REVIEW AND RECOMMENDATIONS FOR IMPROVEMENT OF FIELD OPERATIONS

PREPARED FOR

ARKANSAS ASSESSMENT COORDINATION DEPARTMENT

By

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March 2006

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ACKNOWLEDGMENTS

The outstanding cooperation we received from assessors, their contractors, and officials in the Arkansas Assessment Coordination Department (ACD) exemplifies the widespread commitment to improving property tax administration in the state. We are deeply grateful for the assistance of ACD and especially the help we received from Debra Asbury, Page Kutait, and John Boyce, CAE. Other members of ACD who provided significant help included Barbara Bearden, Claudia Chambliss, Charles LaFave, Bob Leslie, Rita Rollins, Fred Rush, Audie Wigger, and John Zimpel.

We also would like to thank the assessors of Garland and Lonoke counties for the assistance their staffs provided. Additionally, we would like to thank Phillip Scott and Kelly Beaty of Arkansas CAMA Technology, Inc., and Hardie Reynolds, CAE, Carole Adams, and Josh Cantrell of Mack-Reynolds Appraisal Company, Inc., for their insights.

The AGJD study team comprised Richard Almy, Robert Denne, and Robert Gloudemans. We solely are responsible for the conclusions and recommendations contained in this report.

EXECUTIVE SUMMARY

In recent years the Arkansas legislature has taken important steps to ensure that local real property taxes are based on accurate estimates of current market values. The law requires periodic reappraisals that comply with state-approved plans and with state data accuracy and appraisal standards. Funding for reappraisals is provided. The Arkansas Assessment Coordination Department (ACD), the state agency responsible for helping counties and their contractors produce accurate assessments, for ensuring that standards are met, and for ensuring that reappraisal funds are used properly, has attempted to make continuous improvements in the way it carries out its responsibilities. In 2004 it commissioned a review of its sales ratio study program, which it uses to measure appraisal accuracy. In 2005, it initiated this review of its performance audit program, which it uses to gauge whether reappraisal progress is in accordance with approved plans, whether procedural requirements are followed, and whether data quality standards have been met. When ACD finds serious deficiencies, it can terminate the agreements that provide reappraisal funding. Controversy naturally attends findings by ACD of non-compliance and the termination of funding. Assessors and contractors whose performance is questioned naturally question the performance of the ACD. In 2004, the legislature created a Task Force to Study the Assessment Coordination Department, and the Task Force recommended an outside review of the Department's audit program. ACD selected Almy, Gloudemans, Jacobs & Denne (AGJD), property taxation and assessment consultants, to make the review. In addition, ACD wanted us to suggest ways to maximize the effectiveness of its utilization of its limited resources. This report contains our findings and recommendations.

The AGJD study team made two visits to Arkansas to interview ACD staff members, representatives of assessors, and representatives of reappraisal contractors, whose help was invaluable and whose cooperation was testimony to widespread commitments to making the property tax fairer. The team studied audit program documents and other background materials. The team considered the audit program in the context of ACD's other supervisory activities and in the context of the Arkansas property tax system as a whole to ensure that its recommendations would be appropriate. The team also drew upon its widespread experience with performance audit programs in other jurisdictions.

Overall, we were impressed by the legislative design of the Arkansas property tax system and with the performance of ACD. However, there are opportunities for improvement in the design and administration of real property assessment systems and in the design and administration of ACD's performance audit program. Some improvements in the former area, such as the acquisition of large-scale property boundary (cadastral) maps and better use of contemporary information technology, would—in addition to improving the equity of the real property tax and the efficiency of assessment operations—make possible more effective and efficient audits. (The absence of good cadastral maps in many counties makes it impossible for assessors to ascertain whether all taxable property is assessed and makes it likely that many land assessments are inaccurate.) Of our recommendations, only those that relate to the acquisition of maps and related geographic information systems (GIS) would entail costs to counties or the state where the full payback would not be almost immediate. In any case, experience elsewhere suggests that returns on the investments in improved information technology (IT) would be substantial. Typically,

they result in large improvements in services provided by local government that have a geographical or time dimension.

We were especially impressed by ACD's practice of forming working groups that comprise representatives of assessors' offices and of contractors to tackle improving systems and procedures. An outstanding recent example is the CAMA (computer-assisted mass appraisal) Standards Board, which will be charged with the task of making the standards applicable throughout the state by testing of the systems. When fully implemented, these specifications will increase the capacity of counties to produce accurate assessments efficiently. Equally important, they will make it possible for ACD to refocus its performance audits on things that count and thereby increase the effectiveness and efficiency of its audits.

Doing so, however, will require ACD to make changes in the way it deploys and supervises its auditors. They will need greater skills in mass appraisal methods and in the use of computers. Ideally, a few specialist auditor positions will be authorized. We also recommend ways to bring greater procedural consistency to audits of valuation systems and procedures to ensure that all counties are treated fairly. At present, auditors focus mostly on audits of data quality. Ensuring that assessment data are accurate obviously is important. Assessments cannot be accurate if the data on which they are based are inaccurate. Additionally, ACD has a duty to ensure that state reappraisal funds are well spent, inasmuch as data collection and verification are the most expensive facets of a reappraisal. However, this focus on data quality may have two important unintended consequences: First, auditors have less time to focus on valuation procedures. Second, assessors and their contractors may be tempted to skimp on data quality assurance and rely, instead, on ACD to detect data errors. We recommend that reappraisal contracts place initial responsibility for data quality where it belongs: on contractors. We believe improvements can be made in the way audit results are communicated to counties. In all, we make at least fifty recommendations related to improving real property assessment systems and to improving the audit program.

1. INTRODUCTION

The Arkansas Assessment Coordination Department (ACD) commissioned this review of, and accompanying recommendations for, improving its field operations (program audits) by Almy, Gloudemans, Jacobs & Denne (AGJD) pursuant to its goal of improving the quality of property tax administration in the state. More specifically, the ACD wanted advice on how to maximize the effectiveness of its limited supervisory resources. The review also implemented a recommendation of the Task Force to Study the Assessment Coordination Department established under Act 1714 of 2003.

The ACD has wide-ranging responsibilities for assisting and supervising the state's seventy-five counties in the administration of property taxes. It manages a multimillion-dollar reappraisal fund (and some smaller funds), giving it important fiduciary responsibilities. In common with most state-level supervisory agencies, it operates under substantial resource constraints.

AGJD's review of field operations focuses on the ACD's performance audits, which are described more fully in sections 2, 4, and 5. The review builds upon a 2004 report by Robert J. Gloudemans entitled "Final Report: Review of Arkansas Sale Ratio and Equalization Studies". The study team made an initial visit to Arkansas 11-15 July 2005 and a return visit 21-22 November 2005. During the visits, the team interviewed members of the ACD in Little Rock and studied documents describing the Arkansas property tax system, the activities of ACD in general, and the audit programs. In addition, the team met with representatives of computer-assisted mass appraisal (CAMA) system and reappraisal contractors and of county assessors in Garland and Lonoke counties (see acknowledgments). We did not review agricultural land or personal property audits.

In addition to this introduction, our report has five sections. Section 2, Role of Program Audits in Assessment Administration largely is descriptive and establishes the context for our evaluations and recommendations in the remaining sections. Section 3, Management, considers the resources available to ACD and evaluates how well it uses them. Section 4, Data Audits, contains our evaluation of Phase 1 audit activities. Section 5, Valuation Audits, contains our evaluation of Phase 2 audit activities. Section 6, Conclusions and Recommendations, brings together our main conclusions and recommendations.

2. ROLE OF PROGRAM AUDITS IN ASSESSMENT ADMINISTRATION

2.1 Overview of State-Level Program Audit Programs

Program (or performance) audits increasingly are being used in property tax administration. As many as twenty-six states may use them (Dornfest and Thompson, question 7—see references). The rationale for performance audits by supervisory agencies derives from the general model of assessment supervision and equalization embodied in recommendations by the (now defunct) U.S. Advisory Commission on Intergovernmental Relations (ACIR), the International Association of Assessing Officers (IAAO), and others. The model assigns four broad, interrelated roles to provincial and state property tax agencies: (1) set standards and specifications, (2) provide assistance and counseling, (3) monitor performance, and (4) take corrective action when necessary. A performance audit is a monitoring tool.

Performance audits can be valuable in two ways. First, as an adjunct to ratio studies, they provide indirect evidence of the accuracy of assessments when ratio data are inconclusive (such as when sales samples are too small or non-representative) or irrelevant (as in the evaluation of a use-value assessment program). If the assessor's systems and procedures conform to legal requirements and professional standards, the resulting values can be presumed to be accurate reflections of the underlying market values. Second, while ratio studies provide evidence that appraisals do not meet accuracy standards, they cannot provide direct evidence of the cause of the problems. Performance audits can pinpoint the causes. Thus, an assessor can use the results of a performance audit to identify strengths and weaknesses in current operations, design improvements, and build a case for investments in new systems and procedures.

State audit program objectives differ considerably. Some jurisdictions use program audits as a component of an assessment roll approval process (as distinct from equalization) (Florida, Kentucky, Massachusetts, Oklahoma). As noted, they often focus on the practices used in the appraisal of classes of property with too few sales to produce reliable ratio study results. Hence the reviews are made only when there are too few sales or when market value is not the legal basis of assessment. Others use audits to encourage assessing units to use high-quality assessment practices (Alberta, California, Connecticut, and New York). Such audits often are made on a regular schedule. Most recently, audits are used to ensure that revaluations produce values of acceptable accuracy (Alberta, Arkansas, and New York). Hence program audit programs can be of interest to revaluation contractors as well as local government officials.

Program audit programs in assessment administration differ in three main respects: scope, methodology, and documentation. The differences depend on the objectives, background, and resources of the auditors. The audits range from comprehensive, well-documented audits, such as California's assessment practice surveys to more narrowly focused reviews whose documentation essentially consists of a completed questionnaire (for example Oklahoma and Kentucky). Increasingly, auditing occurs while an activity such as revaluation is being carried out rather than after it is completed (Massachusetts and New York). Another innovation is to involve local governments in the auditing process (Alberta and Connecticut).

The chief practical problems with program audits are time and cost. However, there are innovative ways of dealing with these problems. Other general problems include (1) concerns about the design of the audits, including the absence of standards; (2) compliance burdens, (3) concerns about the competence of the auditors; and (4) concerns about the even-handedness of the auditors. The question is sometimes put this way: "who audits the auditors?" (In Florida, the Auditor General's Office regularly audits the Department of Revenue's "in-depth studies," which include performance audits in strata where sales samples are insufficient.)

2.2 Overview of Performance Audits in Arkansas

2.2.1 The Arkansas Assessment Process

Act 1185, passed in 1999 to "promote a uniform system of real property assessments within each county of the State…," established the framework of Arkansas's current assessment process. Act 1185 requires each county to appraise all real property at "full and fair value" at least every three years. Under a schedule to be determined by ACD, one-third of counties were directed to reappraise in 2002, one-third in 2003, and one-third in 2004 with increases in assessed values phased in over three years.

The requirement to appraise every three years was subsequently modified for "slow growth" counties, defined as those with growth of less than 15% over the prior three years. These counties must reappraise every fifth year. If a county qualifies for a five-year cycle and the increase in market value determined upon completion of the five-year reappraisal is greater than 25%, then the county must comply with the three-year cycle for its next reappraisal. Conversely, if a county that completed a three-year reappraisal is found to have had growth of less than 15%, it need not reappraise for five years.

To accomplish its objectives of fair and uniform valuations, Act 1185 directed ACD to develop and implement rules to be followed by the counties in the discovery, listing, and valuation of property. The Act directed counties to follow the reappraisal procedures established by ACD and file a reappraisal plan with the Department by November 1 of the year preceding commencement of the reappraisal. The plan must include a proposed budget and reappraisal manager (who may be a county employee who meets qualification requirements). Computer-assisted mass appraisal (CAMA) systems must be approved by the Department and the Department "shall have access and capability to retrieve data stored in each county's CAMA systems via phone lines and modem."

In support of these objectives, Act 1185 further established the "Arkansas Real Property Reappraisal Fund" to be used to pay counties and professional reappraisal companies to reappraise property as required by the Act. The Director of ACD distributes funds monthly provided that the reappraisal contract and plan and required rules and procedures are being followed. If requirements are not met, the contract "shall be promptly terminated" and the Department shall negotiate another contract for completion of the project. Currently the fund pays complying counties up to $7 per parcel per year spread out over the term of the reappraisal. Contractors are paid monthly and are subject to a 4-month withholding at the end of the contract to ensure successful completion.

In 2000, Arkansas voters approved Amendment #2 (now known as Amendment 79), which provides limits on assessed values and property taxes. It implemented a $300 homestead credit (not to exceed the amount of taxes owed) for qualifying residential property. It also made permanent the one-third per year phase-in of assessment increases following reappraisals provided for by Act 1185 and imposed a 5% cap on assessment increases on primary residences and a similar 10% cap on assessment increases for other real property (new construction and "substantial improvements" to existing properties are immune from the cap). Beginning in 2006 pursuant to Act 2284 of 2005, the cap will be lifted upon sale of a property. Thus, assessors will be required to keep track of two values: market value and taxable value, the latter of which may be increased annually by the specified percentage until (if ever) it equates to market value.

As a result of the above legislative requirements, Arkansas counties conduct major reappraisals every three or five years, depending on whether they are classified as slow or fast growth counties. Currently some 18-19 counties conduct their own reappraisals, while the others hire contractors approved by ACD. Contractors sometimes update property information on their own systems off-site without updating the county's database. Although outside the scope of our study, contractors should keep the counties' files reasonably up to date (at least monthly updates would seem appropriate).

Each reappraisal requires a physical re-inspection of properties. Counties and their contractors are free to adopt whichever valuation techniques they choose provided they are consistent with accepted professional standards and the results meet certain accuracy requirements as determined by sales ratios studies that compare a county's valuations with recent sales prices (market values, not limited values, are used for this purpose). Arkansas Code Annotated (ACA) section 26-26-304 directs ACD to prepare such a study for each county and school district in reassessment years and sets out requirements for the studies.

Market values determined during a revaluation serve as the basis for assessed values, which by statute are 20% of market values. Consistent with IAAO standards, ACA 26-26-304 requires a ratio of 0.18 to 0.22 (corresponding to 90% to 110% of market value) for each classification of real property. If ACD deems that a county has failed the assessment level standard or is otherwise not in compliance with IAAO standards, it must order and supervise adjustments to property values in the deficient classes. If the contractor is found to be deficient in failing the required standards, the contractor is to bear the cost of the adjustments. If a county fails to make the required adjustments, funds may be withheld for up to one year until the adjustments are made (if not made within one year, the funds are deposited in the State general fund).

2.2.2 The Role of ACD

As indicated, statutes establish ACD as the assessment oversight agency in Arkansas. They require ACD to promulgate standards, approve reappraisal plans, monitor work quality and progress, audit results, and distribute or withhold payments. To this end, ACD has developed various rules, guidelines, and programs.

Perhaps most important are the Department's rules, parts of which were rewritten and greatly improved and clarified in 2004. Current rules (which carry an effective date of November 13, 2005) cover such subjects as requirements of appraisal managers and reappraisal plans, funding and budget approval, neighborhood delineation, reappraisal progress reports, monitoring reappraisals, and disbursement of payments from the Arkansas reappraisal fund. Most relevant to the current study are those that relate to the conduct of reappraisal performance audits. (Subsequent rules important to the Arkansas assessment system generally concern uniform CAMA systems. They and the CAMA system specifications were adopted in 2005 pursuant to Act 1417 of 2005.)

As discussed further in section 3, ACD maintains several programs to execute its responsibilities. It has a Field Operations team that conducts its reappraisal performance audits. A Ratio Study Coordinator conducts sales ratio studies. The Education/Research/Technical section maintains a training program and tracks legislative and technical developments.

In recent years ACD has been fortunate to be assisted by the Property Valuation Workgroup, a work group of contractors, assessors, and staff that has been active in identifying best practices and opportunities for improvement in assessment operations in Arkansas. The group has been very helpful in making recommendations and providing feedback to the Department. It reviewed and provided input to the current CAMA system specifications. The group also reviewed the 2004 report, *Review of Arkansas Sales Ratio and Equalization Studies*, commissioned by ACD, and was instrumental in updating the Department's rules to incorporate key recommendations made in the report.

In addition, a CAMA Standards Board has been recently established. The board comprises assessment professionals not employed by CAMA vendors and ACD staff. It will help apply standards for CAMA systems in Arkansas.

In 2003 the General Assembly commissioned the *Task Force to Study the Assessment Coordination Department*. Among its findings were that ACD is understaffed and its technology outdated. The Task Force recommended additional funding and staffing for the Department (the legislature subsequently approved several new staff positions). It recommended that an outside consultant be hired to review the ACD audit program and make recommendations for improvement (this study is a partial result of that recommendation).

2.2.3 Phase 1 and Phase 2 Audits

ACD's audits consist of two major components: Phase 1 and Phase 2. Failure to achieve either Phase 1 or Phase 2 requirements can result in withholding of reappraisal payments until material deficiencies are corrected.

During Phase 1 audits ACD staff review data collection and processing activities. Phase 1 work normally spans the first two years of a three-year reappraisal. Under rule (3.30), work progress must not fall behind planned progress by more than 10%. We review ACD Phase 1 audits in section 4.

Phase 2 audits cover the valuation component of the reappraisal. During Phase 2 audits, which normally are conducted in the first half of the valuation year, ACD staff review various aspects of the valuation process, including neighborhood delineation, determination of base rates and market adjustment factors, and valuation quality control. ACD rules call for valuation work to be completed for at least 50% of properties by April 19 of the valuation year, and ACD will begin Phase 2 audits by this date (or earlier if the county or contractor indicates that the 50% milestone has been achieved). We review Phase 2 audits in section 5.

It is important that all counties and contractors be held to the same standards. While each county and reappraisal is different, auditors need to follow standard procedures. The Department has made this a priority for Phase 1 audits. Phase 1 audits are detailed and include step-by-step procedures. The Department explains that Phase 2 audits were purposely written with a more general approach, with the intention that the best methods and techniques used by the various auditors could be used to develop more specific step-by-step procedures. Phase 2 audits should now be more structured. In section 5 we make a number of recommendations to help in this regard.

In addition to reviewing ratio studies conducted by the county or contractor, ACD conducts its own ratio study in accordance with Rule 4.04.1 (revised in July 2004). As already indicated, our earlier report, *Review of Arkansas Sales Ratio and Equalization Studies*, critiques and makes recommendations for improvements to the study, many of which were embodied into the revised Rule 4.04.1, thanks to the efforts of ACD and the Property Valuation Workgroup, as well as the support of the Task Force to Study the Assessment Coordination Department. Since then, we have also prepared a User's Guide to assist the ACD in implementing recommended changes.

2.2.4 ACD Responsibilities and Challenges

As discussed, Arkansas statutes assign ACD with the responsibility to monitor the quality of reappraisal work conducted in the State. Reappraisals are important and complex operations, involving a variety of activities. Success begins with data quality, but valuation techniques, quality control, and management are also critical. These tasks have become increasingly challenging in recent years as real estate markets change rapidly and pressure mounts for increasing efficiencies. In addition, new technologies, ranging from statistical methods to Internet applications, are being increasingly adopted by the industry. Keeping its program abreast of these developments is a challenging proposition.

At the same time, ACD also provides training and promulgates reappraisal rules and guidelines. Again, it is important that ACD have the vision to recognize and incorporate new and improved methods and procedures in its audit programs and ratio studies. For example, historically Arkansas has relied almost exclusively on the cost approach in appraising residential properties. While the cost approach remains valid, newly affordable and easier-to-use technologies have made practical the use of the sales comparison approach, which is more adept at capturing rapidly changing markets in urban areas. While ACD provides training in all three approaches to value, including various mass appraisal courses, its other programs should also recognize and encourage adoption of sales-based appraisal models.

The ACD has the fiduciary responsibility to ensure that all counties and contractors are treated equally and that funds from the State's reappraisal fund, established by Act 1185, are spent wisely and effectively. It is our sense that ACD takes it responsibilities seriously, works hard and does a generally good job, and has made significant progress in recent years. It is also our sense that ACD recognizes the extent of its challenge and knows that it needs to take additional strides to ensure equitable and efficient reappraisals across the State. Commissioning of this study is an expression of that desire and in the following sections we review ACD's audit program and offer our recommendations for improvement.

3. MANAGEMENT

As noted, the Assessment Coordination Department (ACD) is the agency responsible for supervising the administration of the property tax by the seventy-five counties in Arkansas. Also as noted (in section 2.2), ACD manages the Arkansas Real Estate Reappraisal Fund.

3.1 Management Philosophy and Vision

The management of ACD is well aware of the turbulent history of assessment supervision in Arkansas and of the tenuous position of appointed state officials when they anger elected officials.[1] For these reasons, management believes that successful assessment supervision requires a deft hand in exercising its powers. Succinctly put, management is dedicated to continuous improvements in assessment administration, not to calling counties out of compliance (although it stands ready to do so when necessary).[2]

Although there are numerous opportunities for further improvement, the underlying design of ACD's supervisory program in the statutes, regulations, and administrative practices is remarkably coherent. The requirement that real property be assessed on the basis of full and fair value is buttressed by requirements that reappraisals occur at least every five years, that counties file reappraisal plans that comply with the state's standards, that reappraisal managers be technically proficient, and that, in the near future, CAMA systems will meet technical standards that comport with best practices. The state provides not only education and technical assistance; it also funds a substantial part of the cost of reappraisals. ACD through its regulatory powers, assistance activities, ratio studies, and audits attempts to ensure that assessors meet the standards and use reappraisal funds appropriately. At the same time, ACD sees property tax administration as a team effort, and it attempts to foster better performance by all parties.

3.2 Resource Needs and Funding

The Task Force to Study the Assessment Coordination Department concluded that ACD was under-funded and under-staffed. Others believe that ACD salaries are not competitive (this issue, however, was outside the scope of our review). Although the property tax assessment profession has developed neither algorithms for determining resource needs nor funding or staffing standards, available benchmark data in table 3-1 lend credence to the Task Force's conclusion, at least with respect to staffing. Based on total property tax revenues of $1.4 billion, funding of $2.6 million, seventy-five county assessment districts, and a staff of thirty-six, comparable figures for ACD are 0.19 percent, $36,000, and 2.1, respectively. Because Arkansas is a low property tax state, the higher percentage of 0.19 percent is not surprising.

[1] ACD was created in 1997; the current director was appointed in 2001

[2] ACD recognizes that failing to comply with regulations may be due to circumstances [temporarily] beyond the control of the county or appraisal firm. Therefore, a determination of non-compliance is not automatically considered a bad reflection on the county or appraisal firm.

Table 3-1: Supervisory Agency Budget & Staffing Benchmarks

	Budget as a percentage of 1996 total property tax		Agency budget ($) per assessment district		Assessment districts per staff member	
	1992	1999	1992	1999	1992	1999
Minimum	0.014	0.003	1,098	170	0.14	0.24
Median	0.140	0.141	24,941	30,779	2.03	1.79
Maximum	3.211	0.551	508,333	306,153	43.75	299.00

Source: International Association of Assessing Officers, 2000, *Property Tax Policies and Administrative Practices in Canada and the United States*, page 12, Exhibit 4-3.

ACD receives funding from several sources, and it manages several funds related to property tax administration, increasing its fiduciary responsibilities. Its fiscal year 2006 general fund budget was $2,605,529, and the cash fund was $48,000, giving it operating funds of about $2,654,000.[3] The county assistance funds that it manages include the Real Property Appraisal fund, which had an authorization of $14,250,000 in FY 2006, and the County Assessors Continuing Education Program, which is used to fund a fall meeting and about eight courses per year (the program costs about $125,000 and is partially funded by a $450 assessment from each county). It also manages an incentive program that provides a stipend to county assessors and staff who hold an IAAO professional designation, are state-licensed appraisers, or are level 4 project managers. This program costs about $112,000.

3.3 Organization and Staffing

ACD currently has thirty-six authorized positions, four of which are new. As currently described, ACD has two main organizational units: an administrative unit and a field operations unit. The administrative unit includes some autonomous specialist positions that are not strictly "administrative." Although we focus on field operations, activities of the administrative division are integral to the success of assessors in "passing" Phase 1 and Phase 2 audits. For example, the administrative division is responsible for making the ratio study. It produces the manuals that guide assessors, and it prescribes forms. ACD also administers the state's assessor education and certification program.

ACD is reviewing its formal organization plan as it grapples with the inherent organizational difficulties of a small organization with a wide range of responsibilities and with a variety of specializations and skill levels. The aims of the revised organization are to more clearly establish functional responsibilities, meet the need for additional specialists, and increase cost-effectiveness. We generally endorse the planned changes.

As noted, the field operations division's responsibilities include the Phase 1 and Phase 2 audits. It currently has a staff of nineteen. The division is headed by the field operations manager, and it

[3] The fiscal year began 1 July 2005.

is supported by the real property data manager, an administrative position. There currently are eighteen auditors, two of which specialize in business personal property. The sixteen real property auditors are dispersed throughout the state, although they are assigned to eight crews, some of which have only one member, but each of which is responsible for a set of counties. The sets range in size from five counties to 18 counties; on average each auditor is responsible for nearly five counties. The configuration of auditor assignments attempts to balance several factors, namely the ability of an auditor to work independently, county size, and distances from home. We endorse the crew structure and believe the number of auditors assigned to a crew in a given year should reflect the crew's workload, which is affected by such factors as reappraisal schedules and the make-up of the counties being audited.

Supervisory agencies like ACD commonly have dispersed field positions similar to ACD's auditors. Effective supervision requires first-hand knowledge of local conditions—knowledge that can only be gained through a physical presence. Effective assistance often demands a timely physical presence. Dispersing the staff throughout the state increases the time available for productive activities, increases timeliness, and reduces travel-related expenditures. As the ACD recognizes, such positions also present management challenges. One is ensuring that each field staff member is a conscientious worker. Consistency and even-handedness in work also can be a challenge. Although crew leaders have some supervisory responsibilities, the current organization places most of the burden of monitoring the work of eight crews spread over seventy-five counties on one person: the field operations manager. This is problematic in that the volume of work is too great, making it impossible to devote adequate time to both the monitoring of field work and in-office duties, including program improvements and development. For this reason, we endorse ACD's plans to augment the staff of the field operations division with three new regional program support manager positions.

Although we were impressed by the caliber of the auditors that we interviewed, there are indications that additional training in use of information technology (IT) and in the mass appraisal methods envisaged in the reappraisal and CAMA specifications would be beneficial. Our recommendations in these areas are presented later.

3.4 Use of Information Technology (IT)

Several aspects of the audit infrastructure related to IT are commendable, including the requirement that counties and their contractors make data available to ACD on demand via "phone modems" as well as other means, the requirement that each county assessor use a CAMA system, and the requirement that all CAMA systems used in the state conform to a set of ACD-developed CAMA specifications. Beyond these commendable provisions, however, there are additional opportunities to use IT to improve the audit system, including the deployment of communications and database technology, the refinement of the software used for audit support, the deployment of computing resources to the field audit staff, and the encouragement of the acquisition of certain technologies at the local level. Of the latter, two stand out: assessment maps, which would immeasurably strengthen the ability of auditors to detect escaped parcels, and digital photographs of parcel improvements, which could facilitate auditors' task of reviewing the coding of such judgmental variables as grade and remaining economic life. These will be dis-

cussed further below, followed by the remaining areas, which will potentially involve direct ACD investments as opposed to encouraging or subsidizing county investments.

The availability in each county of a set of assessment maps, and potentially a geographic information system (GIS) that extends the usefulness of the data upon which the maps are built, would immeasurably strengthen the ability of auditors to locate audited parcels and detect escaped parcels. As discussed in section 4.2.2, auditors also could use the GIS to plot adjustment factors or sales ratios to evaluate market area and neighborhood boundary determinations and the general efficacy of valuation models. The lack of universal coverage of assessment maps in Arkansas bespeaks a serious lack of resources to adequately administer the property tax, which hampers its administration at both the county and the state level. In addition to making the entire process far less efficient than would be expected in view of contemporary standards, it makes auditing for certain problems, particularly escaped properties, essentially impossible. As a result, we recommend that ACD explore the possibilities for incentivizing the creation of a set of assessors' maps and at least an elementary GIS compliant with contemporary standards. Possible incentivization schemes might include legislative subsidies to counties for map/GIS development, or, on the other side of the coin, surcharges to counties (or holdbacks from reappraisal subsidies) for added auditing costs in counties with inadequate maps or other expected infrastructure.

The acquisition and management of digital photographs of parcel improvements, now underway for residential properties in some counties, could facilitate auditors' task of reviewing the coding of such judgmental variables as grade and remaining economic life. Funding for such investments in other jurisdictions has been derived, at least in part, from sources dedicated to augmenting the capabilities of emergency responders. In addition to helping to ensure that the correct property has been identified, however, such photographs help to efficiently convey information on quality, effective age, gross dimensions, and characteristics that might have previously required a highly inefficient journey to the property. Although not all physical reviews of properties can be displaced by recourse to photographs, their availability would permit sample sizes to be greatly enlarged for the kinds of reviews where they are adequate. An auditor with ready access to useful photos would be able to review at least tens of times more properties in a given amount of time than an auditor who has to travel to each site. Since the reliability of samples, and hence of audit findings, increases as the square root of sample size, an efficiency increase of ten would make the results about three times more reliable. This would be a welcome improvement, given the small sample sizes currently being used. Thus we recommend that counties be encouraged to acquire (or reacquire) current photographs of assessable properties and to make them available to ACD auditors both directly and remotely.

The effectiveness of field audits would be enhanced if greater advantage were taken of the legal requirement that counties and their vendors must provide ACD access to audit-related information remotely, or as it is usually phrased, via phone modems. Remote queries could facilitate sample selection for audit purposes and help ensure auditor independence and increase audit accuracy. Such queries would be done much more efficiently if there were pre-written, prototypical or parameterized queries available to the field auditors for their use. For such auditors' requests to be developed as standard SQL (structured query language) queries, it must be possible for the CAMA systems to support this interface, a requirement not presently found in the CAMA specifications. For parameterized queries to be feasible across multiple jurisdictions, and possi-

bly multiple vendors, certain basic facts about each county's database structure must be available, and preferably standardized, such as table structures and field names. We recommend that ACD implement the steps necessary to take greater advantage of the remote access that CAMA systems are legally required to provide to ACD. If this means that specifications must be developed and agreed on ancillary issues before this recommendation can be fully implemented, then such steps should also be taken.

The legal requirement that county assessment data be accessible to ACD for audit purposes via phone modems appears not to have been seriously enforced. To some it may presume a suboptimal method of data communications. Certainly broadband cable and DSL (digital subscriber line) connections, where they are available, have rendered the dial-up connections of recent years virtually obsolete for many applications. Similarly, direct connections between systems are increasingly giving way to connections made through the Internet, often on the basis of a virtual private network, so as to take advantage of the increased speeds available thereby. To the extent that implementation of telecommunications based access to remote assessment data has been frustrated by ill-defined access requirements, we recommend that ACD develop and implement communications/network specifications for providing the required access that ACD personnel must have to local assessment data, both from ACD's central office and from wherever field personnel may happen to be while on assignment. ACD field personnel, of course, should also be able to transfer data to and from the ACD central office while on assignment independently from the local county's host computer.

The ACD central office will need to develop and implement software to store and manage both the data extracts obtained in support of field operations previously mentioned and the periodic comprehensive data sets dictated by best practices. Relational database management software (RDBMS) should be employed, capable of reading the datasets of all taxable parcels including their most important characteristics, which should be submitted at least annually by the counties, either in a standardized format, as Indiana requires, or as an extract from the CAMA vendor's native format. The system should also be capable of extracting key summary information from such data, such as the distribution of percentage changes on sold and unsold properties and any price trends for the area implicit in the pattern of assessment ratio changes over time. For such purposes the ability of the RDBMS to access multiple versions of each county's datasets, covering five to six years of history, will be important. Such challenges have been faced and met by other supervisory agencies charged with equalization and oversight responsibilities for local jurisdictions as diverse as those found in Arkansas. Thus we recommend that ACD develop and implement a five-year plan for acquiring, managing, and utilizing data supplied by the counties for audit purposes on both an ad hoc and routine basis.

A recent technological advance has facilitated the local appraisal, and hence the auditing, of vehicle values in the mass appraisal of personal property. By enabling the local entry of vehicle identification numbers (VINs), there is no longer any need for itemizing special features to adjust the values obtained from standard reference books. As a result, local valuation is highly automated and the auditing effort, such as sampling such properties during field data collection for ratio studies, is reduced.

Similarly, it would be advantageous to acquire a somewhat different version of the automated Marshall-Swift costing system used for commercial/industrial property. The current system's black box makes it difficult to deal with certain property types that require "flat adjustments" for non-standard features, which, in turn, increases the burden of tracking these adjustments in the audit process. A revision of the standard costing system is potentially available, and we would encourage efforts to see if it can be substituted for the current system at a reasonable cost.

The computing resources available to ACD field personnel for audit purposes vary widely, as does their expertise in using such technology. Some auditors have no computing resources beyond what is available to them at the county or vendor sites at which they may be working at the moment, while others have begun using standard productivity software, such as Excel, on their own notebook computers. Similarly, some auditors are reasonably expert in the use of one or more of the CAMA systems used in their regions, by virtue of previous experience, while others complain of a lack of training in relevant areas. We recommend that ACD comprehensively address technology deficiencies among the audit staff. CAMA system training deficiencies should be addressed at the earliest opportunity.[4] Equipment deficiencies should be addressed, either uniformly or perhaps on a basis similar to the governmental use of privately owned vehicles, provided the equipment meets certain standard requirements. Auditor aids, such as the parameterized queries described elsewhere, should also be developed. All such developments should be guided by a vision or five-year plan for how ACD should operate in the future.

3.5 Work Management, Quality Assurance, and Communications

The managers of ACD and the field operations division are acutely aware of the need for consistent, cost-effective supervisory operations. Opportunities to improve them have been, and are being, addressed. Such diverse things as the education program, the reappraisal specifications, and the new CAMA specifications serve to clarify expectations and provide a basis for audits. The reappraisal funding removes a common obstacle to improvements. To the extent that counties and their contractors do things correctly the first time around, the less onerous corrective actions need to be.

However, ratio studies and performance audits are essential to ensuring that standards are met and that reappraisal funds are being used properly. For the audit findings to be valid, useful, and accepted, the audits must be well-designed, and they must be executed consistently. Care has gone into the design of the Phase 1 and Phase 2 audits, and the field operations manager devotes considerable effort to ensuring consistency. Nevertheless, concerns about audit consistency persist.

The details of the design and execution of Phase 1 and Phase 2 audits are the subjects of sections 4 and 5. Here the focus is on quality assurance generally. ACD documents normal audit procedures in a document entitled "Performance Audit Guidelines," which it updates periodically. It contains instructions and guidelines for the various elements of the Phase 1 and Phase 2 audits. In addition, a number of forms provide structure to the audits. Finally, in recognition of the importance of preserving audit work papers and other documentation, there are instructions in how to file audit papers. Although some of the forms are computer-generated, the bulk of audit do-

[4] We note with approval that the CAMA system specifications require adequate training.

cumentation is on paper (see section 4.2.3). This requires a standardized system for filing documents, which the field operations manager has established.

Auditors receive their training in the field under the guidance of a more senior auditor (the crew leader). The lack of structured training may contribute to differences in practices. However, the field operations manager reviews submitted audit materials for completeness and consistency. Audits that contain non-compliance findings are reviewed especially carefully.

The previously discussed proposal to establish three new program support manager positions would make possible a number of quality improvements (e.g., better training, closer supervision of auditors, and more timely reviews of audit work). The division director would have a better opportunity to consider strategies for making the overall audit program more effective. The IT recommendations made above also have quality-assurance implications.

The auditor or the supervisor may communicate informally with the assessor or the contractor about apparent problems before a formal finding of non-compliance is made. Audit findings currently are communicated in the form of a memorandum with applicable audit forms attached. They are addressed to appraisal managers, although concerned local officials, assessors, and contractors receive copies. The communications are terse.

Appraisal managers are invited to dispute the findings of ACD, whether or not about non-compliance. In the case of a finding of non-compliance, they may request a hearing with the ACD director. When a hearing is held, the ACD issues a formal decision, which may be appealed under standard administrative law procedures. Under current administrative law procedures, this appeal is again to the director. If a county is dissatisfied with this appeal, it may appeal to the circuit court. When a hearing is requested, ACD attempts to make sure that the county builds a proper record for a subsequent appeal to the court. While such an appeal structure may seem illogical, it is not unprecedented. We note that the Task Force has recommended the establishment of a State Board of Equalization on the grounds that the ACD itself needed oversight and that a level of appeal needed to be inserted. We are not yet persuaded that such a Board is needed or that, if created, it could be relied upon to satisfy the particular concerns of the Task Force members, if the experience in other jurisdictions is a guide. However, we would encourage ACD to expand chapter 2 of its rules and regulations to ensure that petitioners' rights under the Administrative Procedures Act are fully protected (or take another action of similar effect, such as developing written guidelines).

In addition to recommendations contained in sections 4 and 5, we recommend that consideration be given to the following:

- Budget time for auditor workshops during which program performance and procedures are reviewed informally by division managers and auditors (and other ACD staff when deemed desirable). The division director would set the agenda and would chair the meetings. Such workshops would be a day or two in duration, and they should be held at least annually. They would provide an excellent opportunity for division staff to share experiences, exchange problem-solving ideas, and ensure that everyone understood what was expected.

- Consider individual conferences with appraisal managers, assessors, and contractors during which audit findings are presented and solutions are discussed. Current written communications are so terse that the importance of audit findings may not be fully appreciated.

- Consider issuing bulletins that publicize best practices among Arkansas's counties and that warn about unacceptable practices, or both. Such a "proactive" step might foster efforts by assessment professionals to improve practices. Advance notice of problematic practices may have a similar salutary effect.

4. DATA AUDITS

4.1 Audit Process Summary

The Performance Audit Guidelines (pages 10-15) outline steps to be followed in conducting Phase 1 audits. They describe procedures for sample selection, obtaining required records and information, determining the accuracy and timeliness of data, and submittal of findings to the field operations manager. Auditors are expected to complete at least three performance audits per year in each Phase 1 County, although this objective is not reliably met.

Sample sizes for initial review are to include at least 1% of improved properties completed during the audited period, or 60 improved parcels, whichever is greater, up to a total of not more than 300 samples. A supplemental sample of five to ten vacant properties in or near the areas that have improved samples is also to be taken. The guidelines detail various requirements to ensure that the sample includes each relevant property type and geographic area, each data collector or appraiser, and each data entry person. While this desire for representativeness is appropriate and laudable, simultaneously achieving these various requirements in the context of random sampling can be problematic. Much more importantly, however, there are opportunities to automate and otherwise improve the effectiveness and efficiency of Phase 1 audits. In this section we offer our comments and recommendations in this regard.

4.2 Audit Issues and Potential Improvements

4.2.1 Sample Size Adequacy

Sample sizes in general use for ACD audits are quite small relative to general reliability requirements. Since reliability depends far more on absolute sample sizes than on the proportion of the population, small samples are particularly problematic and should be increased wherever possible. Ideally sample-size specifications should explicitly reflect desired accuracy requirements in each area of inquiry (e.g., judgments about grades, measurements, etc.), and associated confidence levels and should be calculated from well known formulas based on historical information on prior proportions and data variability. Some samplings now done may not need to be done separately in any fundamental sense; for example it is doubtful that there is a real need to distinguish between two potential causes of data errors: miscodings during field work vs. data entry lapses. If there is truly a reason to separately identify the latter, the sampling plan should be different depending on the situation. Large samples are far less likely to be necessary in counties where systems with built-in edits will have caught most illegal or illogical data entry errors than in those places where such edits are not in place.

4.2.2 Change Monitoring

As used here, "change-monitoring" encompasses recommended audit activities the chief purposes of which are to detect (1) "sales chasing" (differential treatment of sold and unsold property) and (2) inadequate responses to changes in market values (which we term "unaddressed market changes"). As will be seen, the activities bridge Phase 1 and Phase 2 audits and have implica-

tions for ratio studies. Essentially, ACD field auditors need to be alert to inconsistent changes in grade, effective age, and the like that would suggest that the assessor or contractor was "chasing" sales. In addition, they should attempt to determine whether changes in valuation tables (or models) were appropriate. Such unaddressed market changes may arise when appraisers mistakenly assume that inflation and other value trends affect improvements almost exclusively, and hence make adjustments to total values or to cost schedules, but erroneously leave the tables or other valuation standards used in land appraisal unchanged. In addition to examining consistency from one property to the next, examining patterns of changes in the appraisals of all properties from one period to the next would be desirable. We recommend that ACD study ways to incorporate change monitoring both of property descriptions and of cost- and land-pricing tables (and other relevant valuation standards) in its audit practices. Monitoring of changes to property descriptions is best done via the CAMA software itself, although the current CAMA specifications do not include this as a requirement. We recommend that the CAMA specifications include change monitoring as a requirement to become effective within the next few years. In the meantime, ACD auditors should capture the data necessary for such analyses on a second-best basis. In particular we recommend that an essential part of the initial audit be the capture of initial conditions, presumably by obtaining a copy on CD-ROM of the entire assessment roll, including property characteristics. The data currently provided in conjunction with the final valuation ratio study, while of the general nature as this proposed requirement, are neither as standardized nor as complete as is contemplated here. In particular, this proposal contemplates that standard codes describing property use will be employed. It also contemplates that reappraisal managers submit the valuation tables used to convert codes to prices. ACD, by tabulating the distribution of such changes and their association with other characteristics of properties, will then be in a much better position both to detect sales chasing and to flag neglected value standard development efforts.

4.2.3 Current Audit Guidelines Contemplate a Manual System

The work products generated by the audit process should record and tabulate errors, by type, in a reportable format suitable for reproduction in black and white, not dependent on special colored inks on paper forms. Ideally the reports would tabulate differences noted in comparisons of reported data, derived from property record cards (or their equivalent query extracts), to ACD observed data. Software might need to be developed to facilitate recording the observations of ACD personnel and to extract and enumerate the differences. We recommend ACD explore the possibility of automating such audit data-capture and discrepancy-detection processes in the relatively near future. Sampling procedures should also be automated, as described elsewhere.

4.2.4 Auditing the Auditors

To the extent that there are questions about the work habits of the ACD field audit staff and therefore a need, whether supposed or real, to audit the ACD auditors themselves, the current methods of doing this could be augmented. Current methods include assigning auditors to work in pairs or larger, more closely supervised teams, closely monitoring the progress of each, and using unannounced on-site reviews to verify work. Revising the organizational structure to increase the number of operational managers in this area is one way of addressing this issue. Another approach, which involves relatively little cost, would be logging vehicle positions via GPS. The equipment necessary to do this could be obtained for approximately $200 per vehicle.

Increased use of automation, such as the queries discussed on sections 4.5 though 4.7, would also potentially provide supervisory personnel with additional and more current information on the activities and productivity of field personnel and thereby address such concerns as a side benefit of the increased efficiency.

4.3 Need for Quality Assurance / Quality Control

Although one of the in-house countywide reappraisal plans we reviewed (for Crittenden County) made explicit mention of a significant quality assurance component, none of the other four reappraisal plans did. This agrees with an impression garnered from our discussions with the ACD field auditors, viz. there was very little if any attention devoted to quality assurance on the part of the counties or their contractors, except perhaps in the area of data entry, where ACD specifications explicitly require it. Given the limited resources that ACD can devote to data audits, it would behoove ACD, the counties, and their contractors to explicitly provide in reappraisal contracts for a significant data-capture quality assurance component as a deliverable. The Crittenden plan, for example, explicitly budgets a certain level of effort to be devoted to "field data quality control," and stipulates "that one out of every twenty properties is tested for accuracy." This is a practice worth emulating in all counties. Clearly ACD personnel will never be in a position to devote that level of effort to such activities locally. If ACD auditors were in a position to review the details of such a locally conducted program, however, it would likely affect the deployment of ACD audit resources. Even the quality control (QC) activity currently required, namely verification of data entry, is nebulously specified. Presumably that activity is accomplished by someone visually comparing data-entry documents to printouts of what was entered, although more fool-proof alternatives in the form of doubly keyed documents, check digits, and edits embedded in the data-entry software may be more effective. In general, the data audit program would be greatly benefited by better documentation in the reappraisal contract specifications, which should set out the respective responsibilities of the county, contractor, and ACD personnel. At present it seems likely that there is a presumption that ACD auditors are, or should be, performing a role that they cannot possibly execute realistically without resource increases of several orders of magnitude. We recommend that the specifications for reappraisal plans be enhanced to explicitly address quality assurance responsibilities and deliverables. We further recommend that the ACD data audit procedures be adjusted to reflect both the clarified responsibilities and the specific results obtained in each county's program.

4.4 Problematic Sampling Frame

In conducting audits, ACD commendably seeks to draw random samples for detailed analyses so as to be able to draw reliable inferences about the unsampled larger population. Efforts in this regard, however, are frustrated by the lack of a suitable sampling frame (or census) from which to draw a random sample that could possibly be informative about omitted or escaped parcels. The local assessment rolls are currently used as a sampling frame, and samples drawn from them could conceivably include properties recorded as vacant that are in fact improved, so that escaped improvements may be noted in this way. But entirely escaped properties are unlikely ever to be caught. This situation is exacerbated by the fact that assessment maps are not generally available in the state. Such maps serve the purpose of ensuring, once they are compiled, that all land in the jurisdiction's boundaries is accounted for, just as assembling a jigsaw puzzle is the

means of ensuring that all its pieces are accounted for. Once the totality is enumerated, efforts can be undertaken to see if each of the pieces is treated properly. Without the totality being described, the process is much harder.

An alternative is available, but its laborious nature makes it feasible only for limited (research) use. Since every spot on earth is uniquely identified by its latitude and longitude, it would be possible to use the set of all such randomly generated latitude/longitude pairs as a sampling frame capable of identifying omitted properties. Obviously one would want to limit such pairs to those lying in polygons of interest (the state, the county, excluding park land, perhaps using systematic sampling to preferentially select from urbanized areas, etc.). Having obtained the randomly selected point coordinates, identifying the assessor's parcel number that includes it, if any, becomes the next order of business. Absent parcel maps the next best alternative is georeferenced photographs. Those available via Google Earth for Little Rock are more than adequate to identify points on a street grid and facilitate record research conducted from such indexes. Those available for other sampled jurisdictions (Hot Springs, Lonoke, and Van Buren County), however, would be problematic in that respect. It has not yet been possible to determine how that situation might differ if access were to be based on the resources of Arkansas' GeoStore rather than Google Earth.

It is the conventional wisdom that assessment mapping programs typically pay for themselves in terms of the newly discovered, formerly escaped properties. Unfortunately, hard data to support or refute such claims are not generally available. As discussed in 3.4, we recommend that ACD explore the possibility of ensuring that all Arkansas counties are covered in the near future by assessment maps that meet contemporary standards. Perhaps research in a pilot area would be able to support the assertion that such maps would pay for themselves in the increased tax revenues that they would bring in. In any event it is clear that without them, it will not be possible to conduct audits with any realistic hope of detecting escaped properties.

4.5 Predictability of Sampling

The process currently adopted by ACD auditors to select properties for audit, while nominally random, is problematic in that it is typically selected from only the largest neighborhoods, where there is adequate data for analysis. In order to maximize the reliability of inferences about the population drawn from the sample, it is essential that the sample be truly random. To ensure this, it would be better if the samples were drawn truly randomly from an appropriate sampling frame. Many computer programs, including Excel and SPSS, both currently used by ACD, are capable of generating random numbers for sampling purposes.

A secondary problem that leads to the possibility of sample corruption is the practice of obtaining sampled records only through the intermediation of a local person, and then only after a delay. ACD has adopted the practice of choosing a new sample if the originally selected records are not delivered promptly (generally within 24 hours). Although doing so is probably the best practice in the circumstances, a better policy would be to reform the sampling process entirely. As provided by law and as recited in all the reappraisal contract specifications, counties or their contractors are obligated to provide to ACD on demand any information necessary for audit pur-

poses either on site or via phone modem. Taking advantage of this requirement for electronic document provision would improve the process.

We recommend that in selecting parcels for audit ACD should first request a listing (actually a file, although an electronic list could presumably be easily converted into a suitably formatted electronic file) of all the parcel identifiers in the relevant sampling frame – for example those on which data collection work has been done within certain date parameters supplied by ACD. For sample selection purposes, we recommend that this list then be sampled either by using selections determined by a random number routine or by systematically sampling every x-th property (where x is the result of dividing the desired sample size by the total number of properties that could potentially be sampled). After identifying the desired parcels randomly in one of theses ways, we recommend that the list of parcel identifiers for which more complete information is wanted then be sent back to the local system for record production. As described below, however, it is an open question how much information should next be retrieved and to whom it should be provided.

4.6 Inter-Rater Independence

Ensuring independence between the auditor and the appraisers or data collectors being audited is essential to guaranteeing the reliability of the sampling techniques underlying the audit. Our review of a very small sample of available data raised some concerns in this regard. Considering only the issues of grade and remaining economic life for a sample of slightly over 100 properties, we found that there was perfect agreement between the auditor and the appraiser two thirds of the time on the subject of grade and three quarters of the time on the subject of remaining economic life. Exact agreement at these rates is somewhat surprising, giving rise to a concern that the auditor may have been unduly influenced by the data presumably available to him or her on the property record cards provided by the local appraisers. To help ensure that auditors are not unduly swayed, consciously or not, by the work they are auditing, we recommend that auditors be provided with worksheets (or data entry forms on their field computers) that contain identification information for the property being audited but suppress the data recorded locally for the property characteristics being audited.

Suppression of information in this way can be accomplished either by generating worksheets or prototypical property record cards that are only partially populated in response to the selections identified during the sampling procedures described above, or by sending the records in their entirety to the main ACD office and having the field audit coordinator suppress the relevant fields on the information that is subsequently forwarded to the ACD field personnel for audit. In the former case the locally coded information would have to be obtained and analyzed by the field personnel as a third transaction with the local database before the results of the audit could be summarized, whereas in the latter case such analyses would be the responsibility of ACD personnel in the central office.

4.7 Efficiency Aspects

Pre-written, parameterized queries, sometimes called canned SQL scripts, would greatly reduce the learning curve required of auditors in dealing with the variations between CAMA vendors

and among county database structures in the implementation of the recommendations above. We recommend that ACD, the CAMA vendors, and the relevant counties work together to develop this capability. During initial implementation it may be necessary for ACD central office personnel to be involved in the development and debugging of such queries, especially if connections from the main ACD office to the counties' machines can take advantage of a faster communication channel than would be available from field locations. We further recommend that the specifications of the required "phone modem access" be clarified if necessary to ensure that data can be exchanged with the speed and ease contemplated in these recommendations. For example, it may be advisable to specify the availability of DSL or faster modes of access

In order to minimize the need for ad hoc exchanges of massive amounts of data, it would be advantageous to all the parties involved if a schedule could be worked out that would provide for the routine production of data files for transmittal to the central ACD offices on CD-ROMs, DVDs or similar standard, durable, high-capacity media. We recommend that data transfers on durable media should happen no less frequently than annually and preferably should occur monthly as part of the routine backup procedures of the counties and their vendors.

We further recommend that the central ACD offices acquire the capability to manage and take full advantage of the repositories of information on sales and on the universe of assessable parcels contemplated in the prior recommendation. The sales data, of course, would prove useful in the appraisal efforts of counties faced with a paucity of market data but in similar economic circumstances as other counties with greater sales activity. The data on the population of taxable parcels would be useful for a variety of ACD audit-related purposes described in this report.

4.8 Software Integrity

Questions of the integrity of data reported by local CAMA systems affect both the valuation audit process (where auditors may invest time in ensuring that calculations are being performed as advertised) and the general performance audit process (where implausible coefficients of dispersion have been detected in some reports). Although not directly related to Phase 1 or Phase 2 audits, we recommend that the software certification system now employed in Arkansas be extended to ensure that the CAMA programs perform as required and return correct results for a number of test samples of data. This would make unnecessary the need (or temptation) for auditors to verify calculations manually.

4.9 Annoyances

Some criticism has been voiced on the part of vendors that the data-collection audits are too obsessed with trivial discrepancies that are of no significance in the determination of the value at which the property is ultimately assessed. We recommend that ACD discuss this issue with the complaining parties and work toward a mutually acceptable solution that would not compromise the integrity of the audit program (or would not have the consequence of paying for work that was not done). Current ACD policy is that small discrepancies, amounting to less than $2,000, are not cause for a non-compliance finding, but if they recur after having been cited in an audit report then they can become grounds for such a finding. In order to preclude the abuse of a policy that tolerates numerous small defects that in aggregate might amount to a significant sum, we

recommend that ACD develop a projection of the omitted value attributable to all discovered errors, whether they are individually waived on materiality grounds or not. If this aggregate exceeds a threshold, expressed as some small percentage of the total value of the properties tested by the auditor, then the prospect of a non-compliance finding should arise again.

4.10 Systemic Improvements

The audit process would be greatly facilitated if ACD knew more of the details of the local assessment rolls, although absolute currency and administrative details of tax exemption and other relief programs would not be essential. Many states and provinces, including Alberta, Indiana, Nebraska, and New York, have found it advantageous to have copies of the entire assessment roll (unsold properties as well as sold) submitted to them on a regular basis, along with standardized data on the key physical and locational characteristics of the properties. With such data available at least annually, ACD would be in a position (1) to monitor price trends (and the likely need for a reappraisal) much more closely than is now possible, (2) to ensure that sold and unsold properties are being treated equitably and that assessment ratio studies accurately portray the issues they are intended to address, (3) to address questions on the potential taxable wealth of the various jurisdictions in the state, and (4) to ensure uniform compliance with the laws more effectively than is possible now.

It would be advantageous to the audit program if sales could be reported to ACD via two channels, both (1) the assessor (as now) who would complete coding on the form as to the usability of the sale for ratio study purposes and would ensure the validity of the associated assessor parcel number(s) and (2) the recorder of deeds who, perhaps by means of multi-part pre-numbered forms, could help to ensure that all sales were timely received by ACD. With a dual channel it would be possible for auditors to focus on the validity of the verification codes rather than being consumed with duties more of a bookkeeping nature. We recommend that ACD explore the support available for redesigning the sales processing infrastructure to include dual-channel reporting and the use of a sales disclosure form, possibly of a multi-part, pre-numbered nature.

5. VALUATION AUDITS

5.1 Arkansas Valuation Standards and Practices

As set out in section 2, Arkansas statutes require property to be appraised at market value every three years or five years, depending on whether counties are classified as "slow growth" or "fast growth" counties. ACD audits compliance with reappraisal requirements in two ways: through its performance audits and through its sales ratio studies. As set out in Rule 4.04.1, ratio studies are to be conducted for three major classes of property: (1) residential, (2) vacant land, and (3) commercial and industrial (including apartment buildings). The level of assessment for each of these three classes of property must fall between 0.18 and 0.22 (corresponding to appraisal ratios of 0.90 to 1.10, consistent with IAAO standards). The assessment level for residential property and vacant land in each "market area" (see 5.2.2 below) must also fall between 0.18 and 0.22. In addition, appraisal uniformity, as measured by the coefficient of dispersion (COD), must achieve various levels defined in the rules.

Appraisal accuracy is largely a function of data quality and appraisal methods and techniques. Phase 1 audits (section 4) addressed data-quality issues. There are various valuation approaches and techniques. As can be readily seen, however, the success of any method is a function of how closely it tracks market trends and variations as measured in open market, arm's-length sales. The sales comparison approach is rooted directly in market sales and, provided that such sales are reasonably abundant, stands to provide the most accurate value estimates. The foundation of the cost approach is construction costs, which are adjusted for depreciation and market factors and added to estimates of land value (normally obtained from the sales comparison approach) to estimate total property value. As can be seen, the cost approach is less direct but provides stable value estimates and is less dependent on sales data than the sales comparison approach. The income approach is appropriate for income-producing properties whenever adequate income data are available. Arkansas counties that have traditionally relied heavily on the cost approach for most improved properties may stand to improve appraisal accuracy by taking advantages of PC software to apply the sales comparison and income approaches where practical. Some counties and contractors are already moving in this direction. ACD should aid and encourage such trends.

5.2 Performance Audits

ACD audits a number of specific valuation tasks discussed below. Such audits are necessarily difficult because the success of valuation methods not only depends on what is done but how carefully and well it is done. Thus, ACD must scrutinize specific samples of work rather than merely determine what approach or technique was used.

The recently developed CAMA specifications provide much useful guidance on CAMA systems. Since a CAMA system is the vehicle for implementing a reappraisal, it houses much of the valuation work accomplished during the reappraisal and thus is a rich source of information. Obviously auditors should not only be familiar with the CAMA specifications, but can benefit considerably if they understand and can use the CAMA systems in the counties they audit. Thus, we recommend that ACD seek to ensure that its valuation audits are consistent with the CAMA spe-

cifications and that auditors receive adequate training on use of CAMA software in the counties for which they are responsible. Reappraisal plans require that contractors provide training on their systems and contractors have expressed a willingness to ensure that adequate time is provided for such training. Such training should include procedures for extracting data for analysis with generic software, such as Excel and SPSS.

In addition, since a properly done ratio study using all valid sales is the most objective gauge of appraisal performance, ACD should move to make its procedural audits supportive of its newly improved sales ratio program. Several of the recommendations below are made in this spirit.

Appendix 2 includes a draft of a revised Valuation Field Audit form that incorporates many of the various recommendations made below. The reader may want to refer to it when reading the balance of this section.

5.2.1 Sales Validation and Processing

Since sales data provide the most direct evidence of market value, it is imperative that sales be properly screened and analyzed. Counties are required to submit to ACD an electronic list of all warranty and special warranty deeds by January 31 of each year. Rules enumerate the data items that must be submitted and require counties to assign an appropriate "validation code" to each sale. The rules further direct ACD to "audit a random sample of at least 50 sales submitted by each revaluation county to ensure that validation codes have been correctly assigned. The sample will include an equal number of sales coded as valid and invalid by the county…. If the ACD determines that more than 10% of sampled vacant, residential, or commercial/industrial sales are incorrectly coded, it shall not use validation codes submitted by the county for that property class, but rather shall use electronic edits, select and validate a random sample of sales, or take other measures deemed appropriate to ensure a valid study."

Question #2 of ACD's valuation audit form addresses sales validations. It asks: "Does the county or appraisal firm use validation codes, and are confirmation sources available? Do the validation codes meet the requirements of the ACD Rules and Regulation?" The latter question is aimed at determining whether at least 90% of sales have been correctly coded, which in turn implies a random sample of at least 50 sales, one-half of which have been coded as valid and one-half as invalid.

While the above questions are on point, since the sample selected is crucial, we recommend that the *Performance Audit Guidelines* specify for auditors how the "random" sample is to be drawn. First, measures should be taken to ensure that all three property types (vacant, residential, and commercial) are represented. For example, for simplicity, 20% of the sample should be drawn from vacant properties, 30% from commercial, and 50% from residential. Or the percentages could be proportional to the number of properties in each of the three classes.

Next, the number of available sales coded as valid and invalid in each class could be divided by the required sample size and the resulting quotient used (e.g., every 10^{th} sale for a required sample of 20 from 200 "valid" residential sales and every 4^{th} sale for a required sample of 5 from a sample of 20 "invalid" commercial sales). If a sale cannot be confirmed (e.g., because a party to

the sale cannot be contacted), then the next sale can be selected. Further, "at least 50" should be clarified. We recommend a sample of 60 in counties with 50,000 or more parcels, 80 in counties with 75,000 or more parcels, and at least 100 in counties with 100,000 or more parcels. Finally, there should be at least five samples in each of the six subgroups (valid vacant, invalid vacant, etc.), which may occasionally result in slightly larger samples than outlined above.

Of course, it is imperative that ACD staff audit (re-validate) sales with the same care with which counties and contractors are expected to. A standard form should be used and efforts made to contact parties to the sale and information obtained documented. While auditors can review information already obtained by counties or contractors, the information should be verified, preferably with a third party where possible. We note that, where available, MLS can be used for this purpose.

In addition, we strongly recommend that ACD begin maintaining a historical file of the number of sales coded as valid and invalid by county, reappraisal year, and class of property, as well as validation codes assigned.[5] Based on this information, the ACD will be in a position to flag counties that appear to be misusing a particular validation code or marking an excessive number of sales in a given property type as valid or invalid.

Ensuring that sales are correctly coded is the first and most important step to an effective sales ratio program. If the Department reviews the sales validation work performed by each county thoroughly and consistently, it will be in a position to rely on the results of ratio studies, which will then provide objective, consistent measures of overall performance. Too, ensuring good sales data will enable contractors and counties to conduct better reappraisals. Somewhat related, they will also be in a better position to apply the sales comparison approach to property classes with adequate sales. While sales audits are technically a Phase 2 task, if properly executed, they will stimulate more accurate valuation work and position ACD to conduct more accurate and uniform ratio studies.

5.2.2 Market Areas and Neighborhoods

Market areas are groupings of economically similar (and usually contiguous) neighborhoods that can be useful both for organizing reappraisal work, creating valuation models, and performance monitoring. They have become widely accepted as an important element of modern mass appraisal programs. ACD rules state, "Each market areas shall contain between 1,000 and 20,000 parcels, depending on value patterns and the economic diversity of the county…. Smaller or economically homogeneous counties may have a single market area."

As already noted, counties are required to achieve stipulated sales ratio standards for vacant and residential properties for each market area. Thus, if properly constructed, market areas provide a means of ensuring equitable appraisal performance across economic areas of a county. Because they were newly incorporated into the 2004 updates to its rules and because counties and contractors need time to implement them, ACD audit guidelines and accompanying forms currently make no reference to market areas.

[5] Of course, some sales that are unusable in ratio studies are usable in appraisal.

We recommend that ACD focus on whether market areas and neighborhoods have appropriate parcel counts and make appraisal sense. One question could simply ask whether the county has established market areas and, if so, if each has between 1,000 and 20,000 parcels as required by rule. Similarly, we believe that ACD should promulgate guidelines for the delineation of neighborhoods (which could then be incorporated by reference into reappraisal contracts). All too often neighborhoods are defined as being synonymous with subdivisions or other small clusters of property with similar land and building attributes, which encourages market adjustments that "chase" overly small sale counts. Rather neighborhoods are areas of similar location desirability in which a similar house on a similar lot would sell for a similar amount. Valuation tables, not base lot values, should make adjustments for differences in building and land attributes such as living area, year built, construction grade, lot size, and view. Although the number can vary widely, a typical neighborhood has several hundred residential properties. We recommend that ACD begin monitoring the number of neighborhoods in each county relative to its parcel count. Neighborhoods with fewer than 50 residential properties should be flagged (and likely consolidated with a similar area).

Counties are required to maintain maps delineating neighborhoods (which ideally would be a layer in the recommended GIS). Although it may be implicit, the requirement should be extended to market areas. A question on the valuation audit form should ask whether such maps are maintained and available.

5.2.3 Time Adjustments

Once sales have been assembled and screened, time adjustments should be considered. Such adjustments can be extremely important in market areas where prices are changing rapidly. By rule, ACD adjusts all sales used in its ratio study to January 1 of the reappraisal year. If counties or their contractors do not make similar adjustments, assessment levels may well be out of compliance. ACD may use any time adjustment technique promulgated by IAAO. Rules provide that "Counties may submit documented time adjustments to ACD, which ACD may rely on if it finds that the adjustments are based on sound methodology and adequately reflect the market."

The last part of question 10 of the valuation audit form asks the auditor to "Determine if proper time adjustment factors were applied to sales as needed." Instead, we recommend that the auditor determine, first, what method (or methods) were used to develop time adjustments and, second, what the resulting adjustments were. The auditor should inspect the CAMA system to ensure that time-adjustment factors are, in fact, provided for and have been updated. The auditor should also review the county or contractor's analyses for at least two property groups to determine if proper methods were used. Finally, the auditor should verify a small sample of sales to ensure that time-adjusted sales were actually used for valuation analysis.

We note that rules permit counties to submit time adjustments to ACD for use in its ratio studies. While we believe that the ACD ratio coordinator should continue to make an independent analysis for each county, we also believe ACD should stand ready to adopt properly supported time adjustments submitted by counties or their contractors when reasonably consistent with ACD findings. Often counties may develop adjustments by more strata than the structured analyses conducted by ACD. If the results of these more detailed analyses are reasonably consistent with

ACD's own analyses, then they should be accepted, which will ensure that the same time-adjustment factors are used for both valuation work and ratio studies.

5.2.4 Land Valuation

Besides providing direct estimates of vacant land values, land valuation is a major component of the cost approach. Unfortunately, vacant land valuation is often made difficult by such factors as a dearth of vacant land sales in built-up areas and seemingly inconsistent prices in rural areas.

ACD guidelines emphasize the "base lot method" of land valuation in which the typical lot in each neighborhood is identified and valued. Values for other parcels are then set by comparison with the base parcel with valuation tables providing the appropriate adjustments for size and other relevant attributes. While a sound method of land valuation, the base lot method is not the only valid method and, happily, the CAMA specifications make it clear that the value per-unit method, in which the appraiser determines and makes appropriate adjustments to a typical per-unit value (e.g., per square foot or per acre), as well as other accepted supplemental methods, can also be used.

Question 3 on the valuation audit form asks whether sales analysis verifies the accuracy of land values. Question 4 asks, "Does the county or appraisal firm use the base lot method for lot valuation? If so, provide supporting documentation with a narrative description and analysis attached." Because individual auditors can approach these questions differently, we recommend a more specific set of questions.

Once sales data have been confirmed and adjusted for time as necessary and neighborhoods identified, the next step in land valuation is to plot vacant land sales (and perhaps land residuals) on a map of the market area in order to identify trends and averages. Thus, one objective question would be to ask whether such land value maps have been produced.

Next, the county or reappraisal contractor must determine base lot values (or base land rates) and appropriate adjustments for variations in size and other relevant factors such as water frontage, view, or restricted access. The first question to ask in this regard is whether these various rates and adjustments are stored in land valuation tables (as called for in the CAMA specifications). The auditor should be able to look up what adjustments are typically applied for variations in size and other amenities. The auditor should not have to examine individual parcels to discover these adjustments or, said another way; adjustments found for individual parcels should (except for unique situations) be consistent with adjustments shown in valuation tables. And, of course, these rates and adjustments should, in turn be consistent with sales data. As is current practice, the auditor can then select one or two areas with good sales evidence to determine whether land rates and adjustments are adequately supported by vacant land sales or other applicable market data. In most cases, however, we do not believe that the auditor need conduct an independent analysis, but rather can review the work of the county or contractor as long as they conducted a spreadsheet or statistical analysis of the data. The lack of such an analysis is a red flag that the valuation rates and factors were not market-derived.

5.2.5 Improved Property Valuation

Other than land valuation methods, ACD rules and audit guidelines say little about valuation method and techniques. Reappraisal contracts require all three methods to be used as applicable and CAMA-generated values to be field reviewed. Contractors are required to use the most current edition of the Arkansas Real Estate Manual or other cost manuals approved by the Department (namely, the Marshall & Swift manual for commercial properties). Cost estimates must reflect local market adjustments that have been derived from validated sales, adjusted for time as necessary.

Question 6 of the Department's valuation audit form asks whether the ACD cost manual is used for residential property and question 7 asks whether Marshall & Swift was used for commercial properties. Question 8 inquires whether "proper" adjustments were applied to Marshall & Swift costs. Question 9 asks if the comparative sales or income approach was used and, if so, requests the auditor to provide a narrative analysis of the methodology.

The draft CAMA specifications are more specific. Regarding the cost approach, in addition to the requirements already noted above, the specifications require that all rates, factors, and adjustments be stored in user-maintainable tables. This is important to ensure that all relevant adjustments (such as for heating and cooling) have been applied once and only once. Regarding the income approach, the CAMA specifications require support of gross rent multipliers and overall (net rent) capitalization techniques. In terms of the sales comparison approach, the specifications require support of a comparable sales routine, although this requirement can be met by an algorithm to identify comparable sales, such as assessors typically use in appeals defense (support of MRA-based appraisal models is not required).

Based on the above, we conclude that there is a need to make audits of valuation methodology for improved properties more comprehensive. To begin, the audits should ensure that contract requirements are being fulfilled and should be correlated with CAMA system specifications once officially adopted. While tangential to the scope of our assignment, we also suggest that contract specifications clarify what appraisal approaches are required for each property type (the "as applicable" clause typically found in contracts is not sufficient).

As noted, Arkansas currently emphasizes the cost approach for improved properties. Once land values are determined, the cost approach requires estimation of replacement cost new (RCN), depreciation, and market adjustment factors. Auditors determine whether the Arkansas cost manual is used for residential property and are directed to verify that Marshall & Swift (with local modifiers) is used for commercial property. While fine as a starting point, we observe that use of these manuals says little about the quality of the resulting values, which depend crucially on depreciation and market/location adjustments. Further, the Arkansas cost manual (which itself is based on Marshall & Swift costs), was last updated in 1995. To be accurate, depreciation schedules must be market-derived, which implies a comparison of improvement residuals (time-adjusted sales prices less estimated land values) against age or (preferably) effective age. Reappraisal contracts should require as much, and audit guidelines should check for the same.

The income approach is the preferred approach for many commercial properties, provided that reliable income information can be obtained. Reappraisal contracts generally require that rental data be extracted from "reliable sources" and, as noted, the CAMA specifications require support of the income approach. Accordingly, we recommend that a question or questions be added to the valuation audit form to ensure that appropriate efforts are being made to obtain income data and that the method is being used where available data permits. Again, it would be helpful if reappraisal contracts better clarified these requirements. The statewide commercial database to be spearheaded by the newly established CAMA Standards Board should also help in the appraisal of commercial properties.

With respect to the sales comparison approach, which is the preferred approach for residential properties when adequate sales are available, we recommend simply that the audit form ask whether the approach is used as the primary method for any improved property type (e.g., single-family residential, condominiums, or other) and, if so, to elaborate or explain. A separate question should determine whether the county has a comparable sales routine for analysis and support of (a) residential and (b) commercial values as required by the CAMA specifications.

5.2.6 Sales Ratio Studies

Commendably, the CAMA specifications require sales ratio capabilities and reappraisal contracts require that a sales ratio study be conducted. These studies must report all commonly used ratio study statistics and include a list of sales regarded as valid and used in the studies. Reappraisal contracts should, in our opinion, also include minimum stratification requirements, e.g., by property types, neighborhoods, age groups, and so forth. The CAMA specifications require the ability to accommodate such strata, as well as the ability to determine the required factor to bring the median assessment level for a group of properties to 1.00.

Questions 11 and 12 of the valuation audit form ask the auditor to confirm that ratio studies were conducted by various strata and to report the overall results of the study. We recommend that these questions be rephrased slightly to determine how many sales were used in the study, what time frame was covered, whether all valid sales were used, whether sales prices were time-adjusted, what strata were used, what the overall results show, and whether a review of the studies indicates any potential problems.

Although ratio studies provide the best objective measure of assessment performance, their validity rests, first, on the assumption that sales have been properly screened and adjusted for time and other relevant factors and, second, on whether unsold properties are appraised in the same manner as sold properties. Although the first of these requirements has already been addressed (see 5.2.1 and 5.2.3 above), we note that sales ratio results can be biased if sales are selectively screened so as to find reasons to remove poor ratios while accepting good ratios. In addition, results will also be biased if counties or contractors engage in the nefarious practice of "sales chasing", in which values for sold properties are set so as to produce good ratios rather than being determined on the same basis as unsold properties. Often the practice takes the form of changing construction grades or other data to produce the desired results.

Question 13 of the valuation audit form asks if preferential treatment is given to sale properties and directs the auditor to compare value changes for similar sold and unsold properties. While good, we recommend that the Sales Ratio Coordinator perform such analyses on a standard, mass basis (see our prior report on sales ratio recommendations). At the same time, we concur that auditors should continue to be alert for inconsistent changes in grade, effective age, and the like for sold and unsold properties. They should also continue to check at least two neighborhoods for instances of such inconsistencies.

5.3 Timing Issues

Unfortunately, the Arkansas assessment calendar poses a serious obstacle to acting on the findings of Phase 2 audits, as well as the Department's sales ratio findings, on a timely basis. As noted in 2.2.3, Phase 2 audits cannot begin until valuation work is at least half complete, and counties are not required to submit electronic files with new values to ACD until July 1 of the reappraisal year. Yet, State law requires that valuation notices be mailed no later than ten working days after July 1 of the valuation year. This makes it impossible for ACD to notify counties of sales ratio findings and for counties or their contractors to make any necessary adjustments to values in a timely manner. A legislative group is currently looking into how the assessment calendar can be moved forward to permit ACD to complete Phase 2 and ratio study work and enable counties and contractors to act upon findings before notices must be mailed. We believe that moving the assessment calendar forward is the only practical resolution to the current dilemma and highly support such efforts. Of course, some reasonable notice and lead-time must be allowed to implement the new time frame.

5.4 Valuation Training and IT Support

Although we have already discussed the importance of training at various points, we again emphasize that auditors must be well-versed in mass appraisal techniques in general, as well as the CAMA systems with which they interact. Auditors must understand the full gamut of mass appraisal procedures, ranging from sales verification to neighborhood delineation, time-adjustment methods, and valuation techniques (including mass appraisal applications of the sales comparison and income approaches). Training in the Marshall & Swift cost manual is also needed.

At the same time, auditors cannot be expected to be knowledgeable of the appraisal of all property types, particularly large or complex commercial, industrial, and special purpose properties. ACD should consider hiring or training some specialist auditors to focus on these properties, perhaps one for each of the two newly authorized audit crews (see section 3).

In addition, information should be automated whenever possible. We have emphasized the important role played by ratio studies in overall performance reviews. Ideally, auditors should be able to utilize results of ratio study reports prepared by the Sales Ratio Coordinator in their work. Hopefully an accelerated valuation schedule would make this possible. In addition, ACD should look to other ways in which standardized reports can be used to help auditors work more efficiently (see for example the above recommendations for monitoring value changes for sold and unsold properties). As indicated previously, the ability to extract data and run independent analyses can also be extremely helpful.

Similarly, practices can be compared among counties. For example, economic modifiers applied to Marshall and Swift costs could be compared for consistency across counties to flag atypical practices. Economically similar counties should have similar factors. We recommend that the Department begin construction of a statewide practices matrix that would permit it, the CAMA Standards Board, and other interested parties to compare practices across counties.

6. CONCLUSIONS AND RECOMMENDATIONS

This section brings together our main conclusions and compiles our recommendations, which are organized under that section of the report in which they were first discussed.

Section 2 - Role of Program Audits in Assessment Administration

1. *ACD should encourage and aid the adoption of the sales comparison approach*. Where adequate sales are available, the sales comparison approach can provide more direct and accurate estimates of market value. The ACD should emphasize such techniques in its training programs and incorporate their use into its audit guidelines and procedures. See section 2.2.4.

2. *Phase 2 audits should continue to analyze samples of work rather than simply determine whether an appropriate method or technique was applied*. Just as the "proof is in the pudding", ACD must determine how a function or task was carried out and whether the result achieves standards. Commendably, ACD's current procedures already emphasize this approach.

3. *ACD should ensure that its audit procedures are consistent with the recently adopted CAMA system specifications*. In additions, it should ensure that its auditors receive training sufficient to understand and use CAMA software in the counties that they audit. The ability to query data and examine valuation tables using the same software as used in the valuation can greatly facilitate an effective and efficient audit.

4. *Assessors should be kept in the loop*. Assessors are ultimately responsible for revaluations. Those who have hired contractors should also be regularly informed of audit results. Of course, it is also their responsibility to ensure that work is proceeding smoothly and that data and values are of high quality.

Section 3 - Management

5. *We endorse ACD's plans to augment the staff of the field operations division with regional program support managers*. Currently field audit work is managed by the field operations manager, who is stretched too thin and unable to devote adequate time to overall planning, operations, and program improvements. We recommend that he be assisted by two or three senior auditors responsible for supervising the daily work of their respective areas. See section 3.3.

6. *ACD should explore ways to promote the creation of a set of assessors' maps and related geographic information systems (GIS)*. Possible alternatives range from legislative subsidies to counties for map/GIS development to surcharges to counties (or holdbacks from reappraisal subsidies) for added auditing costs in counties with inadequate mapping systems. (Section 3.4)

7. *ACD should similarly explore ways to promote acquisition of digital photographs of buildings by counties*. In addition to assessment and first-responder uses of this technology, ACD could use it in its data (Phase 1) reviews where available, either on site or remotely. (Section 3.4)

8. *ACD should take greater advantage of the remote access that CAMA systems are legally required to provide to ACD.* Although not imperative, this would be greatly facilitated through the standardization of data table structures across counties, or at least through the specification of acceptable alternative structures. (See section 3.4.)

9. *Related to the above, ACD should develop and implement communications/network specifications for providing access to local assessment data*. ACD auditors should be able to access local data both from ACD's central office and from wherever they may be located. ACD field personnel should also be able to transfer data to and from the ACD central office independent of the local county's host computer. (See section 3.4.)

10. *ACD should develop a five-year plan for acquiring, managing, and utilizing county data*. This will involve development of a relational database management system (RDBMS) that can interface with county data files and perform various query and analysis functions. (Section 3.4.)

11. *ACD should explore the acquisition of a more flexible (transparent) version of the Marshall & Swift automated costing system.* (See section 3.4.)

12. *ACD should upgrade technology capabilities of staff*. It should offer training on relevant software used for data analysis and address equipment deficiencies of field staff. (See section 3.4.)

13 *ACD should ensure that its rules and procedures concerning petitions to the director under the Administrative Procedures Act fully comply with the spirit of the act*. We cannot yet endorse a Task Force recommendation that a State Board of Equalization be created to supervise the ACD and provide an avenue of appeal for an appeal to the circuit court. The evidence of need for such a body is scant. Perhaps because there are so few petitions to the director, detailed procedures have not been developed. We believe such procedures would be beneficial. (See section 3.5.)

14. *In addition to the specific improvements recommended in sections 4 and 5, ACD should consider a number of infrastructure or cultural enhancements to support an improved audit process*. These include (1) utilizing lieutenants to the field operations manager to review individual auditors' work more timely and effectively (see section 3.3); (2) using auditor workshops to review procedural issues and enhance consistency; (3) conducting joint conferences with assessors and contractors to discuss audit findings and solutions to deficiencies; and (4) issuing bulletins to publicize best practices among Arkansas's counties and warn about unacceptable practices. (See section 3.5.)

Section 4 - Data Audits

15. *ACD auditors should strengthen their examinations of patterns of changes in crucial valuation data that might suggest sales chasing or that updated valuation models (tables) are inadequate.* Inconsistent changes in such variables as grade and effective age can be suggestive of sales chasing. Trending only costs or applying market-adjustment factors only to building values while not making commensurate adjustments in land value factors may indicate that not all factors that account for value changes have been addressed in the valuation process. However, auditors will need additional IT tools to monitor such changes more effectively. (See section 4.2.2.)

16. *ACD should explore the possibility of developing software programs to automate the summary and reporting of Phase 1 finding*. This would include the utilization of error codes and summary reports of the number and percentage of errors by type. (See section 4.2.3.)

17. *Reappraisal specifications should make clear that counties or their contractors (not ACD auditors) are responsible for data quality control*. Most contracts are silent on the issue of data quality control. Contracts should make it clear who has this important responsibility and how it is to be performed (best practice would require contractors to audit field work on a certain percentage of properties). (See section 4.3.)

18. *Phase 1 sampling procedures should be improved*. Samples should be drawn electronically (either randomly or every i^{th} parcel) from county data files. Required data should then be extracted from the system, or sent back to the local system for generation of the necessary documents. (See section 4.5.)

19. *To ensure independence, data items being audited should be suppressed on audit documents such as data listings or record cards*. Either the data items being audited should be omitted from documents extracted from the system or they should be redacted prior to review by auditors. (See section 4.6.)

20. *ACD should work to develop standardized queries (SQL scripts) for the extraction of local data using high-speed communications*. Counties or their contractors should provide ACD with complete copies of data files via CD-ROMs or DVDs at least annually (preferably monthly). Of course, ACD must also develop programs to take advantage of this data, including inter-county comparisons and provision of a statewide commercial sales database. (See section 4.7.)

21. *ACD should work to address better the issue of trivial differences as counting toward noncompliance*. One resolution would be to determine whether the sum of all observed errors or discrepancies exceeds a specified dollar threshold or percentage. (See section 4.9.)

22. *ACD should explore the possibility of redesigning the sales processing infrastructure to include dual reporting of sales*. One source would be the county recorder, so that ACD could compare recorded sales with those reported by counties or their contractors. This would ad-

dress the issue of whether all sales were being properly reported to ACD. (See section 4.10.)

Section 5 - Field Audits

23. *ACD guidelines should set out specific procedures to select "random" samples for purposes of auditing proper assignment of sales validation codes*. Not only is sales validation an important valuation activity, it is integral to an effective sales ratio study. The guidelines should instruct auditors on how to select sales sample in a standard, consistent manner. We offer some suggestions in this regard in section 5.2.1.

24. *Valuation audits should monitor parcel counts by market area and neighborhood*. Market areas and neighborhoods are an essential building block of a sound reappraisal program. In addition, market areas are tied to sale ratio performance standards. ACD rules require market areas of between 1,000 and 20,000 parcels each. In addition, ACD should monitor neighborhood to ensure they are adequate in size to achieve reliable sale counts, and should ensure that appraisal maps delineate market area and neighborhood boundaries. (See section 5.2.2.)

25. *ACD should develop a more structured approach to analysis of time adjustments*. Current procedures ask whether "proper" adjustment factors were applied. We recommend that the auditor determine which method(s) was used and which factors were applied, and then verify that the method was correctly executed for a sample of at least two property groups. (See section 5.2.3.)

26. *ACD should encourage counties and their contractors to submit time adjustment factors for use in ACD's ratio studies*. While we believe that ACD should continue to make its own structured, independent analyses, counties and their contractors are in a position to make more detailed analyses. If results of the two analyses are reasonably consistent, the ACD should utilize the submitted factors, which will remove a source of potential stress and ensure that the same factors used by counties for reappraisal purposes are used by the ACD for audit purposes. (See section 5.2.3.)

27. *Audits of land valuation methods should focus on whether the essential ingredients for a successful land valuation are in place*. These include the posting of vacant land sales to neighborhood maps and the presence of land valuation tables, including base values and adjustments for various amenities and decrements, supported by market analysis. If the county or contractor has developed land rates and adjustments using spreadsheets or statistical software, the auditor can review that work for a sample area or areas in lieu of conducting an independent analysis. However, lack of such an analysis is a red flag that valuation tables may not be market-derived. (See section 5.2.4.)

28. *Audits of appraisal methodologies for improved properties should be reconciled with reappraisal contracts and CAMA system specifications once implemented*. Reappraisal contracts should, in turn, be more specific as to what valuation methods will be used for specific

property types and require that depreciation schedules be market-derived. (See section 5.2.5.)

29. *A question should be added to the valuation audit form to ensure that sufficient efforts are being made to obtain income and expense data for commercial properties*. The income approach should be used where sufficient data are available. (See section 5.2.5.)

30. *A question should be added to the valuation audit form to determine if the sales comparison approach is being used as the primary appraisal method for any improved property types (most notably single-family homes and condos/town homes*). A separate question should ask whether there is an algorithm to identify comparable sales for use in value defense or similar purposes. (See section 5.2.5.)

31. *Questions concerning sales ratio studies conducted by counties or their contractors should be more specific*. We suggest that they determine how many sales were used in the study, what time frame was covered, whether all valid sales were used, whether sales prices were time-adjusted, what strata were used, what the overall results were, and whether a review of the results indicates any problem areas. (See section 5.2.6.)

32. *The Sales Ratio Coordinator should conduct standardized analyses for differences in value changes for sold and unsold properties*. At the same time, auditors should be alert for such changes and continue to check at least two neighborhoods for inconsistencies in grade, effective age, and the like for sold and unsold properties. (See section 5.2.6; also see recommendation 15.)

33. *The assessment calendar should be modified.* The current calendar makes it impossible for ACD to complete its Phase 2 work and ratio studies and for counties and contractors to act upon any findings or recommendations before the required July 1 deadline for completion of revaluations. A legislative work group is currently studying how the assessment calendar can be moved forward. We view this as the only viable resolution to the current situation and highly support such efforts. (See section 5.3.)

34. *Auditors should be well trained in mass appraisal methods and procedures*. Where possible, they should also be armed with sales ratio and other standardized reports to help them work more efficiently. Some auditors can be hired and trained to focus on complex commercial, industrial, and special purpose properties. (See section 5.4.)

35. *The ACD should begin construction of a statewide practices matrix*. The matrix would permit one to compare key appraisal methods and procedures across counties and flag atypical or inappropriate practices. (See section 5.4.)

APPENDICES

1. Acronyms

ACA	Arkansas Code Annotated
ACD	Assessment Coordination Department
AGJD	Almy, Gloudemans, Jacobs & Denne
CAMA	Computer-assisted mass appraisal
CD-ROM	Compact disk read-only memory
DSL	Digital subscriber line
DVD	Digital video disc
FY	Fiscal year
GIS	Geographic information system
GPS	Global positioning system
IAAO	International Association of Assessing Officers
IT	Information technology
QC	Quality control
RDBMS	Relational database management system
SPSS	Statistical Package for the Social Sciences
SQL	Structured query language

2. Draft Valuation Field Audit Form

COUNTY _____

APPRAISAL FIRM (IF CONTRACTED) _____

ASSESSOR _____

APPRAISAL MANAGER _____

This audit covers work completed on or before _____

1. Timeliness of Requested Information

1. Did the county or appraisal firm provide requested information in a timely manner?

___ Yes, always ___ Yes, generally ___ Significant delays/problems

Describe any delays or problems: _____

_____

_____

_____

2. Sales Validation

2. Summarize your findings of the accuracy of the county or contractor's classification of sales as valid or invalid:

Property Class	Sales Sampled	Number Miscoded	Percent Miscoded

3. Does the county or contractor use the validation codes provided for by rule? _____

4. How many sampled sales were not assigned approved codes? _____ = _____ %

5. Does the county or contractor confirm sales with a third-party source?

___ Yes, always ___ Yes, generally ___ Sometimes ___ Never

6. For how many sales was there no evidence of confirmation? _____ = _____ %

7. What sources are used to confirm sales?

___ Questionnaires to ___ buyers and/or ___ sellers
___ Phone or personal contact with ___ buyers and/or ___ sellers
___ Phone or personal contact with real estate agents or third-party sources
___ Multiple listing service
___ Other. Describe: _____

8. Is there any evidence or indication that the county or appraisal company selectively screens sales based on sale ratio to improve ratio study statistics? _____

If yes, briefly explain. _____

_____

_____

_____

3. Market Areas and Neighborhoods

9. Has the county established market areas? _____

If yes, how many are there? _____

10. What is the average parcel count per market area? _____

11. How many market areas have less than 1,000 parcels? _____

12. Approximately how many residential neighborhoods has the county established? _____

13. What is the approximate average number of residential parcels per NBHD? _____

14. Are there any neighborhoods with less than 50 residential parcels? _____

If yes, approximately how many? _____

4. Time Adjustments

15. What time-adjustment methods is the county or appraisal company using?

___ value per-unit analysis (e.g., analysis of price per square foot over time)
___ sales ratio trend analysis (tracking trends in sale-assessment ratios)

___ resales analysis

___ comparative sales analysis

___ other. Describe: _____

16. Are time-adjustment factors stored in and applied from CAMA tables? _____

17. Are sales used in appraisal analysis adjusted for time?

___ Yes ___ No ___ Not applicable (no time adjustments warranted)

18. Does the county or appraisal contractor maintain analyses and documentation supporting its time-adjustments (or decision to apply no adjustment)? _____

19. Review the county or contractor's work for at least two areas or, if not available, conduct independent analyses. Which of the following best describes time-adjustments?

___ Time adjustments are well grounded in market analysis and adequately documented

___ Although the available analyses and documentation are sketchy, valid methods were used and chosen adjustments appear reasonably correct

___ No valid analysis was conducted and time-adjustments are questionable

5. Land Valuation

20. Does the county or appraisal contractor plot vacant land sales on land maps? _____

If yes, describe: _____

_____

_____

_____

21. Are base lot rates and size adjustment factors stored in CAMA tables that are then applied uniformly to all properties of the same size and location? _____

22. Are adjustments for such land value attributes as view and traffic tabularized? _____

23. Does the county or appraisal contractor maintain analyses and documentation that show the derivation of base lot rates and adjustments from market data? _____

24. Review the county or appraisal contractor's work in this regard for at least two areas or, if not available, conduct independent analyses. Categorize their work below:

___ Land rates and adjustment are supported by market analysis and well documented

___ Although not well documented, land rates appear consistent with available market data

___ Land rates and adjustments do not appear supported by market data and analysis

Additional comments: _____

_____

_____

_____

6. Residential Valuation

25. Which cost system is used for residential properties?

___ ACD manual

___ Other. Describe: _____

26. Has the depreciation schedule been derived from or reconciled with sales data? ____

If yes, explain: _____

_____

_____

_____

27. Residential cost factors are based on or indexed by which of the following:

___ market area

___ neighborhood

___ other. Describe: _____

28. Is the sales comparison approach used? If yes, which form does it take:

___ multiple regression analysis

___ other. Describe: _____

29. If used, is the sales comparison approach the primary valuation approach for residential property? ____

7. Commercial Valuation

30. Which cost system(s) is used for commercial properties?

___ Marshall & Swift

___ Other. Describe: _____

31, Are override depreciation adjustments or economic lives assigned to older commercial properties? If so, describe: _____

32. Commercial cost factors are based on or indexed by which of the following:

___ occupancy type

___ market area

___ other. Describe: _____

33. For which of the following property groups is the income approach use or relied upon?

	Income Approach Used	Income Approach is Primary Approach
Apartments	_____	_____
Office	_____	_____
Retail	_____	_____
Warehouse	_____	_____
Other (describe below)	_____	_____

34. Describe income approach applications: _____

35. For which of the following property groups is the sales comparison approach use or relied upon?

	Income Approach Used	Income Approach is Primary Approach
Apartments	_____	_____
Office	_____	_____
Retail	_____	_____
Warehouse	_____	_____
Other (describe below)	_____	_____

36. Describe any application of the sales comparison approach: _____

_____

_____

_____

_____

8. Sales Ratio Analyses

37. Does the county or appraisal contractor conduct sales ratio analyses to help ensure the accuracy and consistency of values? _____ (If no, skip to question 44).

38. What time period do the studies cover? From _____ through _____

39. Are all valid sales used from this period used in the study? _____

40. Are time-adjusted sales used in the study? _____

41. Are sales ratio statistics calculated for the following property groups (Y/N)?

_____ residential _____ vacant _____ commercial

42. What sub-strata (if any) are used for residential properties?

___ property type (1-family detached, condo, etc.) ___market area ___ neighborhood

___ grade ___ size groups ___ age groups ___ style/design ___ lot size

___ other. Describe_____

43. What problems, if any, does a review of the available studies indicate with respect to appraisal level or uniformity? _____

_____

_____

_____

_____

44. Is there any evidence or indication that the county or appraisal contractor grades or values sold properties differently than unsold properties? _____ If yes, explain below.

_____

_____

_____

_____

9. Overall Progress

45. For contracted counties, is the appraisal firm fulfilling all requirements of the reappraisal contract? _____ If no, list areas of concern below:

_____

_____

_____

_____

46. Does phase 2 progress for each property type equal or exceed planned progress? _____

If no, explain. _____

_____

_____

_____

_____

Identify any areas where progress exceeds planned: _____

_____

47. According to the county or appraisal firm, will valuation work be completed by July 1 of the valuation year and notices mailed no later than 10 working days after July 17? _____

48. What is the current estimated completion date for valuation of all parcels? _____

10. Other Concerns and Conclusions

49. Describe any other areas of concern relating to valuation procedures, methods, or practice not previously describe above. _____

_____

_____

_____

_____

50. How would you rate the overall quality of the revaluation at this point?

____ Excellent

____ Very good

____ Good

____ Satisfactory—no major deficiencies

____ Satisfactory—but with one or more notable deficiency requiring attention

____ Unsatisfactory

Explanatory comments: _____

_____

_____

Auditor(s): _____

Date: _____

3. References

In addition to studying various audit documents and materials obtained from the ACD's website (http://www.arkansas.gov/acd/), we considered the works listed below.

Assessment Coordination Department

2005. "CAMA Specifications for the State of Arkansas."

2000. "Contracted Countywide Reappraisal Plan (Three Year)." (Also five year.)

2000. "In-House Countywide Reappraisal Plan (Three Year)." (Also five year.)

2005. "Performance Audit Guidelines." Effective July 6, 2005.

2004. Response to the Task Force Study Committee.

2004. "Rules and Regulations." Effective July 20, 2004.

Other

Almy, Richard R. 1998. "Performance Audits in Assessment Administration." A paper presented at the 1998 annual conference of the International Association of Assessing Officers.

Arkansas Association of Counties. 2004. *Arkansas Assessors Procedures Manual.* Little Rock: Arkansas Association of Counties.

Dornfest, Alan S., and Douglas C. Thompson. 2004. "State and Provincial Ratio Study Practices: 2003 Survey Results." *Journal of Property Tax Assessment and Administration* 1 (Issue 1): 31-70.

Gloudemans, Robert J. 2004. "Final Report: Review of Arkansas Sale Ratio and Equalization Studies."

Miller, Wayne, and Stacey McCullough. n.d. "Arkansas' Property Tax: A Local Tax Supporting Local Services." Little Rock: University of Arkansas, Division of Agriculture, Cooperative Extension Service. http://www.uaex.edu/Other_Areas/publications/PDF/FSCDC-17.pdf

Task Force to Study the Assessment Coordination Department. 2004. "Final Report."