields to help with CGS projects. Not only would CGS have access to the 28 faculty and research staff in the Department of Geology and Geological Engineering, but they would also be able to interact with faculty and staff in the Departments of Geophysics, Petroleum Engineering, Mining Engineering, Chemistry and Geochemistry, Chemical Engineering, and the Divisions of Engineering and Environmental Science and Engineering.

2. **Proximity to Students**
   CGS would have access and proximity to a large pool of motivated and talented undergraduate and graduate students familiar with the CGS mission who could provide cost-effective personnel for projects.

3. **Proximity to CSM Library**
   Co-location would also provide proximity to the CSM library which maintains a large collection of geoscience and engineering publications, is a designated federal government repository, and has a major collection of Colorado geoscience data. CGS would have access to CSM's online library services, including GEOREF, which would allow cost savings from the current situation.

4. **Enhanced cooperation**
   Existing collaboration with CSM and ALL institutions of higher education in the state could be maintained and strengthened.

5. **No Impact on Funding**
   Severance tax funding would not be put at risk nor would CSM enterprise status.

6. **Potential for Increased Federal Grants**
   While CGS has already been successful in applications for federal grant monies, a co-location with CMS could potentially enhance their success. Closer ties to CSM faculty might also provide additional opportunities for both faculty and CGS staff to collaborate on grant applications, potentially making them stronger in the current environment, which favors interdisciplinary and inter-agency research.

7. **Proximity to Federal Agency Offices**
   At CSM the CGS would be closer to the Federal Center where several federal cooperators with which they have many joint interests have offices. Prime examples are the US Geological Survey (USGS) and US Forest Service (USFS).

Disadvantages of Relocating to CSM physically, but remaining part of DNR administratively

A move would cause disruption to CGS' ongoing activities and to some CGS personnel. The lives of CGS employees would have to be disrupted to accomplish a move. Public transportation to CSM is not efficient. Increased commuting times for CGS employees would be non-productive. Considerable time and productivity would be lost during preparation for, and carrying out, a major move.

The existing close, working relationships with other agencies within DNR would be at risk. CGS would have to maintain an office with DNR to conform with the enabling statute that states "The office of the state geologist shall be located and headquartered close to or as near as possible to the offices and headquarters of the other agencies and divisions under the executive director of the department of natural resources." Enabling efficient computer connections to the DNR from CSM could be a costly obstacle.

The availability to respond quickly to legislative requests could be more difficult than presently without constant attention from the State Geologist. Central access for citizens, legislators, and the professional earth science community would no longer be available. CGS would no longer have easy access to the monthly meetings of the many professional societies that hold meetings downtown, e.g., RMAG, AIPG, SEPM, and SEG, though it would have access to other meetings by other groups routinely held on the CSM campus.

c) SUGGESTIONS REGARDING THE MANNER IN WHICH THE COLORADO GEOLOGICAL SURVEY SHOULD BE STRUCTURED IF THE SURVEY MOVES TO THE COLORADO SCHOOL OF MINES, SO THAT THE SURVEY MAY APPROPRIATELY ADDRESS REQUESTS FOR SCIENTIFIC INVESTIGATIONS, INFORMATION, AND POLICY ANALYSES FROM STATE AND LOCAL GOVERNMENTAL ENTITIES.

Current Structure

CGS is the only agency in DNR that reports to a Division Director rather than the DNR Executive Director. This structure conflicts with its enabling statutes, "There is hereby established the Colorado geological survey, which is a division of the department of natural resources" (34-1-101). The enabling statutes further specify, "The office of the state geologist shall be located and headquartered close to or as near as possible to the offices and headquarters of the other agencies and divisions under the executive director of the department of natural resources."

Currently CGS reports to the Director of the Division of Minerals and Geology. This situation arose through a failed attempt in the early 1990s to merge the Oil & Gas Conservation Commission with the Mined Land Reclamation Board, and the Geological Survey. The oil and gas constituency successfully opposed the merger, but a compromise placed the geological survey under the newly-created Division of Minerals and Geology. However, the State Geologist was to be considered as a Division head. An advisory committee was also created for the geological survey. In order to clear up the confusion created by conflicting statutes, the Joint Budget Committee introduced a bill in 2002 that

would clean up the conflicting statutes and re-establish the CGS as a division as in the enabling statute. The bill passed the legislature with only two dissenting votes and was vetoed by the governor.

Suggested Structure at CSM

The committee identified several items that would be important in structuring the CGS should it be moved to CSM. The primary items identified, address funding structure and reporting structure. These are important for sustaining CGS's current mission and goals.

The following are items important regardless of reporting structure:

- Severance Tax funding stays intact
- Line item budget for the survey
- Re-establish a CGS Advisory Committee

The following items are important if CGS is administratively a part of CSM:

- "Survey Faculty" status for all geoscientists with a Bachelor's Degree
- State Geologist reports directly to the president if CGS becomes part of CSM administratively
- State Geologist becomes tenured faculty if CGS becomes part of CSM administratively

Other items address office space, staff, and research amenities and are important regardless of reporting structure:

- Minimum of 10,000 contiguous square feet of quality office space at rents comparable to the Centennial Building
- Tuition benefits for CGS staff, consistent with current CSM staff
- Free use of laboratory facilities and equipment

d) AN ANALYSIS OF THE FINANCIAL IMPLICATIONS AND THE IMPACT ON THE LEVEL OF SERVICE TO THE CUSTOMERS OF THE COLORADO GEOLOGICAL SURVEY IF THE SURVEY IS RELOCATED TO AND RESTRUCTURED WITHIN THE COLORADO SCHOOL OF MINES IN COMPARISON TO ITS CURRENT LOCATION AND ADMINISTRATIVE STRUCTURE. THE REVIEW SHALL INCLUDE AN ESTIMATION OF THE COSTS AND POTENTIAL FUNDING SOURCES FOR ACTIVITIES THAT MAY BE UNDERWRITTEN BY THE COLORADO SCHOOL OF MINES FOR THE COLORADO GEOLOGICAL SURVEY AND AN ANALYSIS OF THE POSSIBILITY OF ENHANCING THE SURVEY'S ACCESS TO AN INCREASED FUNDING BASE THROUGH GRANT MONEYS.

Funding and Financial Implications

Financial Implications of Relocating	
Estimated Cost of Move	$10,000[1] - $30,000
Cost required to prepare space at CSM for the CGS (IT connections, access, office preparations).	$150,000 - $250,000

It is unclear at this time how much of these costs would be met by CGS and how much by CSM. This would probably be decided by legislative mandate.

1. **Possible loss/gain of publication revenues**
   With the ability to sell CGS publications in more venues (CSM bookstore, Geology Museum), publications revenues will probably remain constant, or increase, with a move to CSM. Online sales should not see any change.

2. **Remuneration for work performed for other State Departments**
   With the possibility of CSM attaining enterprise status, an administrative move to CSM would probably not impact CGS's business. CGS currently receives cash revenue from various sources, and if CSM were an enterprise, all TABOR restraints would be removed. This would impact only Land Use Reviews/Publication Sales and the Colorado Avalanche Information Center fees collected for education.

   However, there could be a negative impact to CSM if some of the revenue sources from CGS cause CSM to exceed the less-than-10% funding from state or local governments threshold in order to attain enterprise status. Initial analysis by CSM's Office of Finance and Operations believes this would not likely be the case; however, this is not a certainty being that this could be uncharted waters. If a move to CSM and administrative change is considered, we would suggest getting a formal opinion on this possible situation. In FY03-04, CGS received approximately $2,886,000 in revenues from state and local governments (which includes $1,970,861 of severance tax).

3. **Severance tax issues**
   i. How it works – Severance tax is a tax levied on minerals and mineral fuels that are "severed" from the state. The tax is paid by the industries that reap the profit from those natural resources. These severance tax receipts are, by statute, to be held in trust as a replacement for depleted natural resources, for the development and conservation of the state's water resources, and for the use in funding programs that promote and encourage sound natural resource planning, management, and development related to minerals, energy, geology, and water. Yearly deposits into the severance tax fund are split 50% to the perpetual base account and 50% to the operational account. For programs within the Colorado Geological Survey, up to 20% of the total moneys in the operational account may be used to fund CGS. CGS has never used its full 20% allocation and until the operational account was tapped to

[1] Per the February 12, 2004 fiscal note for HB04-1359. This was based on a similarly sized state agency moving costs.

help fight wildfires and to aid in the general fund shortfall, the CGS received an average of 3% to 6% of the total moneys. Each year, the CGS must request and justify to the OSPB and JBC its severance tax funding in the same way it requests and justifies its total base funding.

The severance tax statutes are very clear which agencies may request and receive severance tax funds. The industry and legislature have been reluctant to award severance tax funds to any agency that is not listed in the enabling statutes. Historically, the industry has objected to severance tax funds becoming available to Higher Education, as shown by the governor's line item veto of $225,000 of severance tax funding to the Colorado Energy Research Institute (with matching funds from CSM) last year.

ii. Can it be used for educational purposes if located at Mines? As the severance tax statutes are currently written, it appears that the severance tax funds could be used for CGS if it were located at Mines, as long as the funding was only for CGS programs which fit its mission. It could not be used for educational purposes outside of the CGS mission.

4. Additional funding possibilities

i. A number of the costs of operation and space for the Survey, if physically and administratively part of the CSM campus could be underwritten by the Colorado School of Mines. For example, the current costs of an auxiliary operation such as continuing education are well below the market cost of leasing space from the private sector.
ii. Possible discounts in purchasing – since both CGS and CSM are under the State purchasing system, there seem to be no additional purchasing discounts that could be obtained.

5. Impacts of funding moving from a traditional state department to a college or university?

i. Authorized FTE – The CGS has its FTE authorized by the legislature and it may be changed only via the decision item process. The CSM does not have its FTE authorized by the legislature. This would potentially allow CGS more flexibility in managing its workforce needs.
ii. Roll forward of unspent funds – Unspent severance tax does not roll forward for CGS, it returns to the severance tax operational account. Other earned unspent revenue rolls into the CGS fund balance, which can be used during times that revenues fall short of expenditures. While the non-severance revenue roll-forward would not change with a move to CSM, it is unclear whether unspent severance funds would have to be returned or could be rolled forward if they came to CSM.

6. Rent/Space considerations.

For the Centennial building space, the CGS pays $55,128 per year ($8.30 per sq. ft.), of which $22,051 must be paid from cash revenue, $22,051 is subsidized with severance tax pots, and $11,026 is paid from federal grants. CGS also pays $220 per month for the Public Storage space. The storage at 6060 Broadway is free.

The building in which CSM proposes to house CGS, if the move is made in the near term or immediate would be the old Jefferson County Hall of Justice. CSM has indicated that 6,573 sq. ft. may be available in that building, spread between two floors. There are 4,550 assignable square feet that may be available on the 1st floor and 2,023 assignable square feet available on the second floor. The space on the second floor is not contiguous; it is spread out in three areas. In addition, substantial remodeling would be required in order to make the area useful to CGS.

CSM has the potential for offering comparable rental rates for CGS. For example, we charge SPACE (Special Programs and Continuing Education) a rate very comparable to the current CGS rate. If the move does not occur immediately, other space may become available on campus or new space may be purpose built for CGS. A longer time frame for the move could allow for better planning of potential space.

7. Cost of IT Services.

The cost of CGS's current IT services is included in funds transferred to EDO called EDO indirect. See next section for full discussion.

8. Overhead rates.

CGS pays a fee to the Executive Director's Office (EDO) called EDO indirect. This fee covers all services that the CGS requires – Accounting, purchasing, payroll, human resources, and IT. The fee is a percent of personal services charged to federal grants. In FY04-05, the EDO indirect rate is 7.71%. In past fiscal years, the amounts were as follows: FY01-02, $23,038; FY02-03, $38,595; FY03-04, $24,889.

In addition to a low overhead rate, the CGS receives additional funding and/or spending authority through a mechanism called "pots." For FY05-06, that amount is $395,000, of which $174,134 is severance tax. Pots is additional funding/spending authority that covers health, life, dental costs; short term disability costs; salary survey costs; pay for performance costs; workers comp costs; risk management costs; vehicle costs; lease space costs; legal costs; and capital outlay. Some portions of pots fully pay CGS costs that would be incurred, such as workers comp, risk management, and legal. All of the health, life, and dental costs for the staff are covered by pots, in addition to the cost of the short-term disability, salary survey, and pay for performance.

If CGS moved administratively to CSM, the financial impact of the move depends on CGS' ability to continue to utilize severance tax funds in the current manner. A physical move but no change in reporting would not impact current overhead rates.

Unlike CSM, CGS's long bill appropriations are increased each year by the option 8 calculation, which is the terminology for an annual increase that takes into account the increased costs of health insurance plus increased salaries due to salary survey and pay for performance.

The CGS and the CSM have varied indirect cost recovery rates depending on the type of grant received. For general operating purposes, the Colorado Geological Survey has two

rates, which total 21.0 percent. Of this rate, 8.4 percent is paid to the Executive Director's Office for general operating support and 12.6 percent is paid for from the federal fund monies for administrative costs to operate the grant.

The CSM assesses a rate of 22.0 percent for on-campus sponsored activities and 55.0 percent for organized academic research activities. For purposes of this transition, if the CGS is moved to the CSM and becomes apart of the administrative structure, the CSM expects it would charge the CGS its auxiliary rate of 8.5 percent plus their expenditures associated for the cost of their space. The 8.5 percent would include items for basic services such as accounting, payroll, and Internet access. (A complete comparison is provided in Appendix O.)

e) IDENTIFICATION OF THE EXTENT TO WHICH COLLABORATIVE EFFORTS IN THE AREAS OF BASIC GEOLOGIC RESEARCH AND APPLIED GEOLOGY IN COLORADO SHOULD BE DEVELOPED WITH THE DEPARTMENT OF NATURAL RESOURCES IF THE BENEFITS OUTWEIGH THE COSTS OF RELOCATING THE COLORADO GEOLOGICAL SURVEY TO THE COLORADO SCHOOL OF MINES.

Existing Collaboration

Collaboration between CGS and CSM has been solid during the recent past. Over 50 % of the geoscientists at CGS have, or are working on, degrees from CSM which provides a natural linkage. Collaborations in the recent past have been extensive and include using CSM faculty and students in the mapping program, CGS presentations and field trips for classes and lecture series, joint grant proposals with faculty, co-authoring of technical articles with faculty, and joint planning for geotechnical conferences with faculty.

It should be noted that CGS desires to increase collaboration with ALL institutions of higher education within the state. In recent years CGS engaged in collaborative efforts with students and/or faculty from Adams State College, Colorado State University, University of Colorado-Boulder, University of Colorado-Denver, University of Northern Colorado, Fort Lewis College, Mesa State College, and Western State College.

Developing Further Collaboration

Caution should be exercised so that the other institutions in Colorado don't view CGS as the CSM geological survey that exists only for the benefit of CSM. With that caveat, the following are potential ways of increasing collaboration:

- Offer CGS personnel opportunities to teach courses and be granted adjunct faculty status.
- Grant CGS personnel access to laboratory facilities and technical equipment at CSM.
- Offer reduced tuition to CGS personnel for courses taken at CSM.
- Institute a formal internship program for CSM students with CGS.
- Appoint liaison contacts for each organization.
- An MOU to formalize existing and potential collaboration should be pursued.

(Appendix C and D summarize the current and proposed collaboration between Colorado Geological Survey and Colorado School of Mines).

f) AN ANALYSIS OF THE POTENTIAL BENEFITS OF HAVING A PROGRAM WITHIN THE COLORADO GEOLOGICAL SURVEY THAT PERFORMS OUTREACH AND DISSEMINATES INFORMATION TO RESIDENTS OF COLORADO RELATING TO GEOLOGY, SIMILAR TO THE COLORADO COOPERATIVE EXTENSION SERVICE ADMINISTERED BY COLORADO STATE UNIVERSITY, REGARDLESS OF WHERE THE COLORADO GEOLOGICAL SURVEY IS LOCATED.

The Colorado Cooperative Extension Service is located in 57 Colorado Counties, has been in existence for 90 years, and is funded at the $24 million level. It employs 35 FTE extension specialists, 187 extension agents, 22 paraprofessionals, and 131.5 support staff most of whom are part-time employees. Another agency that operates like the Extension service is the Colorado State Forest Service (CSFS). It has 19 district offices and employs 135 FTE, not including temporary employees or volunteers. The CSFS annual budget is approximately $8.8 million.

It is unrealistic to expect CGS and/or CSM to duplicate these levels of personnel and funding for a geological extension service given their current staff and funding levels. However, it does appear to make sense to make use of the Extension Service's network by forming a partnership with CSU and holding seminars for Extension personnel on CGS' services in the area of water resources, geologic hazards, and mineral resources. (See Appendix L for more details.)

g) AN ANALYSIS OF THE LOCATIONS WITHIN STATE GOVERNMENT AND THE STRENGTHS AND WEAKNESSES OF THE ADMINISTRATIVE STRUCTURES OF GEOLOGICAL SURVEYS IN THE SURROUNDING WESTERN STATES.

Each state's geological survey has its own unique role and mission as defined in state statutes or other procedural requirements. In order to determine the experiences of other state geological surveys for a comparison with the case in Colorado, the committee prepared a questionnaire that was sent to 13 geological surveys in neighboring states. In most cases the state geologist completed the questionnaire. It is important to acknowledge that every state survey is different. These differences are a product of different state statues for each of the surveys.

The following outlines how other surrounding western states are organized and analyzes what seem to be strengths and weaknesses of the various models. It does not guarantee that what works in one state could work in Colorado without a deeper level of analysis. Summary tables in Appendix R provide a summary of the various states based on a survey conducted as part of this study. We will also highlight three examples of other states that merit attention.

Survey of Neighboring States
Directors of the state geologic surveys in New Mexico, Arizona, Utah, Nevada, Idaho, Wyoming, Montana, North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas were asked to respond to a questionnaire designed by the committee (Appendix Q). All 13 responded (Summary in Appendix R).

Administrative Structures
Five of the neighboring surveys are part of the executive branch of government and the remaining eight are part of academic structures. This is anomalous to the national trend where 70% are part of an executive branch. Two of the four that are part of the executive branch are physically located on college campuses.

Comparisons of Executive Branch Group with University Group
Six executive branch surveys participating in the survey (including CO) are compared to the seven university surveys (Texas was excluded from this comparison because it is so anomalous). Averages on several measures were calculated for each of the two groups in order to determine whether one group appeared to be stronger than the other. It appears that the executive branch group is the stronger on these measures.

The total annual budgets of states range from $1 million to $15 million depending mostly on the size of the state and the size of its survey. Most states' budgets are line items. Funding for the state surveys generally come from state appropriations, grants and federal monies. Where the survey is located does not seem to affect the funding.

The average annual budget of the executive branch surveys is 5% higher than those of the university surveys. Interestingly, the average revenue-per-FTE is 14% higher, suggesting more efficient use of funds by the executive branch group. It appears that executive branch surveys are getting more work done per person than university-based surveys. The average annual publication sales of the executive branch surveys are more than double those of the university surveys. The average number of employees in the university surveys is 42% higher than in the executive branch group and the average total square footage is 33% higher.

The executive branch group report that 98% of their research is applied research whereas the university surveys report that only 78% of theirs is applied. Half of each group report that they have advisory responsibilities to local governments. Sixty three percent of the university surveys and 60% of the executive branch group have advisory committees.

There is a wide range of program specialties among the states. This did not seem to depend on location of the surveys. The surveys that are not located on campus do not currently have access to external (online) resources. The surveys on campus have full access to the University library's resources, both hardcopy and online. CGS employees currently have full access to CSM Library's hardcopy and online resources.

Some surveys own their own drill rigs; however, no survey that is located off campus owns their own drill rigs. About 75% of the surveys own their own drill core storage facilities. Again, this does not seem to depend on the location of the survey. Number and types of vehicles available to the surveys vary widely, as well.

Publication sales vary from $2,000 to $285,000. However, the size of the location where publications are sold tend to be much larger with surveys located on a University campus. Auxiliary revenues remain with every survey besides Wyoming and North Dakota. Most surveys do participate in Internet sales. This does not depend on location of the survey.

Overall, every survey is very involved with outreach activities. The surveys spend anywhere from 15% to 60% of their time on outreach activities. The time spent as well as the type of outreach conducted does not seem to be affected by location of the survey. From the questionnaire, it can be concluded that the states that have surveys located off campus have more freedom to contact state legislatures about the state budget.

For those surveys who are part of an academic structure one-half of the state geologists report to a vice-president, ¼ report to a president, and ¼ report to a dean. The state geologist reports to an academic entity in all cases where the survey is located on campus. For the surveys located elsewhere, the state geologist reports to either the governor, a state dept. head, or in Colorado's case: a division director. In every scenario where the survey is part of the executive branch, except Colorado, the state geologist is appointed by the governor. Most state surveys do not have regulatory authority and most executive-branch state geologists are not part of the state civil service system. About one half of the states contain an advisory board or committee. This statistic does not seem to have any correlation with the location of the survey.

About 25% of the state legislation for the surveys does not authorize the survey to conduct basic research. Generally, the other agencies in the state do not have statutory authority to produce and provide geologic information. If they do, it is specific to that agency's expertise (water/environmental issues). Most state land and resource management agencies will refer to the state geologic survey for geologic information they must have in order to carry out their missions. Again, they may consult other groups for specific knowledge that the geologic survey does not focus on (surface water etc.), but the geologic information will come from the state survey and to a lesser extent the USGS.

Three Examples from Surrounding Western States

<u>Texas Bureau of Economic Geology (BEG) as a Model for CGS</u>
It has been suggested by initiators of this bill that the Texas geologic survey would be a good model for CGS to evolve toward. The BEG is a renowned research group and their Director, Scott Tinker, is admired nationwide. They are conducting fundamental research into many areas that are of importance to the petroleum industry. This is attested to by the fact that 40% of their funding comes from the petroleum industry.

Funding
Representative Ramey Johnson stated many times that the purpose of her bill was to assure stable funding for the Colorado Geological Survey. Supporters of the Geological Survey worked hard to achieve stable funding for CGS. Finally in 1996 the supporters of CGS were successful in gaining money from Colorado's Severance Tax Fund (STAX). To this point, the revenues from STAX have provided CGS with a stable base and the flexibility to secure

external funding successfully. Loss of STAX funding for CGS would create severe consequences in stability and flexibility.
The BEG suffered funding losses from 1996 to 2000 that resulted in their staffing being reduced from 200 people in 1996 to 125 people in 2000 (Appendix R). BEG is not considered a model for stable funding.

Research
All of CGS' research is geared toward its mission of helping to identify and mitigate geologic hazards and promoting responsible development of Colorado's mineral and mineral fuel resources. CGS does not focus on basic research, but focuses on applied research, although CGS occasionally makes significant, new scientific discoveries as a part of its geologic mapping program.

BEG is an anomaly in the 50 states. It is a research institute of the University of Texas primarily serving the petroleum industry. It may not serve as a good model for CGS because CGS' entire focus is on serving the needs of the citizens of the State of Colorado, not just serving the needs of the petroleum industry as in Texas. CGS does, however, conduct studies about mining and petroleum whose results can be used by citizens, industry, and policy makers alike.

The Arizona Experience
Until 1989 the Arizona Geological Survey (AGS) was part of the University of Arizona with the State Geologist reporting to the Dean of the College of Science. It has been reported that the staff felt that they were treated as second-class citizens relative to the academic faculty. The state geologist was told that he would not receive further pay raises if he did not bring in more basic research grants. He was further encouraged to de-emphasize public service. Being committed to public service, as most state geologists are, the state geologist asked the legislature to remove them from the university and place them under the executive branch of state government, which the legislature did. They have operated within the executive branch since 1989. The percentage of PhDs on the AGS is anomalously high (three times higher) compared to other neighboring surveys in executive branches, due in large part to their previously being a part of the university.

The Nevada Experience

The Geological Survey of Nevada is similar to the CGS in terms of annual budget ($5.6 million vs. $4.6 million for CGS), staff (37 each), and number of geoscientists on staff (18 vs. 20 for CGS); both survey focus over 90% of their effort on applied geologic problems facing their states and both have advisory responsibilities to local government. The Nevada survey is located on the campus of the University of Nevada Reno. The State Geologist in Nevada reports to the Director of the Mackay School of Earth Sciences and Engineering, which would be roughly equivalent to the Vice President for Academic Affairs at CSM. Unlike the CGS, the Nevada survey receives approximately $3.6 million of its budget from federal grants and contracts, with approximately $300,000 of this from the National Science Foundation. This compares with federal funding of approximately $1.2 million from federal sources at CGS. The difference is attributable in part to the Nevada surveys co-location with the university which allows it more opportunities for attracting federal grants. The state

geologist in Nevada is comfortable with the location on campus and feels this has provided opportunities for both his staff and the geosciences (and environmental and engineering) faculty in the university to interact through grant writing and shared research. The Nevada survey is able to utilize student workers in a variety of ways in its operations. The state geologist reports that he is still free to interact with state government agencies and officials despite their location away from the capitol. The state geologist also reports that co-location on campus and the possibility of becoming adjunct university faculty is a strong draw in attracting top talent to the Nevada survey.

D. ISSUES RELATED TO RELOCATION

Specific issues related to the relocation of the CGS include infrastructure/physical location, personnel issues, ability to receive non-state grants and funding, and publications.

Infrastructure / Physical Location

a. Space

Current

The CGS currently occupies 5,170 net sq. ft. on the 7th floor of 1313 Sherman, and 1,468 net sq. ft. on the second floor, totaling 6,638 net sq. ft. This space is occupied by approximately 35 permanent and temporary staff, along with 3-5 contractors at any one time. It includes a GIS laboratory (which contains the GIS computers, printers, and plotters) and is occupied by the temps and contractors as needed. Also included in this space is 300 sq. ft. of the CGS technical library contained in a movable shelf system. This space equates to 184 square feet per FTE. This number is extremely low in comparison to the same measure in neighboring state surveys. The average "square-feet-per-FTE" for the 13 states in the survey was 526. Only one survey had a lower amount of space per FTE than CGS.

In addition to the office space, CGS has approximately 100 sq. ft. of storage space in 3B (the third level of the basement of the same building. The CGS also has 1,200 sq. ft. of storage space at 6060 Broadway (which is totally full) and has many pallets of books stacked in the aisles at the same location. Approximately three months ago, CGS also rented a 10x30 storage space from Public Storage at 6th and Sheridan to store old files and rock samples.

For the above space, the CGS pays $55,128 per year, of which $22,051 must be paid from cash revenue, $22,051 is subsidized with severance tax pots, and $11,026 is paid from federal grants. CGS also pays $222 per month for the Public Storage space. The storage at 6060 Broadway is free.

Needed

Office space needs were analyzed in 2001, by the state's contractor for space planning, CPC Corp. planners and coordinators. This study recommended office space of 13,364 square feet. This includes office space, reception area, conference room, publication sales, work areas, and library. Warehouse space for publication inventory was recommended to be 2500 square feet.

Space Options at CSM

If a potential move of the CGS to CSM were to occur immediately or in the near term, a probable location would be the Hall of Justice building. The Committee toured the Hall of Justice building as one possible location for the Survey. The total occupancy area (gross square feet) for the first floor of the Hall of Justice is 15,427 sq. ft. This includes 6,418 sq. ft. of office space; 3,355 sq. ft. of classroom space; 1,035 sq. ft. mechanical space; and 4,619 sq. ft. for un-assignable square feet for restroom, corridor, lobby, foyer, and stairway area. Similarly, the total occupancy area (gross square feet) for the second floor of the Hall of Justice is 14,636 sq. ft., which includes 1,793 sq. ft. of office space; 7,187 sq. ft. of classroom space; 353 sq. ft. central storage space; 988 sq. ft. for dedicated meeting space; and 4,315 sq. ft. for un-assignable square feet for restrooms, corridors, lobby, foyer, mechanical and stairway area. The basement of the Hall of Justice building includes a receiving dock and warehouse-type storage.

The most likely scenario with the Hall of Justice option is to dedicate one-half of the first floor and up to one-half of the second floor to the Survey. A move to this location would involve some needed improvements and would likely involve a potential relocation of some current occupants to other campus locations:

- Restoration of elevator service to the 2nd floor (estimated cost $50,000);
- Possible construction of a west parking lot level (2nd floor) entrance to improve access to the space;
- Potentially constructing large classroom space at other campus sites and freeing up additional space in the Hall of Justice;
- Cost of creating large classroom space in Stratton Hall estimated at roughly $500,000.

If the potential move of the CGS to CSM were to occur over a longer timeframe, other options would be explored by CSM to find the most suitable space to meet the space needs outlined by their 2001 study. Consideration could be given to balance the cost of putting money into the Hall of Justice building versus thinking longer term and seeking space that better meets the needs of both CGS and CSM.

b. Parking

Current

There are several options for parking at the downtown location. There is a lot one-half block away, owned by State Land Board. Parking is $7.00 per day or $95 per month. One and one-half blocks away is covered parking (next to the Denver Public Library) available for $95 per month. Two blocks away (at the Chancery Building) is covered unreserved parking for $100 per month. Also, within three blocks or more of the building are lots that cost as little as $3.50 per day for parking. Next to the building is a Capitol Complex-owned parking lot specifically for state employees. There is a waiting list for that parking lot, and parking is $125 per month. There are also many metered parking spaces available around the perimeter of the area, along with free on-street parking as available.

Needed

We estimate CGS needs forty parking spaces - 30 for staff and 10 for visitors.

CSM parking options and costs

The CSM vehicle operation and parking policy, approved by the Board of Trustees, mandates that ALL vehicles operated, or parked, on campus (including public streets within the campus boundaries) MUST be registered with the CSM Department of Public Safety and display the appropriate permit. The parking policy is intended to promote safe driving by operators of vehicles utilizing streets, driveways, and parking lots on the CSM campus and to allocate scarce parking space throughout the CSM campus on an equitable basis.

Certain parking lots on campus are labeled as reserved lots. Use of these lots, Monday through Friday 7:00 AM to 5:00 PM, is restricted to those persons who have a valid parking permit. A small number of parking spaces are reserved at all times, and are so posted. Reserved parking is available only to full-time faculty and staff. A separate and distinct reserved parking permit is issued to persons who are authorized to park in reserved parking spaces. Parking rates for faculty and staff at CSM are $65 per year for reserved permits and $35 per year for general parking permits.

Visitor parking is available on the streets within the campus and in lots labeled for "Student / Visitor" use. In addition, there are some parking spaces with time limitations, which are reserved for use by campus visitors.

Due to limited parking spaces on campus all members of the CSM community are encouraged to use alternate means of transportation, such as walking, bicycling, public transportation, or carpooling, whenever possible.

A number of things have been done recently to improve the parking situation at CSM:

- Hired part-time Officers to improve response to parking complaints and increase proactive parking patrol in the lots.
- Increased available parking for visitors, faculty, staff, and returning students by restricting freshmen parking to designated areas, by expanding the Intramural parking lot, and repaving the Hall of Justice lot.
- Re-striped most of the campus parking lots.
- Significantly increased parking information signage on campus.
- Changed the faculty and staff parking lot on the east side of the Green Center from individually assigned spaces to a first come-first served reserved lot, thus allowing many more faculty and staff to use the spaces there.
- Added reserved faculty and staff parking spaces in the CTLM parking lot along with the additional student and visitor spaces.

CSM would need to provide reserved parking spaces on campus for all CGS staff and 10 spaces for visitors. Parking rates will be equivalent to those of current CSM faculty and staff.

c. Transportation

i. Fleet Vehicles

CGS has six permanent fleet vehicles assigned to the agency. All are 4WD; one is a truck and the rest are Jeeps. The lease on one vehicle is paid off and costs the agency only a management fee of $14.50 per month plus mileage ($0.171 per mile per month); the remaining five have monthly payments that range from $288 to $346 per month and cost the agency the monthly payment plus mileage. The agency also augments its permanent fleet with anywhere from two to four temporary vehicles during the field season to be used for mapping and one vehicle in the winter to be used by the CAIC. For these vehicles, the CGS pays a management fee of $14.50 per month plus mileage.

The permanent vehicles, and also the temporary ones as needed, are parked in unreserved parking spaces in the Chancery Building at 1120 Lincoln. The parking costs $100 per month per space, and is 100% subsidized by severance tax pots.

CSM Fleet Vehicle Options

CGS currently participates in the State Fleet Management program and there should be no negative change in services to CGS for after their vehicles are transferred to CSM. One positive aspect is that CSM's fleet vehicle operation performs many of the services normally provided by state fleet garages, usually at much less disruption to the users since the garage is located on campus.

ii. Mass Transit Options

CGS currently provides each of its staff with an EcoPass, at no cost to the employee. Sixty-five percent of CGS's staff FTE work downtown (24). Of those, 92% (22) have EcoPasses in order to use alternative transportation. Fifty-nine percent (13) of the downtown staff use alternate transportation on a regular basis (bus or light rail).

The downtown staff lives in the following Front Range cities (See Appendix G for a map showing where these staff live.):

- Arvada
- Boulder
- Conifer
- Denver
- Englewood
- Golden
- Lakewood
- Littleton
- Morrison
- Parker
- Wheat Ridge

There are no RTD direct express routes from any part of the metro area to the Colorado School of Mines. There are a limited number of bus routes that would allow staff from certain areas to get to the campus, but all would require at least one transfer and would add to the commute time. For some staff (those in Arvada, Boulder, Golden, Conifer, Morrison, Wheat Ridge) the change would not be substantial – an increase or decrease in their commute of perhaps 15-20 minutes, depending on the transfer options and timing. For some staff, their commute could increase dramatically. RTD's express bus services typically run from the suburbs to downtown, not the opposite direction. Therefore, those staff that live in the northeastern and southern suburbs could have to add about an hour to their commute, each way, in order to arrive in Golden in time for work. CGS anticipates that approximately 10% of the permanent FTE may not be willing to make the commute and would have to transfer to another agency.

d. Personnel Issues

CSM, a participating PERA agency, employs a combination of both state-classified and state-exempt employees. Benefits are determined by the classified or exempt categories. Beyond the standard state benefits for classified employees, additional CSM benefits include (as of June 30, 2003):

- Tuition program
- Use of recreation center; family passes available
- Bookstore discount
- Annual parking as little as $25 for street permit
- Library privileges at Arthur Lakes Library
- Reduced athletics tickets prices and season pass
- Cafeteria discounts
- Easy travel against traffic
- Personal check cashing privileges

How do retention rights and decisions on layoffs work at CSM? Retention rights are similar at the Colorado School of Mines as they are in other state departments. Decisions on layoffs affect positions at the department level; however, affected individuals have bumping rights throughout the university. Layoff rules are specified by the state for classified employees. Seniority is determined by total certified time in state employment. CGS employees would retain their total state government seniority under current state rules. If these rules are changed by the state, CSM will follow the rules as changed.

There was a concern raised that subsequently hired staff at the Survey, should it become part of the CSM, would have to be at the Ph.D. level and they would have to be exempt rather than classified. CSM believes the category of new hires will be determined by the needs of each position and appropriate qualifications matched to job responsibilities will be specified. Exemptions from the state classified system are controlled by statute and decisions to exempt positions are reviewed by the Colorado Department of Personnel and Administration.

How will non Ph.D. staff fit into a Higher Education environment? As our survey of other states revealed, this can be a challenge. CSM currently has authorized over 265 classified staff employees who work side-by-side with academic and administrative faculty. The mix of employee groups is effective and beneficial and provides opportunities for interaction and professional growth.

Will CGS employees retain their classified status? It is not anticipated that current classified staff will change category designations.

In the event CGS moves to CSM, what happens to current employees who elect not to move? If the move occurs and an employee decides not to make the move, current state personnel rules regarding layoff or termination would apply unless the Department of Natural Resources agrees to retain the individual in another position.

Will all CGS employees retain their jobs or is there a possibility of staff reductions? No layoffs are anticipated from a move. Under the current state fiscal situation, the possibility of further cuts in budget creating staff reductions is very real. This possibility, however, exists for all state employees regardless of whether they are affiliated with a university or an agency.

e. Publications

Options for sale of publications

1. Bookstore – currently, the CGS does not sell any of its publication in the CSM bookstore. This would be a good opportunity to increase publicity for its books.

2. Online – the CGS is in the process of developing its online bookstore, and this should be implemented prior to the release of this report.

3. Museum – this would be a good opportunity to showcase some of the publications that the CGS produces and/or sells.

4. Office – Currently all CGS publications are sold in the CGS office. Many of those in the housing construction business are already familiar with the CGS and know to contact them for certain publications (i.e., SP-43, Guide to Swelling Soils). This should not change.

f. Library

CGS would be close to a world-class natural resources library at CSM. (See Appendix M for an explanation of the benefits.)

IV. FINDINGS AND RECOMMENDATIONS

The committee reached consensus on the following issues:

- CGS is already a strong, innovative, and entrepreneurial survey.
- CSM could provide a highly stimulating, scientific environment for CGS.
- The strong history of collaboration will continue, and can be strengthened, regardless of CGS' location.
- In each of the three scenarios, CGS would continue to grow and improve their service to the people of Colorado.
- The option to physically and administratively move the CGS to CSM should not be pursued.
- Whether CGS is relocated, or stays where it is, several issues should be addressed:
  - Current statutes should be clarified;
  - Reporting relationships, as stated in the CGS enabling statutes, should be re-established;
  - An advisory committee should be re-established;
  - Additional office space is needed for CGS; and
  - Grant proposal process should be streamlined.

The CSM members of the team are genuinely interested in having CGS on campus. The CSM members favored the option of physically moving the CGS to CSM but retaining the current management structure with CGS reporting to DNR. This would allow severance tax funding to be retained by CGS and would preserve their close ties to other state agencies. An office for the State Geologist in the DNR office would further enhance close ties. A physical move to CSM would allow close collaboration between CGS and CSM personnel, CGS access to CSM analytical and computing facilities, and significant potential for increased federal funding support, based on the experience of other state surveys co-located with universities.

However, after considering all of the factors identified by the committee, the DNR members of the committee concluded that remaining physically and administratively in the executive branch of government is the proper place to most effectively carry out its mandates, mission, and responsibilities to serve the people of Colorado. The DNR members of the committee believe that there is no compelling reason to disrupt the personal and professional lives of a group of dedicated state employees and that the identified benefits of moving the already-effective Colorado Geological Survey to a new location do not outweigh the costs and disadvantages.

Both groups felt that significant questions remained regarding the currently available space for the CGS at CSM. If a move is to occur, the best solution would be to provide purpose-built space on campus that would meet the needs of the current survey and would take into account future needs. Thus, even if a move is not specified at this time, it is concluded that if the right space can be provided in the near future, the issue should be revisited by the State Legislature.

V. UNRESOLVED ISSUES

The following table contains a list of current unresolved issues. These include aspects of the report for which the committee would need to gather more information, or need some clarification or further discussion.

Issue	Status
More Flexibility in Applying for Federal Grants – NSF Issues Why it's unresolved: Conflicting information from other states. The design of the questionnaire probably raised more questions than it answered.	
Potential Impacts on the Level of Service to the Customers of the Geological Survey: Positive and Negative Impacts. Why it's unresolved: What could be a positive for one customer could be a negative for another. For example, a location downtown would be good for some and negative for others.	
If physically on campus, the cost and possibility of the computer hookups with COFRS and DNR Network. Why it's unresolved: At the time of publication of this report, a definitive word on the ability of CGS to interface with COFRS and the DNR computer network was not known.	

VI. APPENDIX

Appendix A: HB04-1359

HOUSE BILL 04-1359

BY REPRESENTATIVE(S) Johnson R., Borodkin, Carroll, Cerbo, Coleman, Crane, Fairbank, Hodge, Marshall, McCluskey, McFadyen, Weddig, White, Boyd, and Rippy;
also SENATOR(S) Taylor, Chlouber, Entz, Hanna, Keller, Kester, Tapia, and Teck.

CONCERNING THE RELOCATION OF THE COLORADO GEOLOGICAL SURVEY FROM THE DEPARTMENT OF NATURAL RESOURCES TO THE COLORADO SCHOOL OF MINES.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. Part 1 of article 1 of title 34, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SECTION to read:

34-1-106. Geological survey - study - relocation - repeal. (1) THE DEPARTMENT OF NATURAL RESOURCES AND THE COLORADO SCHOOL OF MINES SHALL COLLABORATIVELY CONDUCT A STUDY RELATING TO THE LOCATION OF THE COLORADO GEOLOGICAL SURVEY AND THE MANNER IN WHICH THE SURVEY CAN MOST EFFECTIVELY SERVE THE NEEDS OF THE STATE OF COLORADO. THE STUDY SHALL INCLUDE, BUT NEED NOT BE LIMITED TO, THE FOLLOWING:

[ ] denotes HOUSE amendment. { } denotes SENATE amendment.
Capital letters indicate new material to be added to existing statute.
Dashes through the words indicate material to be deleted from existing statute.

(a) A COMPARATIVE ANALYSIS OF THE BENEFITS AND THE DISADVANTAGES OF LOCATING THE COLORADO GEOLOGICAL SURVEY AT THE DEPARTMENT OF NATURAL RESOURCES OR AT THE COLORADO SCHOOL OF MINES, WHICH SHALL INCLUDE THE POTENTIAL EFFECTS ON THE SURVEY OF BEING RELOCATED TO THE COLORADO SCHOOL OF MINES;

(b) AN ANALYSIS OF THE BENEFITS OF RELOCATING THE COLORADO GEOLOGICAL SURVEY TO THE COLORADO SCHOOL OF MINES OR MAINTAINING THE SURVEY WITHIN THE DEPARTMENT OF NATURAL RESOURCES, WITH THE GOALS OF IDENTIFYING WHICH LOCATION IS IN THE BEST INTERESTS OF THE RESIDENTS OF COLORADO AND WHICH LOCATION IS MOST LIKELY TO RESULT IN A STRONG, INNOVATIVE, AND ENTREPRENEURIAL SURVEY;

(c) SUGGESTIONS REGARDING THE MANNER IN WHICH THE COLORADO GEOLOGICAL SURVEY SHOULD BE STRUCTURED IF THE SURVEY MOVES TO THE COLORADO SCHOOL OF MINES, SO THAT THE SURVEY MAY APPROPRIATELY ADDRESS REQUESTS FOR SCIENTIFIC INVESTIGATIONS, INFORMATION, AND POLICY ANALYSES FROM STATE AND LOCAL GOVERNMENTAL ENTITIES;

(d) AN ANALYSIS OF THE FINANCIAL IMPLICATIONS AND THE IMPACT ON THE LEVEL OF SERVICE TO THE CUSTOMERS OF THE COLORADO GEOLOGICAL SURVEY IF THE SURVEY IS RELOCATED TO AND RESTRUCTURED WITHIN THE COLORADO SCHOOL OF MINES IN COMPARISON TO ITS CURRENT LOCATION AND ADMINISTRATIVE STRUCTURE. THE REVIEW SHALL INCLUDE AN ESTIMATION OF THE COSTS AND POTENTIAL FUNDING SOURCES FOR ACTIVITIES THAT MAY BE UNDERWRITTEN BY THE COLORADO SCHOOL OF MINES FOR THE COLORADO GEOLOGICAL SURVEY AND AN ANALYSIS OF THE POSSIBILITY OF ENHANCING THE SURVEY'S ACCESS TO AN INCREASED FUNDING BASE THROUGH GRANT MONEYS.

(e) IDENTIFICATION OF THE EXTENT TO WHICH COLLABORATIVE EFFORTS IN THE AREAS OF BASIC GEOLOGIC RESEARCH AND APPLIED GEOLOGY IN COLORADO SHOULD BE DEVELOPED WITH THE DEPARTMENT OF NATURAL RESOURCES IF THE BENEFITS OUTWEIGH THE COSTS OF RELOCATING THE COLORADO GEOLOGICAL SURVEY TO THE COLORADO SCHOOL OF MINES;

(f) AN ANALYSIS OF THE POTENTIAL BENEFITS OF HAVING A PROGRAM WITHIN THE COLORADO GEOLOGICAL SURVEY THAT PERFORMS OUTREACH AND DISSEMINATES INFORMATION TO RESIDENTS OF COLORADO RELATING.

TO GEOLOGY, SIMILAR TO THE COLORADO COOPERATIVE EXTENSION SERVICE ADMINISTERED BY COLORADO STATE UNIVERSITY, REGARDLESS OF WHERE THE COLORADO GEOLOGICAL SURVEY IS LOCATED; AND

(g) AN ANALYSIS OF THE LOCATIONS WITHIN STATE GOVERNMENT AND THE STRENGTHS AND WEAKNESSES OF THE ADMINISTRATIVE STRUCTURES OF GEOLOGICAL SURVEYS IN THE SURROUNDING WESTERN STATES.

(2) THE DIRECTOR OF THE DEPARTMENT OF NATURAL RESOURCES AND THE PRESIDENT OF THE COLORADO SCHOOL OF MINES SHALL EACH APPOINT FOUR PEOPLE FROM THEIR RESPECTIVE STAFFS, AT LEAST TWO OF WHOM SHALL BE PRACTICING PROFESSIONAL GEOSCIENTISTS, WHO SHALL BE RESPONSIBLE FOR CONDUCTING THE STUDY AND CONSOLIDATING THE INFORMATION INTO A REPORT, AS REQUIRED IN SUBSECTION (4) OF THIS SECTION.

(3) AFTER DESIGNATION OF THE APPOINTEES PURSUANT TO SUBSECTION (2) OF THIS SECTION, THE DEPARTMENT OF NATURAL RESOURCES IN COLLABORATION WITH THE COLORADO SCHOOL OF MINES SHALL CONDUCT A PUBLIC MEETING TO SEEK INPUT ON THE SCOPE OF THE STUDY TO BE CONDUCTED PURSUANT TO SUBSECTION (1) OF THIS SECTION. AFTER COMPLETION OF THE STUDY REQUIRED BY SUBSECTION (1) OF THIS SECTION, THE DEPARTMENT OF NATURAL RESOURCES IN COLLABORATION WITH THE COLORADO SCHOOL OF MINES SHALL CONDUCT A PUBLIC MEETING TO SEEK INPUT ON THE STUDY'S FINDINGS FROM AFFECTED INTERESTS.

(4) ON OR BEFORE NOVEMBER 30, 2004, THE DEPARTMENT OF NATURAL RESOURCES AND THE COLORADO SCHOOL OF MINES SHALL SUBMIT A REPORT OF THE FINDINGS OF THE STUDY AND A SUMMARY OF THE PUBLIC INPUT RECEIVED AT THE PUBLIC MEETING REQUIRED UNDER SUBSECTION (3) OF THIS SECTION TO THE AGRICULTURE, LIVESTOCK, AND NATURAL RESOURCES COMMITTEE OF THE HOUSE OF REPRESENTATIVES AND THE AGRICULTURE, NATURAL RESOURCES, AND ENERGY COMMITTEE OF THE SENATE.

(5) THIS SECTION IS REPEALED, EFFECTIVE JULY 1, 2005.

SECTION 2. No appropriation. The general assembly has determined that this act can be implemented within existing appropriations, and therefore no separate appropriation of state moneys is necessary to carry out the purposes of this act.

SECTION 3. Safety clause. The general assembly hereby finds, determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

Lola Spradley
SPEAKER OF THE HOUSE
OF REPRESENTATIVES

John Andrews
PRESIDENT OF
THE SENATE

Judith Rodrigue
CHIEF CLERK OF THE HOUSE
OF REPRESENTATIVES

Mona Heustis
SECRETARY OF
THE SENATE

APPROVED_____

Bill Owens
GOVERNOR OF THE STATE OF COLORADO

Appendix B: Scope Document

Joint Study of the Colorado Geological Survey Relocation per HB04-1359
Department of Natural Resources
&
Colorado School of Mines

PROPOSED SCOPE OF STUDY

Based on the Committee's analysis of HB04-1359, the following scope is proposed for the joint study of the possible *Colorado Geological Survey* relocation. The following general and specific items to be studied will be examined within the context of three potential scenarios:

- No change in location or administrative structure;
- A physical change of location, but no change in administrative structure; and
- A physical change of location and a change in administrative structure.

I. General Items to be Examined:

a. PHYSICAL LOCATION/INFRASTRUCTURE
b. REPORTING STRUCTURE
c. INTERNAL STRUCTURE
d. FUNDING AND FINANCIAL IMPLICATIONS
e. ACTIVITIES
f. PERSONNEL ISSUES

II. Specific Items to be Examined :

a. Analysis of the advantages and disadvantages of locating the Survey at the DNR and the CSM;
b. Potential effects on the Survey of relocating it to the CSM;
c. Which location is in the best interests of the residents of Colorado;
d. Which location is most likely to result in a strong, innovative, and entrepreneurial Survey;
e. Suggested structure of the Survey IF the Survey moves to the CSM – so that the Survey may appropriately address requests for scientific investigations, information, and policy analysis from state and local governmental entities;
f. An analysis of the financial implications and the impact on the level of service to the customers of the Survey – if relocated versus staying at the current location and structure;
g. Estimate of the costs and potential funding sources for activities that may be underwritten by the CSM for the Survey;
h. Analysis of the possibility of enhancing the Survey's access to an increased funding base through grant moneys;
i. Extent to which collaborative efforts in the areas of basic geologic research and applied geology in Colorado should be developed with the DNR should the Survey be relocated to the CSM – if relocated versus staying at the current location and structure;
j. Analysis of the potential benefits of having a program within the Survey that performs outreach and disseminates information to residents of Colorado relating to geology – similar to the Colorado Cooperative Extension Service administered by Colorado State University – regardless of the location of the Survey; and
k. An analysis of the locations within state government and the pros and cons of different administrative structures of Geological Surveys in the surrounding western states.

Appendix C: Existing Collaboration

Existing Collaboration between Colorado Geological Survey and Colorado School of Mines

STATEMAP/EDMAP Programs

- CSM faculty and students mapped in program past 4 years
- Three CSM MS theses based on program
- CSM faculty member chairs CGS Geologic Mapping Advisory Committee
- Analytical work contracted to CSM

Grants

- Santi (CSM), Matthews (CGS), and Murray (CSM) National Earthquake Reduction Program Proposal ($64,294)
- Noe (CGS) has participated in successful NASA grants with CSM faculty - *$ amount?*
- Noe (CGS) has participated in successful EPA grants with CSM faculty - *$ amount?*
- Sares (CGS) has participated in successful EPA grants with CSM faculty - *$ amount?*

CSM Classes

- Berry, Morgan, Noe, and Widmann (CGS) have given presentations in CSM classes
- Noe (CGS) has lead numerous field trips for CSM classes
- Cappa (CGS) has helped with preparations for CSM field trips
- Cappa, Matthews, and Noe (CGS) have participated in CSM Student Career Nights
- Matthews, Noe, and Topper have presented talks at CSM's Van Tuyl Lecture series
- Cappa, Kirkham, Matthews, and Noe (CGS) prepared projects for CSM EPICS program

Conferences/Meetings/Short Courses

- Joint CGS-CSM planning for Geological Society of America Annual Meeting (Denver, 2004)
- AEG Annual Meeting (Vail, 2003)
- Society of Economic Geologists International Meeting (Denver, 2002)
- CGS Southwest GeoConference (Durango, 2001)
- CGS Dipping Bedrock Conference (Denver, 2000)
- British Mineralogical and Clay Societies (2000)
- Joint presentation of short courses with Petroleum Technology Transfer Center Rocky Mountain Region (CSM) – Coal bed Methane Potential of the Denver Basin (CSM, 2001)
- AIPG Functions: Career Day at CSM and Other Institutions

Co-authored Publications

- Noe (CGS) has co-authored 14 journal articles with CSM faculty (engineering geology, hazards)
- Morgan (CGS) has co-authored 4 articles with CSM faculty
- Widmann (CGS) had co-authored 4 reports/maps with CSM students

Appendix D: Proposed Collaboration

Proposed Collaboration between Colorado Geological Survey and Colorado School of Mines

STATEMAP/EDMAP Program

- continue existing efforts, more successful proposals

Grants

- continue and expand collaboration on earthquake hazards
- continue and expand collaboration on geologic hazards
- continue collaboration on avalanche forecasting with new CSM faculty (Gooseff), specialist in snow hydrology
- initiate collaboration on Colorado hydrogeology with CSM faculty in Geology and Geological Engineering, Environmental Science and Engineering, and Chemistry and Geochemistry
- Initiate collaboration on mineral resources research
- Tie existing CSM research/grants in Colorado petroleum geology into CGS

Conferences/Meetings/Short Courses

- continue existing ties
- expand ties in hydrogeology and avalanche areas
- more joint workshops with PTTC including: New Coal bed Methane Compilation: Northwest Colorado Basins, CO2 Sequestration Project CD: A Systems Model to Assess Volumes and Options on Where to Send Them, Paradox Basin Data CD: A New Resource from the Colorado Geological Survey
- Joint conferences with the Colorado Energy Research Institute (CERI – CSM)
- Appoint liaison points of contact in each agency.

Appendix E: Facilitated Discussion Notes

No change in location or administrative structure.

PROS	CONS
• No change in Missions for CGS & CSM. • No additional costs • No loss in revenue from move. • Well-recognized central location. • Able to serve other agencies better in central location (networking with other state agencies and geological constituents) • Recognition of excellence in many areas.	• Current physical space lacking desired amenities. • Identity statewide – misunderstanding about what CGS does and who it represents. • Grant approval process.

A physical change in location but not in administrative structure

PROS	CONS

• Parking – if available at a reduced rate.
• Access to CSM library (minimal benefit in terms of current usage). Some groups and projects use library extensively.
• Technological advances at CSM through coursework and research
• Easier liaison with other earth science organizations. (face to face)
• Potential eligibility for grants (need more data)
• Long-range planning – ability to work together on more research, professional development.
• Access to USGS
• Student workers
  o Benefit to CGS available workforce – EPIC students.
  o Benefit to CSM provides real world data experience.
• Research topics
  o Benefit to CSM students
  o Benefit to CGS – help solve problems in CO they don't currently have the resources to address.
• CSM would benefit from the public service provided by CGS.
• Access to labs
• More venues to sell publications
  o Museum
  o Book store
  o On-line
• Potential to participate in CSM tuition benefit program
• Benefit from CSM's existing research resources –
  o Notification of grants
  o Grant writing assistance
• Eliminate need for Geo Ref subscription.
	• Additional space for CGS not readily available at CSM.
	• Possible loss of revenue during move.
	• Computer support –
	  o At CSM or at DNR
	  o Cost to hook-up with DNR – could State MNT be used?
	  o Cost to hook up with CSM
	• Access to downtown Denver
	• Public transportation outside Foothills region would add commute time – connections.
	• Long-range – additional research, concern about pressure
	• Student workers
	  o Concern about pressure to hire
	  o Obligation to other institutions
	• Leaving well recognized central location
	• Service to other agencies at central location would be lost.
	• Potential negative impact to other constituents – Geological.
	• Loss of library to CGS
	  o Subsidence – used for land evaluation.
	• Potential benefits from research at CSM could be offset by reduced effectiveness in current culture & statutory mission.
	• Would need coordination for Treasury deposits.

A physical change in location and a change in administrative structure

PROS

- Reduced rate parking – if available, CSM would designate spots for CGS.
- Access to CSM library (minimal benefit based on current usage) some project may use it extensively.
- Technological advances at CSM through courses and research.
- Easier liaison with earth sciences.
- Potential eligibility of grants.
- Long-range planning capabilities.
- Interaction with USGS
- Student workers
    - CGS benefit
    - CSM benefit
- Research topics
- Administration – CGS & CSM at the same table planning
- CSM would benefit from public service aspect
- Access to lab space
- More venues to sell publications
    - Museum
    - Book store
    - On-line
- Better able to work with DC on obtaining grants
- Potential flexibility with higher education
    - State procurement, fleet, etc.
    - FTE
- Ability to participate in CSM tuition benefit program
- Benefit from CSM's existing research resources:
    - Grant writing
    - Alerts to potential grants
- Eliminate Geo-Ref subscription
- Buy hardware & software at educational discount. Use of CSM network and network software
- Remote access to e-mail
- Ability to benefit from CSM's ability to opt-out of procurement and fleet.
- Ability to travel without state approval.
- Stability in administrative structure. Less vulnerable to political changes.

CONS

- Change in CGS & CSM Mission statements.
- CGS currently has a regulatory role. Is it appropriate for CSM to have a regulatory role?
- Insufficient additional space readily available.
- Possible loss of revenue during move.
- Space would need to be reconfigured and a potential cost:
    - $50,000 – elevator
    - $15,000 move panels
- Access to downtown Denver
- Public transportation
    - Outside Foothills regions would add commute time.
- Long-range planning
- Leaving well known central location
- Service to other agencies – need the centralized location
- Different personnel system – CSM has both classified and faculty/exempt any implications for:
    - Promotion
    - Non-research
- Potential negative impact to other Geological constituents
- Loss of library to CGS
    - Subsidence – used for land use
- Potential benefits from research at CSM could be offset by reduced effectiveness in current culture & statutory mission.
- Potential loss of severance tax.
- The two organizations have different cultures. Problems merging without significant change.

No change in location but change in structure (Cross-cutting issues)

Suggested Changes:

- Become a centralized entity with geological expertise for the entire state.
- MOU if an extension agencies option is adopted in order to fulfill research needs.
- Clarification of existing statutes.
- Reduce bureaucracy for grant process.
- Report directly to executive Director.
- Develop internal professional development program.
- Advisory Committee – re-establish:
    - Resolve conflicts
    - Review programs and get input regarding existing and new programs
    - Advocacy group for CGS
    - Provide input in the hiring of the State Geologists
- Emphasize past relationship with CSM and that continued success requires close working relationships.
- Explore ability to enter into MOU's with CSM to utilize existing research infrastructure (i.e. grant notification, grant writing)
- Explore moving to an alternative personnel system.

Extension Service

PROS	CONS
• Expertise located throughout State. • Help citizens identify and mitigate geological disasters. • Might be better able to work with other state agencies throughout the State. • May help with statewide identity.	• Would need more FTE and budget operate in the manner the CSU extension services operate. • Potentially may be difficult to operate as an extension without competing with the private sector.

Appendix F: Analysis of Information Technology (IT) Support

Derek and Phil and I met with Jason Wilson of the CGS and Mike Whatley of the DNR this morning to discuss the possible move of CGS to CSM. I think we all came away from the meeting with a few general conclusions questions. Some of these are as follows:

- CSM most probably can support the data and IT needs of the (approx) 50 users in the CGS but probably not without additional resources. For example, Derek's shop is familiar with some of the scientific and general productivity software they use and could provide desktop support. This is currently handled by 3 FTE individuals in the DNR IT area who would not move with the CGS. DNR IT estimates that the CGS requires approximately 20% of the 3 FTE's time for support.

- While CSM probably has sufficient internet bandwidth to support the CGS needs, the cost of implementing their connection is related to where they would be housed on campus. Apparently some buildings are more ready than others. In addition, we need a more definite estimate of their bandwidth needs which they will work on.

- The CGS has need for relatively large data storage (in IS terms at least!) but Derek's shop has the infrastructure well prepared to handle those needs with no problem.

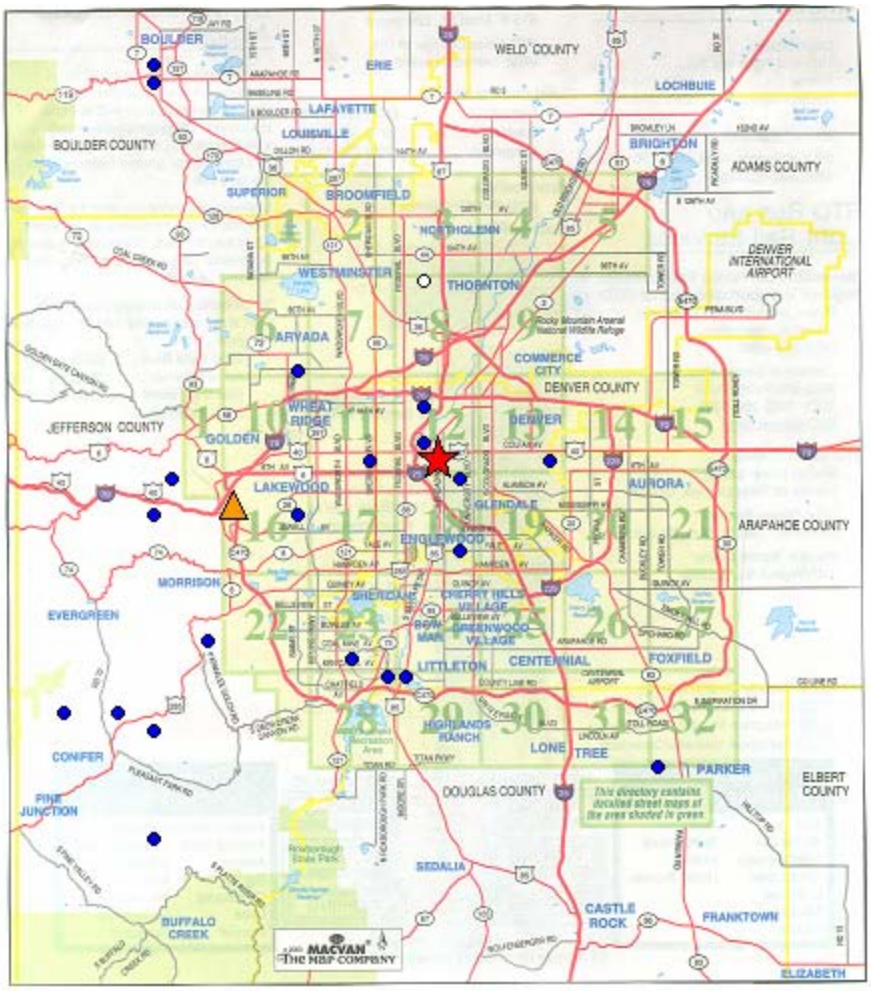
- It appears from the discussion that moving the CGS to CSM and then connecting them back to the DNR IT shop (physical but not administrative move scenario) would be expensive. Phil and Derek would have more information on this point. Should that scenario be chosen, however, it would still be difficult for DNR IT support folks to remotely support CGS folks out here.

- It wasn't clear to us what the term "Administrative" move meant in total, but we assumed it meant that the CGS would become a "division" (or some unit) of CSM and would use CSM administrative systems (e.g. FRS) and support services (e.g. IT support, ORS support, etc.), rather than DNR systems (e.g. COFRS) and services (IT, Human Resources support, etc.)

- The CGS has a relatively large web site written with active server pages and allowing e-commerce sales of publications and materials. This site is supported by one FTE in the DNR IT shop who is contracted to the CGS (fee for service) for special projects and maintenance. It seems reasonable IS could provide this service. I believe the New Mexico Bureau of Geology and Mineral Resources' web site has been used as an example to emulate. I checked this site briefly (http://geoinfo.nmt.edu/index.html) and it doesn't seem too difficult. (Curiously, The NMBGMR is a division of New Mexico Tech!)

- The CGS also uses MS Exchange as their email service. Again, should they choose to remain on an Exchange system, IS could support their use with minimal licensing cost and an incremental cost for user support and system maintenance.

Appendix G: Where CGS Staff That Use Mass Transit Live



Current CGS Location

CGS staff home locations currently using mass transit

CSM

Note that most of the CGS staff using mass transit live in locations that are near RTD express routes that go to downtown Denver. No express buses serve routes that go from downtown Denver to the suburbs.

Appendix H: Public Meeting Announcements

MEETING ANNOUNCEMENT

Joint Study of the Colorado Geological Survey Relocation per HB 04-1359

by
Department of Natural Resources
&
Colorado School of Mines

The *Department of Natural Resources* and the *Colorado School of Mines* jointly announce the first **public meeting** of the Joint Task Force (formed pursuant to HB 04-1359) to study the possible relocation of the *Colorado Geological Survey*. This public meeting will be held:

Tuesday, September 28th
6:00 PM to 7:00 PM
Metals Hall in the Green Center*
at the Colorado School of Mines
924 16th Street
Golden, Colorado

The purpose of the meeting is to solicit public feedback on the scope of this study.

If you have questions about the meeting or if you cannot attend but wish to comment on the scope of the study; please contact Dan Montez at the Colorado School of Mines (303.273.3242 dan.montez@is.mines.edu) or Vincent Matthews at the Department of Natural Resources (303.866.3028 vince.matthews@state.co.us).

**Parking is available behind and surrounding the Green Center (except along red curbs).*

MEETING ANNOUNCEMENT

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Department of Natural Resources
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The *Department of Natural Resources* and the *Colorado School of Mines* jointly announce the **final public meeting** of the Joint Task Force (formed pursuant to HB 04-1359) to study the possible relocation of the *Colorado Geological Survey*. This public meeting will be held:

Tuesday, November 23, 2004
6:00 PM to 7:00 PM
Metals Hall in the Green Center*
at the Colorado School of Mines
924 16th Street
Golden, Colorado

The purpose of the meeting is to solicit public input on the study's findings from affected interests. The Task Force is targeting Monday, November 22, 2004 for the release of the DRAFT report for public review and feedback. The report will be posted at: http://www.is.mines.edu/fo/Geo_reloc/

If you have questions about the meeting or if you cannot attend but wish to comment on the findings of the study; please contact Dan Montez at the Colorado School of Mines (303.273.3242 dan.montez@is.mines.edu) or Vincent Matthews at the Department of Natural Resources (303.866.3028 vince.matthews@state.co.us).

**Parking is available behind and surrounding the Green Center (except along red curbs).*

Appendix I: Public Meeting List of Contacts

[Add Here]

Organization Name	Address	Email	Phone	Contact Person Name and Position
Professional Groups				
American Association of Petroleum Geologists (Colorado Chapter)	1444 South Boulder Tulsa, OK 74101	postmaster@aapg.org	1-800-364-2274	
American Institute of Professional Geologists (Colorado Section)	1400 W. 122nd Avenue, Suite 250, Westminster, Colorado 80234	litmusepo@frii.com	303- 741-1035	Logan T. MacMillan, President
Association of Engineering Geologists	PO Box 460518 Denver, CO 80246	president@aegweb.org	303-757-2926	Dave Simon, President
Association of Engineering Geologists (Rocky Mountain Section)	PO Box 280663 Lakewood, CO 80228	dduran@jacesare.com	303-790-2161	President
Association of Women Geoscientists	115 Meadow Rd. East, Durango, CO 81301-7093	office@awg.org	970-259-0966	Mary L. Gillam, Past President
Colorado Mining Association	216 16th Street, Suite 1250 Denver, Colorado 80202	colomine@coloradomining.org	303 575-9199	Stuart A. Sanderson, President
Colorado Ground Water Association	Colorado Ground Water Association P.O. Box 150036 Lakewood, Co 80215	jmeigs@amwestinc.com	303- 289-3281	Joe V. Meigs, President
Computer Oriented Geological Society	PO Box 370246, Denver Colorado 80237-0246 USA	tbrez@csn.org	not available	Tom Bresnahan, President
Colorado Oil and Gas Association (COGA)	1776 Lincoln St, Suite 1008, Denver, CO 80203	kwonstolen@coga.org	303-861-0362	Greg Schnacke, President
Colorado Oil and Gas Association (COGA)	1776 Lincoln St, Suite 1008, Denver, CO 80203	office@coga.org	303-861-0362	
Denver Geophysical Society	7144 E. Warren Dr. Denver Co 80224	DGSPresident@denvergeo.org	303-757-2942	Brian Pluemer Schlumberger, President
Denver Region Exploration Geologists' Society (DREGS)	PO Box 281217, Lakewood, CO 80228	dregs@gadas.com	303-985-5722	Allan Juhas, President
Denver Region Exploration Geologists' Society (DREGS)	PO Box 281217, Lakewood, CO 80228	geopros@gadas.com	303-985-5722	

Organization Name	Address	Email	Phone	Contact Person Name and Position
Denver Region Exploration Geologists' Society (DREGS)	PO Box 281217, Lakewood, CO 80228	jkinkel@earthlink.net	303-985-5722	
Four Corners Area Geological Society	PO Box 1501 Durango, CO 81302	kd@mydurango.net	970-375-2700	Kim Gerhardt, President
Grand Junction Geological Society		rcole@mesastate.edu		Dr. Rex Cole
Independent Petroleum Association of Mountain States (IPAMS)	Denver Club Bdg., Suite 620 518 17th Street Denver, CO 80202	ipams@ipams.org	303-623-0987	
Rocky Mountain Association of Geologists (RMAG)	820 16th Street Suite 505 Denver, CO 80202	dsanders@mines.edu	303-573-8621	Donna Anderson, President
Colorado Ready Mix Concrete Association & Colorado Rock Products Association	6855 South Havana Street, Suite 540, Centennial, CO 80112	pschauer@crmca.org	303-290-0303	Paul Schauer, Managing Director
Society of Economic Geologists (SEG) CO	7811 Shaffer Parkway Littleton, Colorado 80127 U.S.A.	brianhoal@segweb.org	720-981-7882	Dr. Brian Hoal, Exec Director
Society of Independent Professional Earth Scientists (SIPES) Colo Chapter	Not available	sipes@sipes.org	Not available	Lon McCarley
Society of Mining, Metallurgy, Exploration (SME) Colo Chapter	1650 38th St. Suite 201E Bolder, CO 80301	sme@smenet.org	303-444-1000	A. Marsh Lavenue, Secretary
AIME-SME - Colorado Plateau Section	Chenoweth & Associates, 707 Brassie Drive Grand Junction, CO 81506-3911	smecolorado@yahoo.com	970- 242-9062	William L. Chenoweth, Secretary
The Geological Society of America (Rocky Mountain Section)	14142 Denver West Parkway, Suite 350 Golden, CO 80401-3190	kkolm@bbl-inc.com	303- 231-9115 ext. 110	Kenneth E. Kolm, Secretary
Geological Society of America	PO Box 9140 Boulder, CO 80301-9140	jhess@geosociety.org	303-447-2020	Jack Hess, Exec Director

Organization Name	Address	Email	Phone	Contact Person Name and Position
College Geology Departments - State of Colorado				
Adams State College	Geology and Environmental Science Alamosa, CO 81102	rgbenson@adams.edu	719- 587-7242	Robert G. Benson, Chair
Colorado College	Geology Department, 14 E. Cache La Poudre, Colorado Springs, CO 80903	geology@coloradocollege.edu	719-389-6621	Paul M. Myrow
Colorado Mountain College	Science/Math College 831 Grand Avenue Glenwood Springs CO 81601	gzabel@coloradomtn.edu	303-945-7481	Garrett E Zabel
Colorado Northwestern Community College	Dept of Geology A 2001 Rangely, CO 81648	bob.horntvedt@cncc.edu	303-675-3261	Kenneth C Parsons, Director
Colorado School of Mines	Dept of Chemistry & Geochemistry Golden Co 80401	pauljago@mines.edu	303-273-3622	Paul W Jagodzinski, Director
Colorado State University	Dept of Geosciences Fort Collins, CO 80523	jhannah@cnr.colostate.edu		Hannah, Judith L. - Department Head
Colorado State University	Colorado Water Resources Research Institute (CWRRI) Fort Collins, CO 80523	rcw@lamar.colostate.edu	970- 491-6308	Robert C. Ward, Director
Metro State College (MSCD)	Department of Earth and Atmospheric Sciences 1201 5th Street Denver, CO 80204	engelbrk@mscd.edu	303-556-3143	Kenneth Engelbrecht
Red Rocks CC	3300 West Sixth Avenue Lakewood, CO 80228	jack.stanesco@rrcc.edu	303-914-6290	Jack Stanesco, Science Director
University of Colorado at Boulder	University of Colorado, Boulder, Colorado 80309	Mary.Kraus@colorado.edu	303-492-8141	Mary J. Kraus, Chair
University of Northern Colorado	Dept of Earth Sciences Greeley, CO 80639	william.hoyt@unco.edu		Dr. Bill Hoyt, Chair
University of Colorado at Denver	Department of Geology, Geolography and Environmental Science, PO Box 173364, Denver, CO 80217-3364	frederick.chambers@cudenver.edu	303-556-2276	John W. Wyckoff, Chair

Organization Name	Address	Email	Phone	Contact Person Name and Position
Colorado Country Governments				
PO Box 281217, Lakewood, CO 80228	800 Grant Street, Suite 500 Denver, Colorado 80203	gbledsoe@ccionline.org	303.861.4076	Dennis Everhart
Denver Regional Council of Governments (DRCOG)	4500 Cherry Creek Drive South, Suite 800	drcog@drcog.org	303-455-1000	Jennifer Schaufele, Exec. Director
Municipal League	1144 Sherman Street Denver Co 80203	kbueche@cml.org	303 831-6111	Ken Bueche, Exec. Director
State Government				
Governors Office	136 State Capitol Denver, CO 80203-1792	chris.castilian@state.co.us	303-866-2471	Chris Castilian
House and Senate Agriculture Livestock and Natural Resources Committees Staff	Room 029 State Capitol Building Denver, Colorado 80203	david.beaujon@state.co.us	303-866-3706	David Beaujon
House and Senate Agriculture Livestock and Natural Resources Committees Staff	Room 029 State Capitol Building Denver, Colorado 80203	larry.thompson@state.co.us	303-866-3528	Larry Thompson
All DNR Divisions	See attached sheets			
Joint Budget Committee	Legislative Services Building, 3rd Floor 200 East 14th Avenue Denver, Colorado 80203	james.mccoy@state.co.us	303-866-3147	James McCoy, Agriculture
Colorado Dept. of Public Health and Environment Water Quality Control Division	4300 Cherry Creek Drive S. Denver, CO 80246	mark.pifher@state.co.us diana.glaser@state.co.us	303-692-3500	Mark Pifher, Director
Colorado Dept. of Public Health and Environment Hazardous Materials and Waste Management Division	Denver, CO 80246-1530	gary.baughman@state.co.us	303-692-3338	Gary Baughman, Director

Organization Name	Address	Email	Phone	Contact Person Name and Position
Colorado Legislative Council	Room 029 State Capitol Building Denver, Colorado 80203	marc.carey@state.co.us	303-866-4102	Marc Cary, Sr., Fiscal Analyst
Colorado Division of Emergency Management	15075 South Golden Road Golden, Colorado 80401-3979	tom.grier@state.co.us	303-273-1622	Tom Grier, Director

Organization Name	Address	Email	Phone	Contact Person Name and Position
Federal Government				
Bureau of Land Management (BLM)	Colorado State Office 2850 Youngfield Street Lakewood, Co. 80215-7093	dwayne_spencer@co.blm.gov	303-239-3600	Dwayne Spencer
Bureau of Land Management (BLM)	Colorado State Office 2850 Youngfield Street Lakewood, Co. 80215-7094	james_edwards@co.blm.gov	303-239-3600	Jim Edwards
Bureau of Reclamation (USBR)	See attached Sheets			
Bureau of Indian Affairs - Division of Energy and Minerals	12136 W. Bayaud Ave Suite 300 Lakewood, CO 80228	None found	303-969-5270 ext. 225	Mr. Steve Manydeeds
Southern Ute Indian Tribe Energy Resource Division	PO Box 737 Ignacio, CO 81137	dbaughma@sudoe.us	970-563-0140	Dick Baughman
Forest Service (USFS)	PO Box 25127, Lakewood, CO 80215	rdersch@fs.fed.us	303-275-5350	Rusty Dersch
USGS	PO Box 25286 Federal Center Denver, CO 80225	wfhorak@usgs.gov	303-236-4882, ext. 258	William F. Horak
USGS	PO Box 25286 Federal Center Denver, CO 80225	tcasadev@usgs.gov	303-202-4740	USGS Regional Director-Central Region Thomas J Casadevall

Appendix J: Summary of Public Meeting #1

CGS Relocation to CSM Public Meeting #1 (9/28/04) – A Summary

-Introductions of Committee by Vince Matthews
-Scope of Study presented by Dan Montez

1. Walt Johnson, consultant, Pearson, deRidder, Johnson
   - Idea to have CGS move to CSM started in a conversation with Dave Streyart
   - Lack of equipment/facilities at current CGS

2. **John Rold, consultant and former State Geologist** (written statement provided)
   - 1964 – Rold pres. RMAG, George Fentress encouraged reestablishment of CGS.
   - 1967 – CGS created – no appropriation
   - 1968 – Funding appropriated
   - One of main goals was to influence State/Local decisions related to geology
   - 5 different studies to move CGS in past
   - Politics occur at both state and academia
   - Don't move, likes present arrangement

   Concerned about following items:
   1. Short-term cost, Higher Education budget considerations
   2. If moved to CSM, what impact would there be on cost for CGS services?
   3. How would CGS support CSM with regards to money?
   4. Contacts with state and local representatives
   5. Contact with state/local agency clients
   6. Impact on CGS employees (including transportation efficiency)
   7. Reinstate CGS Advisory Committee

3. **Logan McMillan, president AIPG** (written documentation of past communications provided)
   - AIPG will remain in the process
   - Continue dialogue with geologic community
   - CGS should maintain current mission
   - No CSM fees should affect current CGS activities
   - Wants an advisory group convened
   - Wants appropriate status for State Geologist
     -Division-level, whether at DNR or CSM
     -State Geologist remains as civil service position, not appointed.
   - Make sure Severance Tax funding is not in jeopardy
   - Keep a firewall between CSM and CGS so that Severance tax remains with CGS

4. **Art Panse –geologist consultant**
   - Favors option #2, physical move, but not administrative move
   - Western states geological Survey's associated with colleges seem to be more dynamic and geologically centered

5. **David Bird – CGS**
   - Why are college-based surveys "better"?
   - Walt Johnson answered – Texas Bureau of Economic Geology (TBEG) as example. Doing work all over, but seen to be proactive. CGS needs more visibility.

6. **Genevieve Young _ CGS**
    - TBEG is not a good model because they are not focused on just Texas

7. **Matt Morgan – CGS**
    - New Mexico Bureau of Economic Geology at New Mexico Tech; good environment to work as student.
    - Lab facilities a plus at universities (seconded by David Bird)
    - Expressed concern about the number of PhD staff; many at NMBEG, but few at CGS

8. **Judy Hannah –Head Department of Earth Resources, CSU**
    - Expressed interest in the process and progress of the study

Appendix K: Summary of Public Meeting #2

Jerry Hodgden (consulting geologist, Golden) – *(based on notes from email from Mr. Hodgden provided at the meeting)*

Mr. Hodgden stated that he would like to see the Colorado Geological Survey relocated from DNR to CSM. He stated that the CGS is and always has been a weak survey and held in poor regard by geologists. One reason is the presence of the USGS in Colorado, which has done much of the work that should have been done by the CGS. He went on that the geological surveys in the US that are recognized as the best and most valuable to the public and their states are all associated with academic institutions. The examples he gave were the Kansas Geological Survey at the University of Kansas, the Nebraska Geological Survey at the University of Nebraska, the Missouri Geological Survey at the Missouri School of Mines at Rolla, the Illinois Geological Survey at the University of Illinois, Urbana, and the Wyoming Geological Survey at the University of Wyoming.

He stated that the advantages at being at a university are the academic environment where they can attract the best and the brightest scientists. Also that the survey personnel are in the midst of a talent pool that includes professors and students who can be employed to do research and support work. He noted that at the Kansas Geological Survey the staff of the survey often furthers their education by attending KU's graduate school. If the staff has advanced degrees they may also teach. The university often shares facilities and the survey and joint research projects are often published. The opportunity for joint survey-academic collaborations helps in attracting top scientists. Surveys at universities such as that in Kansas, are fully accessible to citizens and industry as well as all of the various departments of state including DNR, Education, Agriculture, Transportation, Commerce, the Legislature, and Executive branches.

Mr. Hodgden states that several states, such as California, Colorado, and Alaska, with important needs for geological information have their surveys under the DNR. These states have important natural resource issues but he said that these surveys are also subject to important issues not necessarily treated as priorities by DNR. He cited areas such as natural hazards (earthquakes, landslides, avalanches). He stated that these surveys could be weak and ineffective because of a focus on regulatory control and a need to maximize revenues from commercial operations.

He concluded by stating that moving the CGS to CSM would put it in a position to attract and develop a first rate group of scientists that could bring national and international respect to the Survey. Such a move would allow the public access to information through the research that would be conducted. The student population at CSM would be provided a place to learn and undertake apprenticeships. More grants would be forthcoming from the federal government and the private sector. The survey would also be removed from the distraction of political pressures. The state would benefit from having a survey that could watch all aspects of science, hazards, public education, industry support, natural resource information, etc.

David Noe (CGS, Denver)
Either of the proposed options (remaining physically and administratively with DNR or a physical move to CSM with administrative reporting to DNR) would work. The disruptions to the staff could be dealt with in both the long and short term. The space issue for CGS is serious. He stated that he

very much appreciated the inclusion of the cross cutting issues which, if addressed, could help to keep the CGS moving forward.

John Rold (Consulting Geologist)
Stated that this is the 4th effort to move CGS to CSM. While he was originally looking at the move seriously because of problems with the management of the CGS by DNR, he has since come to believe there should not be a move.

He stated that he very much agreed with the statement on page 3 of the draft report that there is "no compelling reason to disrupt the personal and professional lives of a group of dedicated state employees and that the identified benefits of moving to a new location do not outweigh the costs and disadvantages." He recommended that the recommendations and findings be moved to after the introduction in the document.

He felt the list on page 5 of the draft listing the directives to the Survey were very important. He also felt it was important to note that statute says that the Survey should be located as closely as possible to the DNR office. He believes strongly that it is important that the CGS keep its presence in Denver. While he favors no change in the status quo, if a move did occur the CGS should maintain a presence with DNR.

He emphasized the importance of the list of state agencies that CGS works with (page 9, bottom paragraph). He suggested adding the State to the list of constituents on page 16 of the draft. He also encouraged the committee to ensure that headings for each option are clearly placed in the discussion between pages 11 and 13. He noted that other projects where CSM and CGS have cooperated in the past were the Colorado Rockfall Simulation and the Debeque landslide.

Mr. Rold stated that the cost of a move could be substantial. He asked that this be better addressed in the report. He stated that the financial implications of the move (page 21 of the draft) were the fatal flaw for him. He questioned how much funding for the move CSM would provide. He estimated the move would cost approximately $40,000.

On page 17 of the draft report he emphasized the logistical concerns for CGS employees, especially a potential for less carpooling; he stated some CGS employees might have to buy another vehicle. Another concern noted in the report that he wanted to highlight was that a move might limit the ability for CGS personnel to attend professional and state committee meetings downtown.

Mr. Rold encourages the State Geologist to ensure that CGS publications were available in the CSM bookstore as soon as possible. He also stated that the potential worries with regard to TABOR funding for CSM could be substantial.

He discussed the space in the Hall of Justice that had been proposed for CGS. He stated that he had toured the space and found it "awful." The space was not adequate for the Survey and due to fire code restrictions much of the space might not be well used. He wanted the report to contain exact figures for what the rental cost to CGS would be for space at CSM (page 29 of the draft).

He briefly discussed overhead rates and stated that the typical overhead rates for CSM were much higher than at CGS. He stated that the POTS scheme allowed the survey to come out in the black at the end of the year. Mr. Rold also stated that CGS personnel were too busy to teach so that being

co-located would not be a benefit for CSM. He praised the discussion of using the state extension service, said this had been examined before, but should be considered again.

Mr. Rold found the findings on page 26 of the report (3rd paragraph) very interesting. This discussion found that state surveys co-located with the executive branch were more productive on a per person, per dollar of funding obtained. He stated that this indicated that executive branch surveys brought more bang for the buck.

Mr. Rold thought that the suggestion on page 27 of the draft that the Governor appoint the State Geologist was a very bad idea. If adopted it could lead to too much political pressure on the survey. Mr. Rold found the three examples of other state geological surveys very interesting and illustrative. He stated that he agreed with the DNR members concerns about how non-PhD. staff would fit into an academic environment.

Mr. Rold finished by saying the phrase about there being "no compelling reason" to move the CGS was the right conclusion. He thanked the committee for its work and time.

Logan McMillan (President of Colorado AIPG)
Mr. McMillan thanked the committee for its time and public service to the citizens of Colorado. He stated that AIPG would have an opinion on the report but it would not be available until after their next executive committee meeting on December 7.

Appendix L: Analysis Of The Potential Benefits Of An Extension Service Program Within The Colorado Geological Survey

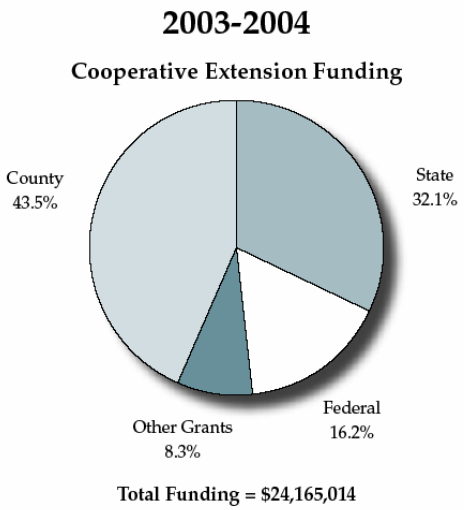
Description of Extension Service Models

Colorado State Cooperative Extension Service

In 1914 the U.S. Congress authorized the creation of a Cooperative Extension in each state. The Colorado State Cooperative Extension is part of a nationwide system mandated to share the latest research to help Coloradoans. Cooperative Extension specializes in health and nutrition, youth development including 4-H, gardening and commercial horticulture, personal finances, community resources, agricultural technology, food safety, helping communities address changes and conflict, family relationships and managing small acreages and natural resources. Cooperative Extension has offices in 57 Colorado counties that serve 59 Colorado counties. (CSU Cooperative Extension, 2004, http://www.ext. colostate.edu/news/030617.html)

The Cooperative Extension employs 35 FTE extension specialists. In addition, they employ 187 extension agents, 22 paraprofessionals, and 131.5 support staff most of whom are part-time employees. (Based on FY02-03; http://www.ext.colostate.edu/nso/nso/Intro%20to%20Ce /Barthintro.ppt)

Funding for Cooperative Extension is provided from multiple sources: federal, state, county and non-tax monies. The total funding for fiscal year 2003-2004 was $24,165,014. Federal funds are allocated to the states on the basis of law and formula. Additionally, some federal funds are earmarked to meet special national priority needs. Cooperative Extension receives state funds from Colorado State University's allocation through the Colorado Commission on Higher Education as part of the state's higher education budget. County commissioners appropriate annual budget funds to support the operation of the Cooperative Extension office in their county. Some funds are received from non-tax sources such as program grants and cost recovery fees (CSU Cooperative Extension, 2004, 2003 Annual Report).



Colorado State Forest Service

Colorado State Forest Service (CSFS) is part of Colorado State University. Its director is titled the State Forester.

It has a central office on the CSU campus, but also operates like the CSU Extension Service with distributed offices. Employees operate in the areas of field investigation, applied science studies, and public outreach.

Pertinent CSFS information:

- Employs 135 FTE, not including temporary employees or volunteers.
- Annual budget: approximately $8.8 million (5-year avg. FY98/99 – 02/03) (http://www.colostate.edu/Depts/OBIA/pdf/budmodel/)
- Structured in 4 divisions:
    - Fire,
    - Forest Management,
    - Conservation Education, and
    - Community Forestry.
- Has 19 district offices around the state:
    - Alamosa, Boulder, Canon City, Denver, Durango, Fort Collins, Fort Morgan, Franktown, Golden, Grandby, Grand Junction, Gunnison, La Junta, La Veta, Montrose, Salida, State Forest, Steamboat Springs, Woodland Park

A note to eliminate confusion: The Dept of Natural Resources has a Division of Forestry. This is not the same entity as the CSFS. Division of Forestry has an eight member Forestry Advisory Board on which the State Forester has a seat.

Analysis

The existing models for extension service within Colorado government, Colorado State Forest Service (CSFS) and Colorado State Extension Service (CE), are both significantly larger entities than CGS in terms of budget and employees. The scope and mandate of the CE is much broader than that of the CGS. It is not necessary for a CGS extension service to have offices in most counties as the CE does. In addition, the counties significantly fund the local extension service activities, which is not likely for geological services in most counties. Therefore, it does not serve as a viable model for a CGS extension service.

The CSFS would be a more likely analog to a proposed "CGS extension service" with its focus on fewer regional offices. The mix of field investigation, applied science studies, and public outreach appear to be analogous between the two agencies. Yet the CSFS budget is approximately two times, and employee FTE over thee times that of CGS. Unless there was a significant increase in funding and a lifting of the FTE cap for CGS, it would be difficult for CGS to embark on an extension service model similar to the CSFS. It may be possible if fewer extension offices were planned. This would approximate the current regional/field offices that several Department of Natural Resources agencies operate. The Divisions of Wildlife, Water Resources, and Minerals and Geology respectively operate 7, 5, and 2 regional offices, some of which are co-located.

One difficulty in expanding to a geological extension service concept, similar to the individualized service that the CE performs for agriculture, is the potential for CGS to be viewed as competing with the private sector in performing geological consulting services. This potentiality and the ill will it would engender with the geological consulting community could be a detriment to a healthy, vibrant CGS. Currently, it is CGS practice to refer citizens requesting detailed investigations or analysis of geology related issues on their property to qualified consultants.

It is a goal of CGS to have geological information from CGS as accessible as possible. It would be reasonable to make use of the Extension Service's network by forming a partnership with CSU and holding seminars for Extension personnel on CGS' services in the area of water resources, geologic hazards, and mineral resources. Placing CGS information/publications in appropriate CE county offices and linking CE and CGS web sites would be a benefit to the citizens of Colorado.

The CGS is and should continue to be the entity with geological expertise for the entire state. CGS is continually enhancing its service to the state and its citizens at all levels of government (municipal, county, and state). One means to achieve this goal is to better leverage federal funding.

Appendix M: CSM Library

Information Services to the Colorado Geological Survey by the Colorado School of Mines Library

L. Dunn, CSM Library Reference

In the event that the Colorado School of Mines Library assumed the information support functions for the Colorado Geological Survey, we could improve on the CGS's current information resources in the following ways:

Collections

The CGS staff would have a much larger and more diverse collection of print and electronic materials at hand. These collections include:

- A large geoscience collection.
- Significant collections in applied geosciences such as hydrology, environmental geology, engineering geology and geochemistry.
- USGPO depository collections specializing in science and technology, with extensive USGS, USBM and EPA collections.
- US State geological survey publications collection, the most extensive in the region. (The CGS donated their non-Western state survey publications to us in 2001.)
- One of the largest map collections in the region, including both topographic and geologic maps.
- Materials in interdisciplinary subjects such as sustainable development, water resources, energy, and natural resources public policy.
- Databases and e-journals in the sciences and technology, including Georef, Engineering Index, Chemical Abstracts, Pollution Abstracts, and others.

The existing library of the CGS could be incorporated into the CSM Library, resulting in no loss of access to those materials.

Reference & Services

The CGS would gain expertise and improved service by using the CSM Library, including:

- Open hours for ~80 hours/week during the academic year and ~54 hours/week during the summer.
- Staff—Reference librarians with science and technology expertise are available 40 hours/week throughout the year, and reachable by walk-in, phone, e-mail, or appointment. Assistance includes information research, data management, tutorials for Web searching and other topics, etc. Staff is also available to assist with other information needs of the CGS staff.
- Webpage's maintained by the Library are designed to provide off-site and after-hours assistance.
- Infrastructure provides collection maintenance, computer support for access to information, study and work group space, wireless network access for laptop computers, reserve services for group use of publications, etc.

Access
In addition to Reference support, the CSM Library would significantly improve direct access to information for the CGS staff as a part of CSM.

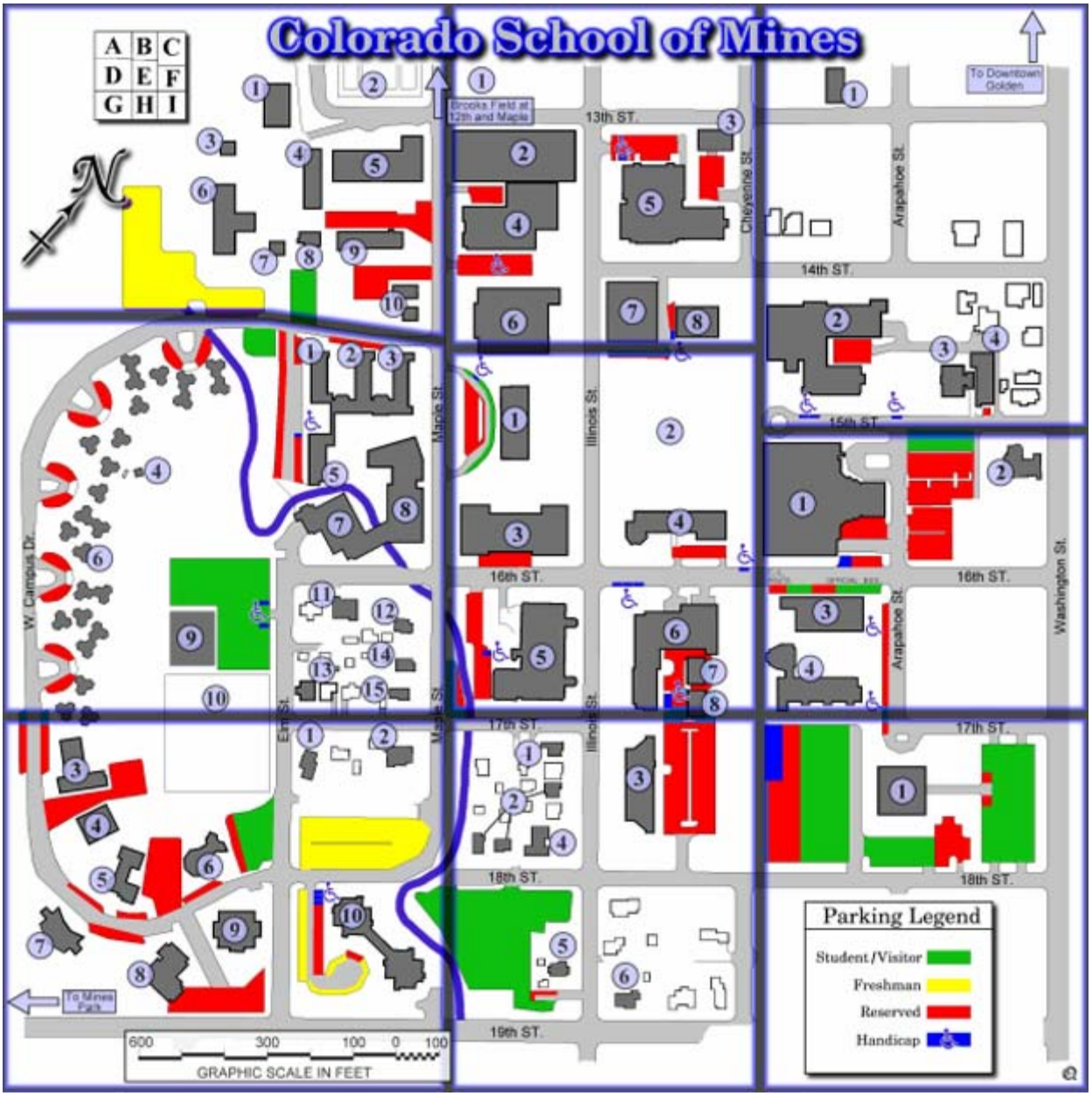
- Catalyst, the Library's Web catalog: Almost all of the Library's materials are included in Catalyst. This is critical—ownership without access reduces the effectiveness of any collection. CGS staff would be able to search for Library materials from any location providing Web access.
- CGS staff would have CSM Library user accounts and would be able to check out all circulating materials for off-site use. User accounts include features such as automatic e-mail reminders on due dates, placing holds on materials, etc.
- CGS staff would have access to all databases and e-journals available via the campus network—"to the desktop" delivery of information.
- Special collections contributed by the CGS would gain enhanced access—for example; they could be included in the Library catalog, digitized, or indexed in a Web-accessible database.

Document Delivery
The CSM Library's document delivery infrastructure would improve access to other libraries materials, further broadening CGS staff's information reach:

- The Library has a variety of reciprocal agreements with other university and public libraries (including the Colorado Alliance of Research Libraries), and ongoing projects in document delivery. These activities improve document delivery and reduce cost.
- The Library transports materials via local courier, fax, and ARIEL (digital transfer system) to speed delivery.
- Library experts can help track down hard-to-find documents for CGS staff.

All of these information services would enhance the CGS staff's access to the information they need to perform their responsibilities efficiently and effectively.

Appendix N: CSM Campus Parking Map



Appendix O: Comparison of Indirect Cost Recoveries

Colorado Geological Survey	Colorado School of Mines
Department Share: 8.4 percent • Supports departmental overhead (executive director's office), general administrative costs such as accounting, purchasing, payroll, internet access, and IT services • Calculated as a percent of personal services charged to federal grants only *plus*	Auxiliary enterprise: 8.5 percent • Supports general administrative costs like accounting, payroll, and internet access
Division Share: 12.6 percent • Supports administrative overhead costs within the division if such costs are not paid with federal funds **Total ICR: 21.0 percent**	"Quasi Academic" Research: 22 percent • For activities that are less than "full-blown" research • Covers sponsored programs overhead, departmental overhead and general campus overhead. • The unit/activity is then responsible for all other costs, including: space (rent), utilities, phones, and operation and maintenance of space
Other ICR rates are negotiated on a case by case basis. For instance, the Division of Minerals and Geology has a grant with Colorado State University that is paid out of cash funds and charged a 15.0 percent rate.	"Full-Blown" Research: 55 percent • Covers all items listed above plus o Space rental o Utilities o Library support o Operations and maintenance of space o Computer support

Appendix P: Committee Member Bios

Shane Henry

Shane Henry was born and raised in Grand Junction, but currently lives in Denver, CO. He is a graduate of Fruita Monument High School (1989), Mesa State College - B.A. Political Science (1995), and the University of Colorado's Graduate School of Public Affairs - MPA (2001). He enjoys outdoor activities, including golf, hiking and camping. His career has centered on politics and public policy work. After graduating from college he worked for CLUB 20 as a Research Analyst for 3½ years. From 1999 - 2001 he worked on Senator Wayne Allard's staff as West Slope Director, covering issues and constituent concerns over a 16 county area. In August 2001 he went to work at the Department of Natural Resources as the Assistant Director for Lands, Energy and Forestry. One of his key responsibilities is to serve as a liaison between the Executive Director and the Colorado Oil/Gas Conservation Commission, Division of Minerals/Geology, Colorado Geological Survey, State Land Board, and the Division of Forestry. From October 2001 to April 2004 he has served on the Interstate Oil and Gas Compact Commission as Governor Owens' designee. He also currently serves as the Executive Director's designee on the Mined Land Reclamation Board and the State Conservation Board.

Murray W. Hitzman

Murray Hitzman, Charles Franklin Fogarty Professor of Economic Geology at the Colorado School of Mines, received BA degrees in Earth Science and Anthropology from Dartmouth College in 1976, an MS in geology from the University of Washington, Seattle in 1978, and a Ph.D. from Stanford University in 1983. Dr. Hitzman worked initially as a geophysist for Phillips Petroleum Company. He began work in the mining industry with Anaconda in 1976 at the Yerington porphyry copper mine in Nevada and subsequently worked for Anaconda in Alaska from 1977 through 1982. This formed the basis for his master's thesis (on volcanogenic massive sulfide mineralization in the Ambler District, Alaska) and his Ph.D. dissertation (on the Ruby Creek copper-cobalt deposit in the Brooks Range, Alaska). From 1982 through 1993, Dr. Hitzman worked throughout the world for Chevron Resources Company. He initiated and managed base and precious metal exploration projects in Papua New Guinea, Brazil, Spain, Ireland, France, Germany, Italy, Tanzania, Canada, and the United States. In 1990, he discovered the Lisheen zinc-lead-silver deposit in Ireland. From 1990 though 1993, Dr. Hitzman was manager of the Lisheen project, guiding it through exploration and pre-feasibility, including engineering and environmental studies. In 1993, Dr. Hitzman was named Geological Society of America

Congressional Fellow and served from September, 1993 to August, 1994, on the staff of U.S. Senator Joseph Lieberman (D - CT) working on natural resource and environmental issues.

Dr. Hitzman was named Executive Branch Fellow by the American Association for the Advancement for Science/Sloan Foundation during 1994. As the Executive Branch Fellow he served as a senior policy analyst in the White House Office of Science and Technology Policy from September, 1994 through March, 1996, specializing in natural resource, environmental, and geoscience issues. In June, 1996, Dr. Hitzman became the Charles F. Fogarty Professor of Economic Geology at the Colorado School of Mines. His current research interests include carbonate-hosted Zn-Pb deposits, the Zambian Copperbelt, iron oxide Cu-Au-U deposits, zinc oxide and silicate deposits, and the role of microbes in ore formation.

In 2002, Dr. Hitzman was named Read of the Department of Geology and Geological Engineering at the Colorado School of Mines. Dr. Hitzman has authored over fifty technical and popular articles on ore deposits, mineral exploration, and geoscience policy. He was awarded the Society of Economic Geologists Silver Medal in 1999. Dr. Hitzman is a Director of Mansfield Minerals Ltd. (Vancouver). He served from 2002 through 2004 as the Interim Director of the Colorado Energy Research Institute. He was named in 2004 as the Chair of the Committee on Earth Resources for the National Research Council. He is currently president-elect of the Society of Economic Geologists.

Vince Matthews

Vince Matthews is State Geologist and Director of the Colorado Geological Survey. He formerly was responsible for CGS' geologic mapping, earthquake hazards research, and outreach programs. After spending twenty years as an executive in the petroleum industry, he returned to academia in 1997 and then joined CGS in 2000.

Vince received Bachelors and Masters degrees in Geology from the University of Georgia and a Ph. D. from the University of California, Santa Cruz. He has held tenured positions at two universities and has taught geology at the University of California, University of Northern Colorado, Arizona State University, the Frank Lloyd Wright School of Architecture, and the University of Texas of the Permian Basin. As an executive in the petroleum industry for Amoco, Lear, Union Pacific, and Penn Virginia, Matthews explored in virtually every basin in the U.S., including Alaska and the Gulf of Mexico.

He is the author of more than 50 technical articles and abstracts and was senior editor of Messages in Stone: Colorado's Colorful Geology. One of his publications is widely cited as the most definitive evidence for large-scale displacement on the San Andreas Fault.

Dan Montez

Dan Montez joined the Colorado School of Mines in September 2003 as the Associate Vice President for Finance and Operations. Prior to Mines, Dan served as the Director of Budget and Fiscal Planning at the University of Colorado at Denver (4 years). Prior to CU-Denver, Dan spent 9 years on staff with the Colorado Commission on Higher Education working in the areas of higher education budget and finance, policy analysis, and legislative affairs.

Dan received a *BS in Business Administration* from Colorado State University and a *Masters of Public Administration* from CU-Denver. His master's project involved identifying the top public urban research universities in the country and how CU-Denver could move towards becoming a top 10 public urban research university by the year 2010. Dan has been very involved in his community and currently serves on the City of Thornton Parks and Open Space Commission and the North Washington Sub-Area Planning Committee.

Dan has been married for 24 years to his wife Jennifer. In his spare time, Dan enjoys golf, hiking, various sports, and collecting political memorabilia.

Matthew Sares

Matthew Sares currently manages the Environmental Geology Section at the Colorado Geological Survey. Mr. Sares holds a B.S. in Geology from the University of Toledo and a Professional Degree in Hydrogeology from the Colorado School of Mines. He has 22 years of geological experience, the last 13 years involved specifically in environmental geology. Areas of investigation have included abandoned mine lands, natural acid rock drainage, hydrogeology, aquifer recharge, and stratigraphy/depositional environments.

Patricia Schindler

Pat Schindler joined the Colorado Geological Survey in 2000 as the Manager of Administration and Business Services. Prior to CGS, she worked four years at the National Renewable Energy Laboratory as their General Ledger Accountant and three years as the Budget Analyst for Site Operations. Prior to NREL, she spent ten years at Rocky Flats as the Budget Analyst/Construction Project Administrator for the Facilities Engineering and Project Management Office. During her time at Rocky Flats, she became an authorized derivative classifier and held a US Department of Energy Secret security clearance.

Pat received a BS in Accounting from Metropolitan State College in 1994. When she isn't at work, she can be found on the nearest volleyball court, waterskiing on Empire Reservoir, or riding her bike with her dog, Jake.

Robert J. Weimer

Robert J. Weimer, Emeritus Professor and Consultant, has been affiliated with the Geology and Geological Engineering Department at the Colorado School of Mines since joining the faculty in 1957, after working in the petroleum industry. He served as Department Head from 1965-70, and retired from full-time teaching in 1983. Geology degrees were earned from the University of Wyoming (BA 48, MA 49), and Stanford University (Ph.D. 1953). Formal contacts with the Colorado Geological Survey (CGS) have been as: Member, Selection Committee for Director, 1967; Member of Governor's Task Force to Evaluate CGS, 1987-88; Member, CGS Advisory Committee, 1989-92, (Chairman.1991-92); and author of CGS Bulletin 51. 1996.

Terry Young

Terry Young, Professor and Head of the Department of Geophysics at the Colorado School of Mines, was born and raised in Spokane, Washington. He attended Stanford University, where he earned his B.A. degree in English. After serving on active duty as a Navy pilot, Terry attended graduate school at Colorado School of Mines, where he earned his M.S. degree in Geophysical Engineering and his Ph.D. degree in Geophysics. Terry was invited to remain on the faculty of the Department of Geophysics at Colorado School of Mines, which he did for three years. Then he accepted employment in industry to gain research experience outside the university environment. Terry worked in geophysical research: first, at the French geophysical service company, CGG, and later at Mobil. After managing geophysical research for Mobil, he was sent to Mobil North Sea Limited in the U.K., where he had assignments in strategic planning, exploration of the Southern Gas Basin, and exploration along the

Atlantic Margin frontier West of Britain. Upon returning to the States, Mobil gave Terry a "distributed research" assignment in the Department of Statistics at Carnegie Mellon University, where he worked on problems associated with both medical and seismic imaging. In 2000, Terry was appointed as Professor and Head of the Department of Geophysics at Colorado School of Mines. Among his various research interests and activities, Terry has worked with Knox Williams and Dale Atkins of the Colorado Avalanche Information Center on an undergraduate research program on avalanche forecasting. In 2004, Terry was elected as President-Elect of the Society of Exploration Geophysicists. He is also serving as General Chairman of the Annual International Meeting of the Society of Exploration Geophysicists, which was held in Denver, Oct. 10-15, 2004.

Appendix Q: Survey of Surrounding States (Questionnaire)

Joint Study – Colorado Geological Survey Relocation per HB 04-1359

State Survey Questionnaire

STATE: _____
Person Completing Survey: _____
Phone Number: _____
Email: _____

1. **Location**
   a. Is the survey located on a University campus? _____

   b. Approximately how many square feet of office space does the survey occupy?
   _____

   c. What types of library resources are available to the survey? (Please specify what resources)
      - O Internal (i.e. paper journals, books)
      - O External (i.e. online resources)

      _____
      _____

   d. Does the survey have more than one office around the state? _____

2. **Reporting Structure and Survey Responsibility**
   a. To whom does the state geologist directly report?
      - O Academic Entity (College or University)
        - O President
        - O Vice President or Provost
        - O Academic Dean
        - O Department Head
        - O Other_____
      - O Governmental Entity
        - O Governor
        - O State Department Head (i.e. Dept. of Natural Resources)
        - O Level below Dept. Head (i.e. Division Director)_____
        - O Other_____
      - O Other than Academic or Governmental Entity (Please describe):
        _____

   b. Does the survey have advisory responsibilities to local government? _____

c. Does the survey have regulatory authority and if so over what areas? _____
_____
_____

d. The State Geologist is:
- O Appointed by:_____
- O Hired by:_____

e. Is the State Geologist part of the state civil service system? _____

f. Does your Survey have an advisory board or committee? _____

3. Budget

a. What is the total annual budget for the state geological survey? _____

b. What organizational structure does the Survey's budget belong to?
- O University
- O State Executive Branch

c. For the structure that was checked above, is the budget a line item or part of an overall budget? _____

d. List all funding sources for the state survey? (check all that apply)
- O User Fees
- O State Appropriations
- O Special Tax
- O Federal
- O Grants
- O Other_____

e. Does the survey receive NSF funds? _____ If so, approximately how much per year?
_____

f. Do you have freedom to contact State Legislators about your budget?
- O None
- O Some
- O A lot
- O Total

g. Do you have freedom to contact your congressional delegation or staff relating to geological issues?
   - O None
   - O Some
   - O A lot
   - O Total

4. Survey Staff

a. How many employees work at the survey?
   Total FTE: _____
   No. of temporary staff: _____
   No. of permanent staff: _____

b. Do any survey employees currently have permanent or adjunct faculty appointment? _____ If so, how many? _____

c. How many employees are geoscientists? _____

d. How many employees are administrative? _____

e. How many employees are technical assistants? _____

f. How many staff members have their PhD? _____

5. Survey Programs

a. Current Activities of the Survey include: (check all that apply)

- O Geologic Mapping
- O Groundwater Mapping
- O Geologic Hazard Mapping
- O Natural Resource Mapping
- O Surficial Deposits Mapping
- O Soil Mapping
- O Groundwater Quality
- O Land use/Urban Planning
- O Oil/Gas Research
- O Avalanche Forecasting
- O Meteorological Research
- O Biological Research
- O Geochemical Studies
- O Geophysical Studies
- O Wildfire/Post-Wildfire Studies
- O Environmental Characterization
- O Mineral/Mining Research
- O Earthquake Studies
- O Other (please expand below)

_____
_____
_____

b. Approximately what percentage of the programs/studies is applied research versus basic research? _____

6. **Equipment**
   a. Does the survey own its own drilling rigs? _____

   b. Are there drill core storage facilities? _____

   c. How many and what types of vehicles does the survey have access to? _____
   _____

7. **Publication Sales**
   a. Please specify the annual revenue of the survey's publication sales. $_____

   b. Do these auxiliary revenues remain with the Survey? _____

   c. Where are the publications sold?
      Physical location: _____
      Size of location: _____
      Internet: _____

8. **Outreach (**Please check the various types of outreach activities that the survey participates in and to whom these activities benefit.)

   I. Presentations
      - O Professional
      - O Governmental
      - O University level
      - O Educational (K-12)
      - O Public

   II. Publications
      - O Professional
      - O Governmental
      - O University level
      - O Educational (K-12)
      - O Public

   III. Field Trips
      - O Professional
      - O Governmental
      - O University level
      - O Educational (K-12)
      - O Public

IV. Internet

- O Professional
- O Governmental
- O University level
- O Educational (K-12)
- O Public

V. Other (please list examples)

_____

_____

b. What percentage of the surveys' time is spent on outreach activities? _____

Thank you for taking the time to complete this survey. Your input is imperative to the success of this project. We will be summarizing and sharing the results of this survey all participants upon completion.

Please EMAIL or FAX your completed survey form to:

Kelly Brown
Colorado School of Mines (F&O)
FAX Number: (303) 273-3950
Email: kbski@juno.com

Appendix R: Survey of Surrounding States (Summary and Findings)

State Survey Questionnaire Results

1. Location

State	Located on a University Campus	Square footage of office space	Library resources available		More than one office around the state	Comments
			Internal	External		
Texas	Yes	125,000 sq. ft.	x	x	Yes; (Houston, Midland)	external available through University resources and bureau's on-site "reading room"
Montana	Yes	37,000 sq. ft. in Butte 25,000 sq. ft. in Billings	x	x	Yes; (Butte,Billings)	full access to MT library full access to libraries online resources
Wyoming	Yes	22,700 sq. ft.	x	x (see comments)	No	external are those available through the University library
South Dakota	Yes	10,570 sq. ft. on campus ~15,600 sq. ft. off campus	x	x	Yes; (Vermillion, Rapid City)	full access to University library Ground Water Journal, USGS pub.
North Dakota*	No core library is on campus	Main office; 8,000 sq. ft. core library: 600 sq. ft.	x		Yes	
Nevada	Yes	20,000 sq. ft.	x	x	No	
Utah*	No	22,000 sq. ft.	x	x	Yes (1)	
New Mexico	Yes	50,000 sq.ft.	x	x (see comments)	Yes; (2 formal, 1 informal)	external are those available through University plus own subscriptions
Arizona*	No	11,500 sq. ft.	x		No	
Kansas	Yes	19,000 sq. ft.	x	x	Yes	
Oklahoma	Yes	17,200 sq. ft. on campus 18,750 sq. ft. at OPIC	x	x	Yes (2 facilities in Norman geophysical facility in Tulsa)	contains one of the largest geoscience libraries in N. America
Nebraska	Yes	6000 sq. ft.	x	x	Yes	all university resources available to survey; also small library of pub. from other surveys
Idaho	Yes	4500 sq. ft.	x	x	yes -Moscow, (Boise and Pocatello at the U)	full access to University's online sytem
Colorado*	No	6807 sq. ft	x		No	

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

2. Reporting Structure and Survey Responsibility

State	State geologist reports to:	Advisory responsibilities to local government	Regulatory Authority	The state geologist is appointed/hired by:	The state geologist is part of the state civil service system	Survey has an advisory board or committee	Comments
Texas	Vice President	Yes (see comments)	No	appointed by U of Texas Vice President of Research	Yes, state employee		provides information related to the geosciences to state officials and agencies, local govt. the public, and the private sector
Montana	Chancellor of MT Tech who reports to the President of U of M	No	No	Hired by the board of regents of the Montana University System	No	No	
Wyoming	Governor	No	No	appointed by Governor	No	Yes	
South Dakota	Director of Division of Financial and Technical Assistance, DNR	Yes	No	hired by Dept. of Environment and Natural Resources	No	No	
North Dakota*	Governor	Yes	Yes (see comments)	Appointed by Industrial Commision Governor, Commisioner of Agriculture	No	No	Coal Exploration, Subsurface minerals, geothermal, paleontological resources
Nevada	Director of the Mackay School of Earth sciences and Engineering	Yes	No	hired by U of Nevada, Reno on behalf of the Board of Regents	No, but support staff are	Yes	
Utah*	State Dept. Head (Dept. of Natural Resources)	Yes	No	appointed by governor	No	Yes	
New Mexico	President of University	No; but does have some to state govt.	No (see comments)	hired by University President	Yes	No	The survey does have representation on several regulatory boards
Arizona*	Governor	No	Yes (see comments)	appointed by Governor	No	appoint advisory committees as deem appropriate	The Arizona Oil and Gas Conservation Commission is attached to the AZGSprovides administrative and staff support; regulate drilling and production
Kansas	Vice President	Yes	No	hired by University entity	No	Yes	
Oklahoma	Vice President	Yes	Yes (see comments)	appointed by Board of Reagents	No	No	one regulatory function "Board on Geographic Names"
Nebraska	Academic Dean	Yes	No	appointed by Academic Dean	No	Yes	
Idaho	Vice President of Research at U of Idaho	No	No	Appointed by director of the Survey	No	Yes	
Colorado*	Level below Dept. Head (division director)	Yes	No	Hired	Yes	No	

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

3. Budget

State	Total Annual Budget	Organizational Structure that state budget belongs to	Budget is a line item	Funding sources for the state survey: User Fees	State Appropriations	Special Tax	Federal	Grants	Other	NSF funds Amount/yr	Amount of freedom to contact state legislatures about the state budget	Amount of freedom to contact congressional delegation or staff relating to geological issues
Texas	$14-15 million		Yes		x		x	x	x-private sector foundations	Yes $300,000	Some	A lot
Montana	$2.3 million	University	Yes		x			x		No	Some	A lot
Wyoming	$2,745,602	State Executive Branch	No, part of an overall budget		x			x		No	Some	A lot
South Dakota	$1.36 million	State Executive Branch	No, part of an overall budget		x		x			No	None	None
North Dakota*	$1 million	State Executive Branch	Yes		x		x	x		No	A lot	A lot
Nevada	$5.6 million	University (for most of budget) State Executive Branch (100K/yr)	Yes	x	x	x	x	x	min donations through U foundations	Yes $300,000	Some	A lot
Utah*	$5,745,600	State Executive Branch	Yes	x	x		x	x	mineral lease	No	A lot	A lot
New Mexico	$4.2 Million	University	Yes		x		x	x		Yes $400,000	A lot	Total
Arizona*	$800,000 from General Fund $400,000 in contracts	State Executive Branch	Yes		x		x		contracts state/private	No	Total	Total
Kansas	$5 million	University	Yes		x					Yes $50,000	Some	A lot
Oklahoma	$2.75 million	University	Yes	x	x					No	Some	Total
Nebraska	$3 million	University	No, part of an overall budget		x					Yes $100,000	None	Some
Idaho	$1,466,915	University	Yes		x			x	Publication Sales	Yes (not recently)	Some	Some
Colorado*	$4,583,941	State Executive Branch	Yes	x		x	x	x		No	Some	None

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

4. Survey Staff

State	# of employees			Employees with permanent or adjunct faculty appointment	# of employees that are:			# of staff with PhD
	Total FTE	# of temp	# of perm.		geoscientists	administrative	technical assistants	
Texas	125	35	110	~8-10	~65	~40	~35	~40
Montana	60	2	58	3; most researchers hold research faculty status which grants some advantages	38	4	10	6
Wyoming	25	10	21	0	6	2	11	0
South Dakota	23.5	3	20.5	0, no official appointments; but a few classes have been taught by staff members	11.5	3	9	2
North Dakota*	18	0	18	0	6	1.3	7	2
Nevada	37	9	28	8	18	4	15	12
Utah*	76	13	63	0	39	10	27	5
New Mexico	61	10	51	15	29	10	20	21
Arizona*	20	9.5	10.5	4	15	5	0	7
Kansas	150	4	146	6	22	27	12	22
Oklahoma	38	3	35	1	12	16	10	6
Nebraska	22		22	15	15	2	5	8
Idaho	17	2	5	6	11	4	2	6
Colorado*	37	2 to 20	41	0	20	7	1	1

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

5. Survey Programs

State	% of programs that are applied research	Geologic Mapping	Groundwater Mapping	Geologic Hazard Mapping	Natural Resource Mapping	Surficial Deposits Mapping	Soil Mapping	Groundwater Quality	Land use/ Urban Planning	Oil/Gas Research	Avalanche Forecasting	Meteorological Research	Biological Research	Geochemical Studies	Geophysical Studies	Wildfire Studies	Environmental Characterization	Mineral/Mining Research	Earthquake Studies	Other
Texas	100%	x	x	x	x	x		x		x			x	x	x		x	x		x remote sensing
Montana	100%	x	x	x	x	x		x		x						x	x	x	x	
Wyoming	100%	x		x	x	x				x	x						x	x	x	
South Dakota	>=90%	x	x	x	x	x		x	x	x								x		
North Dakota*	100%	x		x	x	x				x				x						
Nevada	90%	x		x	x	x		x		x				x	x			x		x geodetic studies
Utah*	100%	x	x	x	x	x		x		x				x			x	x	x	x paleontology
New Mexico	80%	x	x	x	x	x		x	x	x				x	x		x	x	x	
Arizona*	50% geologic mapping 50% applied studies	x		x		x				x						x			x	
Kansas	90%	x	x	x	x	x		x		x				x	x		x	x	x	
Oklahoma	80%	x	x	x	x	x			x									x	x	
Nebraska	60%	x	x	x	x	x	x	x	x			x	x	x	x					
Idaho	100%	x	x	x		x		x	x	x				x	x	x		x	x	
Colorado*	95%	x	x	x	x	x	x	x	x	x	x			x		x	x	x	x	

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

6. Equipment

State	Survey owns drilling rigs	Drill core facilities	# of vehicles	Types of vehicles	Comments
Texas	Yes	Major core storage facilities	15	cars, SUVs trucks	
Montana	1 drill rig 1 well-logging truck	No	Access to MT Tech motor pool	sedans, 4WD vans	
Wyoming	No	No	3	2 pickups 1 sedan	
South Dakota	Yes; 3	Yes ~5,000 sq. ft.	at least 10	trucks, cars, SUV minivans, vans	
North Dakota*	No	Yes	?	sedans, blazers trucks from state motor pool	
Nevada	No	Yes	7	4WD field vehicles	
Utah*	No	Yes	unlimited	state motor pool	
New Mexico	No	Yes	35	Bureau owned vehicles	
Arizona*	No	limited; do have rx cutting storage	5	1 sedan, 1 pickup 4 4wd vehicles	
Kansas	Yes	Yes	28	?	
Oklahoma	Yes	Yes	14	Sedans, Pick-ups Vans, Trucks	
Nebraska	Yes	Yes	8	pickups and vans	Also, 1 drill rig, 1 water truck, and 1 Soil Probe Truck
Idaho	No	No	12	4WD, field vehicles pickups and SUVs	
Colorado*	No	No	?	?	

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

7. Publication Sales

State	Publication Sales	Auxiliary revenues remain with survey	Location	Size of location	Internet sales
Texas	~$30,000	Yes	main office	adequate for display, sales	Yes
Montana	$27,000	Yes	Bureau office in Butte, a few publications sold at local bookstores	20'x30'	Sort of, accessible through mbmg.mtech.edu place orders online but credit card info is not handled online
Wyoming	$85,000	No	Geological Survey	22,700 sq. ft.	not yet
South Dakota	$4,500	Yes	Main office in Vermillion		Yes
North Dakota*	$2,000	No	Bismarck office	600 sq. ft.	Yes
Nevada	$120,000	Yes	Reno (also distributed through a book dealer in Las Vegas)	5,000 sq. ft.	Yes
Utah*	$284,600	Yes	Salt Lake City	1485 sq. ft.	Yes
New Mexico	$65,000	Yes	The two main offices various book sellers	each office: ~1,000 sq. ft.	Yes
Arizona*	$70,000	Yes	Sales office building some state and natl. park sales	sales office: ~500 sq. ft.	Yes increasing
Kansas	$52,000	Yes	Lawrence	1000 sq. ft.	
Oklahoma	$55,000	Yes	OPIC	18,750 sq. ft. (office)	Limited
Nebraska	$15,000	Yes	University?	1000 sq. ft.	Yes
Idaho	$30,000	Yes	Main office in Moscow	700 sq. ft./ 500 sq. ft. of storage	No, only by phone, credit card, mail or walk in
Colorado*	$190,000	Yes	Reception desk	300 sq. ft.	Beginning on November 15, 2004

* states that do not have their surveys located on a University Campus

State Survey Questionnaire Results

8. Outreach

		Presentations					Publications					Field Trips					Internet					
State	**% of time spent on outreach activities**	Professional	Governmental	University Level	Educational (K-12)	Public	Professional	Governmental	University Level	Educational (K-12)	Public	Professional	Governmental	University Level	Educational (K-12)	Public	Professional	Governmental	University Level	Educational (K-12)	Public	**Other**
Texas	15%- employ full-time "public info geologist"	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	field trips for "decision makers"- elected officials, state leaders etc.
Montana	25%	x	x	x	x	x	x	x	x		x	x	x	x		x	x	x	x	x	x	Minerals Museum (broad interest group) very successful
Wyoming	25%	x	x	x	x	x	x		x	x	x	x				x	x				x	
South Dakota	not specified	x	x	x	x	x		x				x	x			x	x	x	x	x	x	
North Dakota*	35%	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Nevada	25%	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Utah*	Daily	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	presentations include: talks booths, teacher workshops
New Mexico	20%	x	x	x	x	x	x		x	x	x	x	x	x	x		x	x	x	x	x	
Arizona*	15-20%	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	answer inquiries from the public
Kansas	15%	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	
Oklahoma	25%	x	x	x	x	x	x	x		x	x	x		x	x		x	x	x	x	x	
Nebraska	30%	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Idaho	60%	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x - summer field work shop for teachers
Colorado*	15%	x	x	x		x	x	x	x	x	x	x		x		x	x	x	x	x	x	

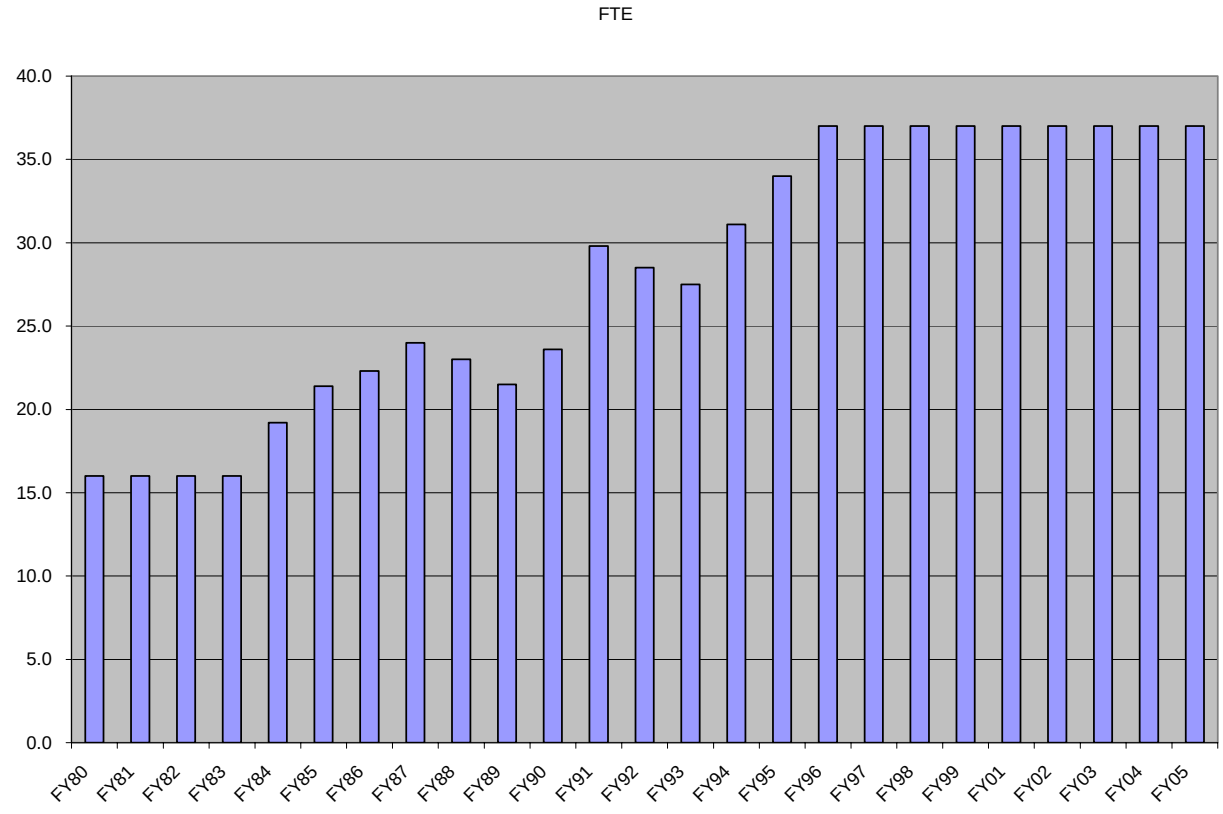
* states that do not have their surveys located on a University Campus

Appendix S: Misc. Background Information on CGS and CSM

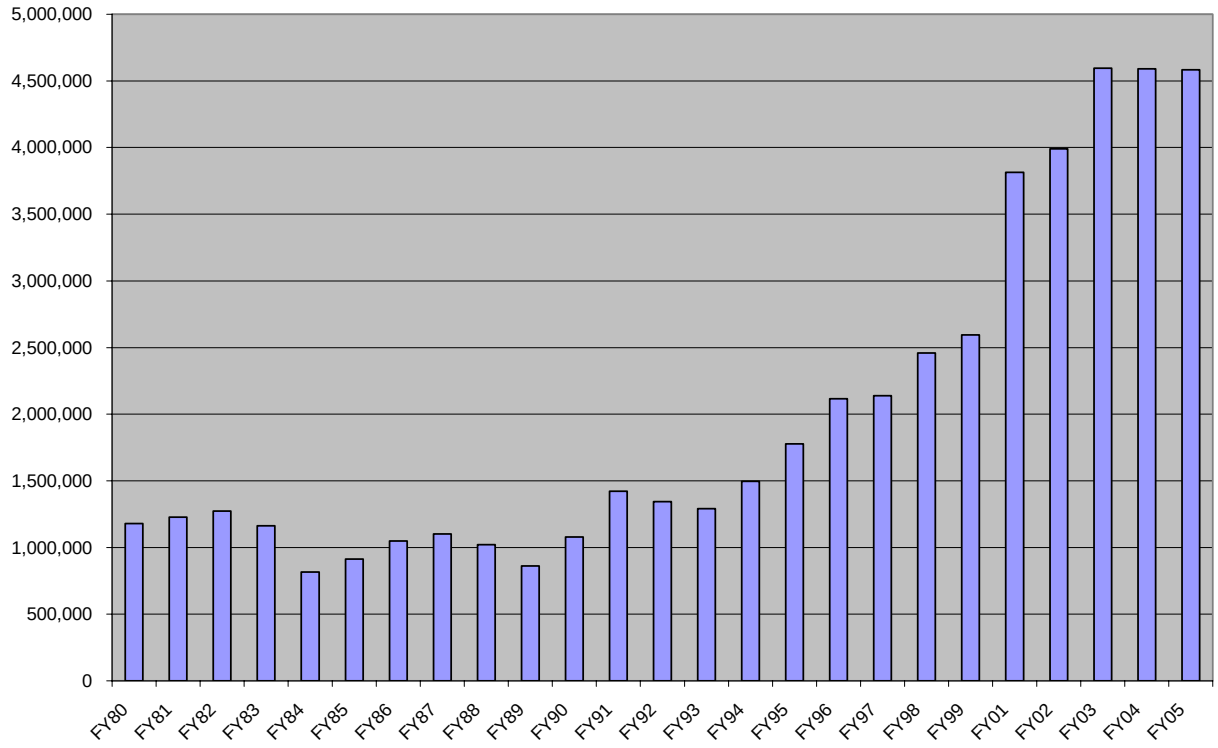
CSM STRATEGIC PLAN: The strategic plan sets forth seven major strategies for Colorado School of Mines to pursue in the decade ahead. Individually each has a direct or indirect bearing on the success of the others. Together they form the framework for the institution's future. These strategies will serve as the basis for broad decision-making, and the point of reference for subsequent detailed action plans.

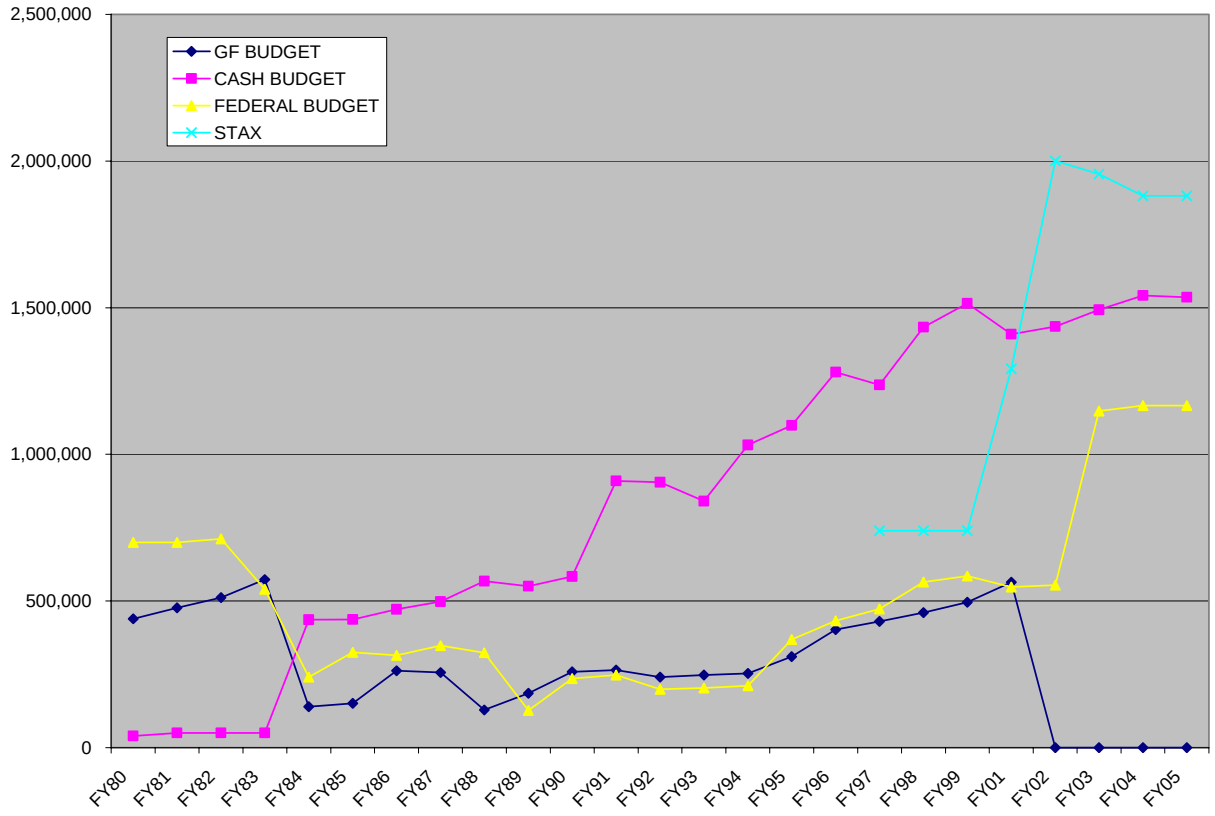
1. Cultivate World-Class Expertise in Key Focus Areas
2. Enhance Mines' Distinction as a Research Institution
3. Sharpen Mines' Distinction in Undergraduate Education
4. Align Graduate Programs with Professional & Societal Needs
5. Realign the Geographic, Demographic, & Programmatic Mix of Students
6. Expand the Financial Resource Base
7. Restructure the Deployment of Financial Resources & Capital Assets

Colorado Geological Survey

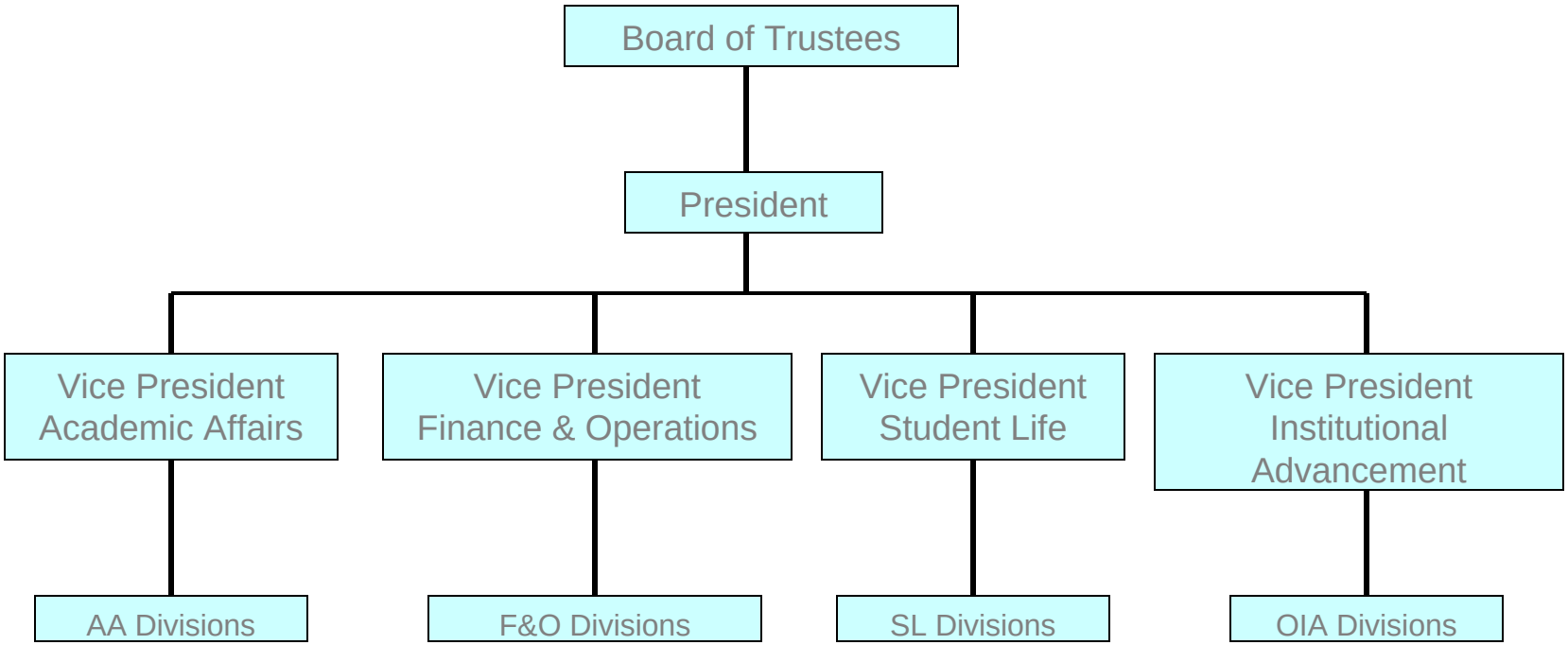


TOTAL BUDGET





CSM Organizational Chart



Appendix T: Electronic Materials via Attached CD

- Public Meeting #1 - Video Tape
- Public Meeting #1 - Committee Presentation
- Public Meeting #1 - Public Materials Submitted
- Public Meeting #2 - Video Tape
- Public Meeting #2 - Committee Presentation
- Public Meeting #2 - Public Materials Submitted
- Individual State Survey Questionnaire Submittals
- November 23rd DRAFT Report

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