

HB 2061 STUDY ISSUES FINAL REPORT

Respectfully Submitted By:

The Ad Hoc Blue-Stake/Underground  
Study Group

December 21, 1988

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The Honorable Carl J. Kunasek  
President  
Arizona State Senate  
1700 West Washington Street  
Phoenix, AZ 85007

The Honorable Joe Lane  
Speaker  
Arizona House of Representatives  
1700 West Washington Street  
Phoenix, AZ 85007

RE: **Ad Hoc Blue Stake/Underground Study Group  
HB 2061 Study Issues Final Report.**

Dear President Kunasek and Speaker Lane:

Enclosed is the final report from the Ad Hoc Study Group addressing the seven issues to be studied under HB 2061. Included in this report are several related issues which were researched and discussed by the study group.

This report contains a summary outlining the history of the study group, issues addressed and recommendations. A detailed discussion of the issues follow this summary.

The Ad Hoc Study Group appreciates the support of the legislators during the meeting period. The time spent was extremely beneficial through the exchange of information and should prove to be helpful in future contractor/underground facility owner relationships.

Sincerely,



Ben Luster  
Chairman  
Ad Hoc Blue Stake/Underground Study Group

/cr

cc: Senator Robert B. Usdane  
Representative Jane Dee Hull

Enclosure

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PART I

S U M M A R Y

AD HOC BLUE STAKE/UNDERGROUND STUDY GROUP

HB 2061 STUDY ISSUE FINAL REPORT

SUMMARY

History:

Prior to the passage of HB 2061, a group of Tucson contractors, underground facility owners and municipalities met to discuss the bill and the issues stated in the study list.

Because of their relationship, the group integrated the seven issues into four related primary issues, then assigned each of the four issues to subgroups each headed by a chairman.

Following this meeting, it was agreed the Phoenix Underground Contractors Association, Arizona General Contractors, underground facility owners and all other interested parties would be requested to attend an organizational meeting to consolidate their efforts concerning the bill and study list.

Legislators were contacted by study group members at the onset of the meetings to inform them of the groups' intentions and request recognition of the study group.

Upon receiving recognition, the consolidated Phoenix and Tucson group began their meetings, elected to maintain the four subgroups established earlier in the Tucson meetings and selected a chairman, recording secretary and subgroup chairmen. The meetings continued through December of 1988.

Issue Overview:

The following discussion provides an overview of the seven issues as stated in the bill and a summary of the group's discussion.

**Issues Nos. 1, 5 and 6:**

**Measures to improve worker safety, issues concerning liability for damages to facilities and delay, status of enforcement penalties and other matters handled by regulatory agencies.**

Areas considered for discussion included employer responsibility for safety training, underground facility owner responsibilities to mark the location of underground lines, responsibility of the excavator to request the location of underground lines and pot hole when necessary, definition of delay and disruption and the responsibility of each party, marking gas/electric facilities differently from other underground facilities, mitigation of excavators down time losses, current fines and an enforcement agency that has unilateral power over all excavators.

After discussing these areas, the study group agreed with the subgroup to concentrate on the enforcement agency issue, delay and disruption and marking gas/electric facilities differently from other underground facilities.

Through research and discussion, the study group agreed with the subgroup that many of these areas are presently and appropriately addressed in the state statute, regulations or can be resolved on a case by case basis without modification to HB 2061. The subgroup then concentrated their efforts on: Marking gas/electric facilities differently from other underground facilities, the definition of delay and disruption and the responsibility of each party, mitigating excavators' down time losses and a unilateral enforcement agency.

**Issue No. 2:**

**Issues concerning warning devices, methods, standards and responsibilities for underground facilities.**

Areas researched by this subgroup included above ground signage of underground facilities, the use of marker tape in trenches, the responsibilities of excavators and underground facility owner when excavation activities take place near underground facilities and locate methods.

**Issues Nos. 3 and 7:**

**Issues concerning design information, construction and bid specification drawings and records, political subdivision design responsibility, facility owner approval of bid plans, design and engineering of projects involving underground facilities and use of as built underground facility plans.**

**The cost involved for each issues considered, how it relates to the benefit received and the responsibility for such cost.**

Areas discussed included the size, detail and design of the maps which involved research regarding map elevation, map profiles and Computer Aided Mapping System (CAM). Locating and mapping abandoned facilities, mapping active and inactive facilities and the cost for each issue was researched.

**Issue No. 4:**

**Improvements in the blue-stake system, such as one number statewide, mandatory membership, blue-staking techniques, excessive requests and enhanced services.**

The areas discussed included mandatory membership for underground facility owners, excessive locate requests, enhanced locate service, locate marking techniques, a statewide one call blue-stake telephone number and the marking of multiple circuits.

RECOMMENDED CHANGES  
TO THE UNDERGROUND DIG-IN LAW

1. An enforcement agency with equal authority over all parties engaged in excavation activities near underground facilities (Issue No. 6).

Recommended change to present statute.

2. Mandatory blue-stake membership statewide for underground facility owners (Issue No. 4).

Recommended change to present statute.

The remaining areas discussed as stated under each issue in Part I (Pages 1 - 3) have been addressed in detail in Part II (Pages 5 - 15).

It is the study group's recommendation these remaining areas can be resolved on a local level through excavator/underground facility owner on going discussions.

PART II

D E T A I L E D   D I S C U S S I O N

AD HOC BLUE-STAKE UNDERGROUND STUDY GROUP

HB 2061 STUDY ISSUE FINAL REPORT

DETAILED DISCUSSION

Issues Nos. 1, 5 and 6:

This subgroup considered several areas for discussion under each heading of worker safety, liability issues and enforcement issues.

Areas discussed under worker safety included: Responsibility for worker safety training, marking gas/electric facilities differently from other underground facilities, legislating "safety" into contracts when completion penalties make no provision for down time, responsibilities of the contractor when excavating near underground facilities and clarification of what a locate mark represents.

The subgroup and study group agreed to focus on marking gas/electric facilities differently from other underground facilities. The consensus of the two groups was that all underground facilities should be treated with equal concern and that the implementation of a specific standard for marking and excavation of gas/electric facilities would result in worker confusion and therefore present a safety hazard for excavators.

Areas discussed under the liability issues included the definition of delay and disruption, mitigate excavators down time losses, punitive damages for disregard of the statute and the responsibility for facility damage caused by a subcontractor (general contractor/subcontractor relationship).

The subgroup and study group agreed to focus on the definition of delay and disruption. Due to the variables involved with each field situation involving delay or disruption, it would be very difficult to write specific language to address each condition. The existing statute is appropriate and provides recourse for all parties concerned.

It was discussed and agreed that a contractor should mitigate the delay and disruption resulting from down time caused by an inaccurate blue-stake locate if possible; i.e., move to the other side of the street and continue the excavation.

The areas discussed included current fines may not be stringent enough to act as a deterrent for wanton disregard of the statute and an enforcement agency with equal authority over all parties engaged in excavation activities near underground facilities.

**RECOMMENDATIONS - Issues Nos. 1, 5 and 6:**

1. Gas/electric underground facilities should not be marked differently.  
No change recommended to present statute.
2. The liability issues are appropriately and fairly addressed by the present statute.  
No change recommended to present statute.
3. An enforcement agency with equal authority over all parties engaged in excavation activities near underground facilities.  
Recommended change to present statute.
4. On going discussions between contractor, underground facility owners, municipalities and the enforcement agency on issues involving underground facilities.  
No change recommended to present statute.

Issue No. 2:

Above Ground Signage

Most recently adopted construction standards require front lot placement of underground facilities. Because of this, it is doubtful residents would approve of the placement of signs in their front yards.

Considering the number of underground facilities utilized to serve a residential development, it is possible that as many as nine different signs indicating the various utilities could be placed in one front yard. An existing subdivision of one square mile served by underground facilities would require approximately 2,992 signs to be placed at a cost of \$10.00 per sign.

The minimum cost for the material is \$29,920.00, excluding installation costs and is prohibitive from an installation and maintenance prospective (a mapping system would be required to identify sign locations and a sign patrol performed on a regular basis). The sign placement may also be a hazard to the vehicular and pedestrian traffic and a problem with vandalism exists.

In addition, it has been proven by the few underground facility owners required to install signs; i.e., Southwest Gas Corporation per Department of Transportation regulations, that signs have not proven to be a deterrent to dig-ins. An informal survey of fourteen governmental agencies was performed and the majority of the agencies felt customer's complaints of sign installation would cause major political repercussions and would override any benefit in deterring dig-ins.

Marker Tape

A survey was sent to several underground facility owners on the effectiveness of marker tape. Some underground facility owners discontinued the use of marker tape due to no decrease in damage to underground facilities. The remaining underground facility owners utilities who continued to install marker tape could not confirm any improvement to the dig-in situation. In the Phoenix and Tucson areas, Jones Intercable, City of Mesa and U S West Communications install marker tape and in the past, Salt River Project installed marker tape with their facilities.

None of these companies could confirm marker tape to be a deterrent to dig-ins, in fact, the City of Mesa reported most cases involving damaged tape also resulted in damaged underground facilities.

It should be emphasized that tape cannot always be placed due to some underground facility installation methods; i.e., boring, jacking or the use of existing pipes or conduits. An open trench condition would not exist in these situations.

The overall effectiveness of the marker tape was also discussed in the study group's meetings. It was stated that studies were completed with excavations near marker tape. The results showed the tape was dug into, however, it was not discovered until found in the spoil pile. Also reported were situations where the marker tape had been damaged but not reported to the underground facility owner. If the excavator damages the marker tape and does not report the damage, who then is responsible when the underground facility owner is subsequently unable to locate the line.

The study group expressed concern over the possibility of confusing the excavator if he had worked in an area with marker tape and then moved into an area without marker tape.

Some contractors in attendance at the study group's meetings stated they were in favor of the tape, indicating it gave them additional protection. However, it was agreed unanimously that marker tape could give excavators a "false sense of security" and the group felt that marker tape should not be mandated however could continue to be used on a voluntary basis.

#### Methods/Standards/Responsibilities

This subgroup agreed that the employer is responsible for worker training, ensuring workers perform in a safe manner and adhering to applicable codes, regulations and statutes. The underground facility owners are responsible for underground facility installations, providing locate information and providing maps when appropriate. This subgroup also encouraged improvements to: HB 2061 enforcement, locate methods and mandatory membership to the one call system.

RECOMMENDATIONS - Issue No. 2:

The subgroup and study group agreed to the following:

1. Marker tape should not be mandated but continue to be used on a voluntary basis. Marker tape is being used in some areas, however, the study group recognized this procedure is not a fail safe solution to the reduction of dig-ins or an added safety precaution to the excavator.
2. Above ground signage is not recommended due to the potential hazard to pedestrian and the motoring public, sign vandalism, adverse public opinion and prohibitive maintenance costs. These signs are historically not a deterrent and in addition, the cost would be passed on to the ratepayer.

Issues Nos. 3 and 7:

Areas discussed include the size, detail and design of facility maps, elevations, Computer Aided Mapping System (CAM), mapping abandoned, active and inactive facilities and the cost associated for each issue.

Through research, it became apparent that it would not be possible for all underground facility owners to use the same map scale due to the variety of scales currently in use. The variety of scales is required to meet specific operational needs of the various facility owners because of the number or congestion of the facilities, this often results in much larger map scales.

The use of one mandated scale for all facility owners would result in many additional maps due to the large scale required for congested facilities. While this would be appropriate for the underground facility owner with a large number of congested facilities, it would be entirely unsuitable and extremely cost prohibitive for the facility owner with minimal or uncongested facilities.

This subgroup investigated the potential for providing elevations of underground facilities on facility maps and determined the cost to be prohibitive. The following costs were developed:

U S West Communications	\$5,735 per mile
Tucson Water	\$5,700 per mile
Arizona Public Service Co.	\$4,167 per mile
Southwest Gas Corporation	Over \$1,800 per mile
City of Mesa	\$7,000 - \$8,000 per mile

These amounts indicate costs for developing profiles on all underground projects, obtaining elevations every 100 feet and at facility crossings and the cost of posting elevations on as-built and facility maps.

The Computer Aided Mapping System (CAM) was discussed and it was determined that Salt River Project, Arizona Public Service Company, Tucson Water, City of Mesa and Southwest Gas Corporation have already started the development process.

The subgroup and study group agreed that facility owner approval of bid plans should be limited to public works projects and road improvements. At this point, the "Public Improvement Project Guide" recently developed by the Central Arizona Coordinating Committee was reviewed because of its relationship to the study issues; i.e., design information, construction and bid specification drawings, records and political subdivision design responsibility. Because this is a newly developed guide and not entirely proven, the subgroup and study group agreed a trial period using the guide should be completed before adoption or reference to the guide occurs.

Because there is no specific date for commencement of mapping abandoned facilities provided in HB 2061, the subgroup questioned the effective date to begin mapping abandoned facilities. The subgroup agreed that because no date is provided, the effective date to commence mapping of abandoned facilities would legally be the effective date of HB 2061, which is September 20, 1988.

The subgroup raised a question that as of the completion of this report has not yet been answered: If a facility owner has abandoned a facility and is no longer financially responsible for the facility; i.e., not paying taxes, is the facility owner still legally required to map that abandoned facility or to notify the excavator that the facility is abandoned. The study group feels that clarification of this abandoned line issue is necessary.

Another question discussed but not resolved was: If an underground facility owner marks an underground facility abandoned, and this requires an electronic signal or tracer wire in order to locate and an excavator subsequently digs through the line breaking the electronic connection, this resulting in the facility owner being unable to locate that line in the future. To resolve this situation at least one utility will be required to maintain a duplicate set of facility maps in order to identify abandoned facilities.

The study group agreed that underground facility owners must be able to respond to the excavator and confirm if a facility is abandoned or inactive. If the underground facility owner cannot confirm the facility to be inactive, then the underground facility owner must show the line to be active.

The subgroup and study group felt that Section 40-360.30 relating to "installation records" as presently written is adequate and appropriately describes those records and therefore, should not be modified.

RECOMMENDATIONS - Issues Nos. 3 and 7:

The subgroup and study group agreed on the following:

1. Underground facility owner approval of bid plans should be limited to public works projects and road improvements. The recently completed "Public Improvement Project Guide" should be considered for use by excavators and underground facility owners.

No change recommended to present statute.

2. "Installation records" as stated in Section 40-360.30 should not be modified.

No change recommended to present statute.

3. Because of the different map scale requirements of the various underground facility owners and the associated cost for map conversion, one common map should not be mandated for underground facility maps.

No change recommended to present statute.

4. Because of the prohibitive cost of development, conversions and implementations, Computer Aided Mapping should not be mandated for underground facility owners.

No change recommended to present statute.

5. Because of the prohibitive cost, elevations of underground facilities should not be mandated to underground facility owners.

No change recommended to present statute.

6. Active and inactive underground facilities will be identified and verified by each underground facility owner.

No change recommended to present statute.

Because of the broad scope of Issues Nos. 1, 5 and 6 and because of the other subgroups had reviewed these issues, this subgroup recommended it only consider the costs for the items contained in Issue No. 3. The recommendation was accepted by the study group.

Issue No. 4:

Mandatory membership was the first issue researched. It was determined that Ohio, Pennsylvania, Georgia, California and Minnesota have mandatory blue-stake membership statutes and generally there was little objection to the statutes.

The subgroup and the study group support the mandatory membership approach and agree that consideration should be given to small underground facility owners by providing for a limited membership based on the number of customers. Membership costs for small underground facility owners should be spread evenly and fairly. Language to address the blue-stake membership was not finalized as of the date of this report and requires further clarification.

The subgroup felt that registration with the County Recorder's Office of an underground utility representative responsible for locating underground facilities was ineffective. It was recommended that underground facility owners register with the Blue Stake Center in their service territory.

Consideration for contractors belonging to the Blue Stake Center was also discussed. The general consensus was that contractors should be encouraged to utilize the blue-stake center and that mandatory membership may discourage contractor participation.

It was suggested that contractors list the Blue Stake Center used on the application for a contractor's license. This might add to the depth of awareness of the contractors. The Arizona Corporation Commission's representative pointed out that the mandatory membership would not be enforced unless a fee is charged to the contractors. Increasing the level of fines for excavators who blatantly violate the law was discussed, however, it was generally felt that this would cause an increase to the enforcement agency's personnel force.

#### Marking Techniques

The subgroup felt that it would be a good practice to have consistent locate marks among the underground facility owners in a local area. It was suggested a regional committee be formed to address marking standards and guidelines. This regional committee could be composed of two members from the construction business, two members of underground facility owners, with one member from the enforcement agency and one member from the Blue Stake Center.

Identification of multiple circuits by an underground facility owner beginning January 1, 1989 was discussed. Consideration by the study group was given to the Utility Location and Coordinating Council's (ULCC) guidelines. However it was agreed not to recommend adoption of these guidelines because they contain a variety of standards which may be revised on a regular basis. It was agreed that marking techniques should be addressed at a local level with no change recommended to the present statute.

#### Excessive Requests/Enhanced Service

The subgroup and study group agreed that the contractor should limit his locate requests to the amount of work that can be realistically completed in the 5 and 10-day time frame. Enhanced services for unique job situations should be discussed with the contractor on a case by case basis. Both of these issues should be handled at the local level with no change recommended to the present statute. These items are recommended to the agenda items for the continuing discussions between contractor and utility representative.

A suggestion was made to eliminate the 5-day marking period and keep the 10-day period. This was not discussed in great detail and should be brought up in the proposed continuing meetings.

A statewide one call telephone number for blue-stake was researched for the purpose of simplicity and awareness level. This project was found to be cost prohibitive and therefore, the subgroup and study group did not proceed on this issue.

#### RECOMMENDATIONS - Issue No. 4:

The subgroup and study group agreed on the following:

1. Mandatory membership for underground facility owner.  
Recommended change to present statute.

2. Excessive blue-stake requests and enhanced services are handled at the local level.

No change recommended to present statute.

3. Marking techniques--multiple circuits should be identified by the underground facility owner starting January 1, 1989.

No change recommended to present statute.

CONCLUSION:

The study group recommended two modifications to the present statute which addresses mandatory membership to the Blue Stake Center for underground facility owners and an enforcement agency with equal authority over all parties engaged in excavation activities.

It was agreed to by the subgroups and study group that most of the areas discussed under each issue can either be resolved at the local level or is presently and appropriately addressed by a regulation, code or statute.

On going discussions between contractors, underground facility owners, municipalities and the enforcement agency are strongly recommended.

The study group appreciated the interest and time devoted to the Ad Hoc Study Group by the study commission members. The subgroup and study group members offer their assistance on any issues that require further assistance.

/cr

**Study Group Chairman:**

Ben Luster  
Luster Contracting

**Recording Secretary:**

Bonnie Coffey  
Arizona Public Service Co.

**Issues 1, 5 and 6:**

**Chairman:**

Chuck Desrosiers      Salt River Project

**Members:**

Bettye Austin	U S West Communications
Bill Burkel	Tucson Electric Power
Wayne Ekstrom	Southwest Gas Corporation
David Furrey	Flowing Wells Irrigation District
Conrad Gissort	City of Tucson-Water
Tamara Huddleston	Arizona Public Service Company
Elaine Moffitt	Tucson Underground Contractor's Association
Darrell Pischoff	City of Mesa
Danny Weakland/	Arizona Corporation
Chuck Hudson	Commission
Donna Wilson	U S West Communications

**Issue No. 2:**

**Chairman:**

Roger Eagle      U S West Communications

**Members:**

Lance Barger	Jones Intercable
Dave Buchwald	Trico Electric
Bill Burkel	Tucson Electric Power
Larry Daniel	Arizona Public Service Company
Chuck Desrosiers	Salt River Project
David Furrey	Flowing Wells Irrigation District
Jack Kearns	City of Mesa
Ben Luster	Luster Contracting
Wayne Privett	Southwest Gas Corporation

Issues Nos. 3 and 7:

Chairman:

Gordan Nelson

Nelson Pipeline

Members:

Mike Bentley  
Elton Buell  
Neil Coffey  
David Furrey  
Tom La Rose  
Rick Meyer  
Keith Nath  
Herb Sautter  
Eric Vaughn

Nelco Construction  
Southwest Gas Corporation  
Arizona Public Service Company  
Flowing Wells Irrigation District  
Salt River Project  
City of Tucson - Water  
City of Mesa  
City of Tucson  
U S West Communications

Issue No. 4:

Chairman:

Jim Vincent

Southwest Gas Corporation

Members:

Lance Barger  
David Furrey  
Delbert Garst  
George Hilyard, Jr.  
Beverly Hitt  
Tom La Rose  
Kim Lilly  
Carlos Martinez  
Dave Nicholson  
John Short  
Ed Snell

Jones Intercable  
Flowing Wells Irrigation District  
City of Mesa  
U S West Communications  
U S West Communications  
Salt River Project  
Arizona Blue Stake  
Tucson Electric Power  
City of Tucson  
Arizona Public Service Company  
Tricon Contracting