# FINAL REPORT

# COMMERCIAL REAL ESTATE ASSESSMENT PROCESS EXAMINATION

**Prepared for**

**THE CITY OF NORFOLK**
**EXECUTIVE DEPARTMENT, OFFICE OF BUDGET AND MANAGEMENT**

**By**

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**April 12, 2008**

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## ACKNOWLEDGMENTS

Almy, Gloudemans, Jacobs & Denne (AGJD) benefited greatly from the cooperation of the City of Norfolk in its review of the commercial reassessment processes employed by the office of the Real Estate Assessor (hereafter, "the assessor"). At the outset, we wish to acknowledge the assistance of Marcus Jones and Jessica Bayer of the Office of Budget and Management for their help in facilitating our review. We are especially grateful for the complete cooperation of the assessor, Deborah Bunn, and the chief deputy assessor, Bill Marchand. In addition, we thank Pat Merritt for her help in supplying the data we requested and in explaining work processes. Additionally, we thank Stephen Creech, Michael Dunstan, and John Eley for their frank and professional assistance in helping explain the City's commercial valuation system and procedures. Deborah Duplessis, the assessor's GIS technician, and Fraser Picard, the city's GIS team supervisor, provided useful data and system clarifications. Finally, we would like to acknowledge the assistance of Thomas Kapsha of the Division of Building Construction Services and of Janet Monola, Vanessa Stewart, and Denise Dreuitt of the assessor's office.

AGJD's study team was headed by Robert Gloudemans, and its members included Richard Almy and Robert Denne.

# EXECUTIVE SUMMARY

The report reviews commercial appraisal procedures in the City of Norfolk and makes recommendations for improvement.

By way of background, the City of Norfolk contracted with the firm of Almy, Gloudemans, Jacobs & Denne (AGJD) for an independent, objective review of commercial reassessment processes. In preparation for our study, we reviewed property assessment statutes and other relevant documentation. During the week of January 14, 2007, we visited the City's offices to interview key staff. Subsequent to our visit we had the opportunity to analyze data provided by the City and undertake "ratio studies" used to evaluate the accuracy and equity of commercial property values. We prepared a draft report, which we reviewed with the City, and we considered comments and suggestions made by the City in response to our draft report. This report presents our final findings, conclusions, and recommendations.

The law requires the assessor to value real estate annually at 100 percent of its fair market value, an especially challenging task in changing real estate markets, but one that ensures a high degree of real estate tax equity. We find that the Office of the Real Estate Assessor uses accepted valuation methods and has done a sound job under demanding circumstances. Appraisers are experienced and knowledgeable but thinly stretched relative to industry norms and comparable jurisdictions. The computer-assisted mass appraisal (CAMA) system, known as ProVal, provides the functionality needed to successfully value commercial properties. At the same time, values appear to fall short of key performance standards promulgated by the International Association of Assessing Officers and the assessor's office has opportunities to improve the job it does of valuing commercial properties at fair market value. Basic improvements could be made in the way commercial and industrial sales are analyzed, in the way market areas ("neighborhoods") are identified and utilized, and in the way rental property income and expense data are collected and analyzed.

In terms of valuation methodology, property appraisers use three valuation approaches: the cost approach (based on cost data with market adjustments derived from sales analysis), the income approach (rooted first and foremost in income data), and the sales comparison approach, in which values are based directly on sales prices. Aside from vacant land, which is appraised based on available sales, Norfolk uses the first two of these approaches for income properties. Apartments are appraised with ProVal's income approach modules. Offices, shopping centers, mini-storage, and certain other properties for which income data are available are also appraised using the income approach but using Excel spreadsheets. Values for properties that fail to report incomes may be increased by a fixed percentage based on the best information available. We recommend that all income approach applications reside in ProVal and that properties be valued similarly regardless of whether they report income data (typical or estimated figures can be used for those that fail to respond).

Other commercial properties are appraised with the cost approach, which we find adequate, although we caution that care should be taken to ensure that depreciation tables are consistent

with local market evidence. We concur with plans to update the cost engine to one that provides more frequent updates to cost tables.

The City could better leverage its investment in geographic information system (GIS) technology and make improvements in its internal quality assurance efforts, notably the use of sale ratio studies that provide an important quality control mechanism. Finally, the office could improve how it communicates information about assessments and assessment processes, particularly via the web.

The office's ability to make improvements will depend on having sufficient resources. While we believe the office has been doing a remarkably good job of assessing commercial properties with the limited resources that it has, staff shortages undoubtedly impact the amount and quality of work that can be performed in any assessment office.

# 1. INTRODUCTION

This section discusses the background for the present study, summarizes what we did, and describes the organization of the report.

In recent years, residential property values in the City of Norfolk (as with other parts of the Hampton Roads region and other parts of the nation) have risen rapidly. This situation gives rise to concerns about commercial valuation methods when commercial assessment increases do not keep pace. To his credit, the Acting Assessor during 2007 became concerned about the performance of his office in regard to the appraisal of commercial and industrial real property and the ability of the office to improve its level of performance. Subsequently, the City decided to commission a review of the assessment processes employed by the City Real Estate Assessor in that regard. The firm of Almy, Gloudemans, Jacobs & Denne (AGJD), property taxation and assessment consultants, was selected to make the review.

During the week of January 14 we visited the City's offices to interview staff and evaluate assessment procedures for commercial properties. In preparation for our visit we reviewed property assessment statutes, forms, manuals, and other relevant documentation. Prior to leaving the City we presented a verbal summary of our preliminary findings. Subsequent to our visit we had the opportunity to analyze data provided by the City and undertake "ratio studies" used to evaluate the accuracy and equity of commercial property values. We prepared an earlier draft report (dated March 1, 2008). The City reviewed the draft report and offered a number of relevant corrections, clarifications, comments, and recommendations, which we considered and discussed with the City.

This report contains our complete findings and final recommendations. Section 2 addresses the legal and institutional setting for property appraisals, and it provides workload indicators. Section 3 discusses management and administrative practices, including planning, budgeting, organization and staffing, work management, and communications with taxpayers and others. Section 4 discusses data processing and information technology, including procedures for collecting and maintaining commercial property data. Section 5 discusses commercial valuation procedures and methods. Section 6 describes our review of the accuracy of commercial assessments. Section 7 summarizes our conclusions and recommendations.

# 2. SETTING

This section describes the legal framework and calendar underlying property assessment in Norfolk, the responsibilities of the assessor and other relevant City officials and departments, and the workload faced by the assessor's office. We conclude that the legal framework is sound. Workloads and required deadlines make for a challenging environment, particularly in an annual appraisal cycle. Fortunately, appeals have been light. An increase in appeals, perhaps associated with a continued downturn in the real estate market, could place added strain on workloads.

As the center of the Hampton Roads region, Norfolk has a diversified commercial real estate market. According to the Hampton Roads 2007 market review by the Center for Real Estate and Economic Development of Old Dominion University, property markets in the region and Norfolk generally were healthy, although the single-family residential market already was showing signs of weakness in late 2006. The downtown office market was comparatively strong, and Norfolk's apartment market is the third largest in the region. In this setting, past concerns that commercial property may be relatively undervalued are not likely to disappear without assurances that the procedures used to value commercial properties are effective and comply with legal requirements and industry standards.

## 2.1 Legal Framework

The assessment of real estate is governed by provisions of the Virginia constitution, the Code of Virginia (title 58.1, Taxation, chapters 31-33) and the Code of Ordinances of the City of Norfolk (Charter sections 88(a), Assessment and equalization of assessments of real estate, and 88(b), Annual assessment, reassessment and equalization of real estate taxes and City Code chapter IV, Real Estate Taxes, particularly sections 24-188 through 24-192 and section 24-197, and sections 24-203 and 24-203.1).

The laws generally require the annual assessment of real estate at 100 percent of its fair market value. Properties excluded from this requirement include agricultural real estate and property assessed by the State Corporation Commission. Apartments are to be valued without reference to their potential to be converted to condominium or cooperative ownership.

The definition of real estate is broad and basically is equivalent to a fee-simple interest in the real estate. Annual assessments are to be completed by last day of February,[1] and they become effective the following 1 July (the beginning of the coming fiscal year). Thus, the roll (land book) currently in effect is for fiscal year 2007-2008, and work is underway on the 2008-2009 land book. In addition, the city code provides for quarterly supplementary assessments of substantially completed new buildings. Assessments of properties that were razed or destroyed may be abated upon application in a similar fashion.

The values in the current land book are based on market evidence generally collected between 1 July 2005 and 30 June 2006 (data from earlier years commonly are used in the appraisal of

[1] Under code section 24-192, assessments of building under construction are to be completed by 30 June.

commercial property to avoid discontinuities in annual appraisals and because a single year's sales generally are insufficient).[2] The new (2008-2009) land book will reflect sales from 1 July 2006 through 30 June 2007. Thus, there is a delay of approximately eight months between the end of the timeframe for market evidence used in a revaluation and completion of the revaluation and a still longer delay until values are finalized and taxes thereon are paid. While it may be possible to shorten the eight-month lag, a reasonable work period will always be required to conduct valuation analyses, determine new values, perform quality testing, and complete data processing.

Price information is obtained from deeds. If a deed does not state the actual consideration, the sale price is inferred from recordation tax amounts (the state tax is $0.25 per hundred; the city tax is $0.085 per hundred). There is no requirement that the parties to a transfer must complete a declaration giving the particulars of the sales.

The Code of Virginia (section 58.1-3294) and the City Code (section 24-191) authorize assessors to require owners to supply necessary income and expense information. Such powers are crucial to the use of the income approach (see section 5). At the same time, the law reasonably requires that such data be treated confidentially.

The Assessor must certify that the land book containing finalized assessments is correct. A copy (normally the original copy) of the land book is delivered to the Commissioner of Revenue, who extends the taxes. Another copy is given to the Clerk of the Circuit Court. Assessment change notices are required. Real estate taxes are to be paid in four equal installments, which are due 30 September, 5 December, 31 March, and 5 June.

To protect against large increases in property tax levies following a reassessment, the law (section 58.1-3321) requires that tax rates be adjusted so that total real estate collections not increase by more than 1 percent, unless a public hearing is held. The hearing must be advertised, and the proposed increase must be disclosed. In addition, individual residential taxpayers may take advantage of specific relief measures, including abatements for renovations and deferral or partial exemptions for the elderly and disabled who qualify.

## 2.2 Institutional Framework

In the City of Norfolk, as in other Virginia local governments, responsibility for property tax administration is divided between three offices: (1) the City Real Estate Assessor, who is appointed by City Council; (2) the Commissioner of Revenue (COR), an elected office; and (3) the City Treasurer, also an elected office. The assessor is responsible for identifying and describing assessable real estate, valuing it for tax purposes, and determining its taxability. The COR has comparable responsibilities regarding taxable personal property. The COR also administers the real estate tax relief program for senior citizens and the disabled. Among other things, the treasurer collects real estate and personal property taxes.

[2] The law requires assessors to maintain appraisal records and that land books conform to the standards of the state Department of Taxation.

The assessor's office relies on data and services from several city departments. It receives sales data from the Land Records Division of the Circuit Court and building permit data from the Division of Building Construction Services of the Planning Department. The Information Technology Department (IT) provides crucial computer support, including geographic information system services. The IT department also has been instrumental in the installation of the new Integrated Financial Management System.

Assessment appeal is an important facet of a property tax system. In Norfolk, taxpayers may first informally question their assessments by contacting the assessor's office. They also may formally appeal to the Real Estate Assessment Board of Review. The circuit court appoints the three-member board. Its procedures are governed by the Code of Virginia. The code (section 58.1-3379(C)) provides:

> "The burden of proof shall be upon a taxpayer seeking relief to show that the property in question is valued at more than its fair market value, that the assessment is not uniform in its application, or that the assessment is otherwise not equalized. In order to receive relief, the taxpayer must produce substantial evidence that the valuation determined by the assessor is erroneous and was not arrived at in accordance with generally accepted appraisal practice. Mistakes of fact, including computation, that affect the assessment shall be deemed not to be in accordance with generally accepted appraisal practice."

The board's decision may be appealed to the circuit court. The City of Norfolk enjoys a remarkably low volume of appeals. Although it is dangerous to ascribe that fortunate circumstance to any particular factor, perceived fairness in assessments doubtless contributes. Favorable market conditions in recent years likely also contribute, as property owners are less likely to question values based on a prior base date when prices have been rising. By the same token, however, a downturn in market conditions could increase concern over values and thus prompt an increase in appeals.

The State Department of Taxation provides some external oversight and support. It makes an annual ratio study as discussed in section 4.5. It sponsors courses of instruction and prescribes assessor qualifications and ensures that assessors are appropriately qualified. It is authorized to render assistance in general reassessments.

Members of the assessor's office maintain relationships with the local real estate appraisers, giving them access to data not easily obtained otherwise. The flow of market data benefits both parties.

## 2.3 Workload

An assessor's workload always is a moving target as new development occurs and property prices change. However, snapshots of parcel counts and transaction or event statistics such as sales, new construction, exemption applications and appeals provide an indication of workloads. Although the assessor's office has not routinely compiled comprehensive detailed statistics on work accomplished or on productivity rates, it did so for this review. At the time of our review

there were approximately 77,200 parcels of real estate in Norfolk. There are approximately 6,400 commercial and industrial parcels. (The number of economic units is less, as a single business may span more than one parcel.) Of the total number of commercial and industrial parcels, approximately 2,100 are vacant, about 1,600 are valued by the income approach, and 2,700 are valued by the cost approach. There are nineteen land market areas that are separately studied, and trends in these areas form the basis for updating land values and the values of improved non-residential properties valued by the cost approach. The office has identified approximately 250 neighborhoods, which are amalgamated into larger areas for land valuation purposes (see section 5). Separate income models are developed for each of twenty apartment neighborhoods. Separate models also are developed for each of the other categories of property valued by the income approach.

In the past year, more than 1,800 non-residential permits were monitored. In addition to inventorying and valuing new construction, the commercial appraisal staff confirmed sales and processed income and expense statements. Almost 2,000 sales were screened. The sales and income data analyses culminate in updated valuation models. Currently, negligible time is spent on appeals.

There is a time dimension to appraisal work. The deadlines associated with finishing annual assessments by 31 March, along with the quarterly supplemental assessment dates, require physical field inspections of new construction in the run up to the deadlines (newly "substantially completed" properties are added quarterly; partial assessments of unfinished properties are added at the end of the year, 30 June). Sales analysis and income and expense analyses are concentrated in the early months of the year. Each sale property is inspected, and the appraiser attempts to confirm sales information with a party familiar with the sale. Income and expense data requests are sent out in December, and they are due by 1 March (15 February for apartments), unless an extension is granted, which leaves little time for analysis before deciding new rates and factors. Initial protests of assessments must be made within thirty days of the date of assessment notices. Assessment notices are printed in batches as revised appraisals are completed for each group of properties by the relevant appraiser, and appraisers must also commonly stuff the envelopes rather than using a specialized mailing service for this purpose.

# 3. MANAGEMENT AND ADMINISTRATIVE PRACTICES

This section discusses funding, staffing, organization, and management of the assessor's office, as well as communications with taxpayers and the general public. Relative to industry benchmarks, the commercial section is under-staffed. The annual budget should provide for subscriptions to commercial market data reporting services. While the web site provides a variety of useful information, more information could be provided on market trends, appraisal methods, and appeal rights. Office management and customer service appear good. The assessor and deputy assessor have a good handle on current strengths, weaknesses, and long term opportunities for improvement.

Property tax systems must be well managed if public acceptance is to be secured. Citizens hold assessors accountable for their performance. Management challenges include ensuring that staff complies with laws and regulations, follows policies, completes work on time, maintains standards of valuation accuracy, and uses resources wisely. To accomplish these things, managers must plan, budget, organize, control, and evaluate work. Communication with taxpayers and other stakeholders also is an important management activity.

## 3.1 Resource Needs, Planning, Budgeting, and Funding

The City of Norfolk employs a comparatively sophisticated budgeting system. The published budget document contains a narrative that describes such things as the mission and objectives of the assessor's office, as well as prior year accomplishments.

Funding for the assessor's office in fiscal year 2007-2008 totals $1,541,800, a slight decrease from the previous year. That total includes $3,000 for the Real Estate Assessment Board of Appeals, which is attached to the assessor for administrative purposes.

The workload statistics summarized in section 2.3 provide a basis for evaluating resource sufficiency and for estimating resource needs. Generally, an assessor's office needs sufficient staff, adequate computer support (addressed in section 4), and adequate facilities and equipment. The funding provided obviously affects available resources and reflects the political support for accurate and equitable assessments. Although they do not rise to the level of norms, comparative data from other large assessment districts provide a framework for evaluating resource needs and resource adequacy in Norfolk. Table 3-1 compares the assessor's budget and staff to three commonly used benchmarks.

Table 3-1: Budget and Staffing Benchmarks

| Benchmark | Norfolk (2007-2008) | IAAO Metropolitan Jurisdiction Council (MJC) Survey, 1999+ | | | |
|---|---|---|---|---|---|
| | | Number | Low | Median | High |
| Budget as a percent of total property tax revenues | 0.87 | 23 | 0.34 | 0.93 | 2.89 |
| Budget per parcel ($) | 19.92 | 34 | 8.84 | 20.34 | 39.32 |
| Parcels per staff | 3,511 | 35 | 1,739 | 2,819 | 6,667 |

Source: "1999 Major Assessment Jurisdiction Survey," Cook County Assessor's Office, with subsequent updates by AGJD.

In principle, values of the first benchmark (assessment expenditures as a percentage of property tax revenues) should be minimized so that the funds available for other government services are maximized while at the same time providing sufficient funding for effective assessment administration. Determining an optimal level of funding obviously requires judgment. At typical levels of property taxation in the U.S., it is generally believed that between 1.0 and 1.5 percent of property tax revenue is needed for effective assessment administration. As can be seen, Norfolk is outside that range. Nonetheless, the ratio is a warning of potential under-funding. Interpretation of the second benchmark (budget per parcel) should take into account the fact that the data for twenty-five of the twenty-nine districts analyzed date from 1999, and costs of assessment administration undoubtedly have increased since the 1999 survey. Regarding the third benchmark (parcels per staff member), a comparatively low number indicates (everything else being equal) a light workload, while a large number indicates a heavy workload. In comparison to the median of 2,843 parcels per staff member in the thirty-one districts analyzed, several earlier IAAO studies have suggested that 2,500 parcels per staff member is typical overall, while larger districts typically had about 3,500 parcels per staff member.[3] In any event, Norfolk is the smallest district in the sample, and only eleven districts (all larger) had higher ratios. These benchmarks suggest that the Norfolk assessor's office must make do with a comparatively small staff and possibly inadequate funding.

In order to evaluate resource requirements further, we examined staffing needs in more detail. Table 3-2 provides a pro forma estimate of staffing needs (full-time equivalent positions or FTEs). The assumed workload statistics (column 2) are based on available statistics. The productivity rates (column 3) are notional and are based on rates achieved or believed to be achievable in other jurisdictions. The days of work estimates (column 4) simply are the workload estimate divided by the productivity rate. The indicated FTE need (column 5) is based on an assumed work year of 220 days. Were they to be developed, better figures on productivity rates that reflect actual achievements in Norfolk could be used to refine the estimate. Nevertheless, the estimates reveal further concerns about the adequacy of staffing in a number of areas. The activities identified as "field data verification" are *not* now carried out because available staff must spend their time on activities crucial to adding new property to the rolls and carrying out annual reassessments. Commercial appraisers expressed concern that they do not have time to inspect the properties they reappraise. Moreover, professional standards

[3] IRPA and Langhoff.

recommend that properties be inspected periodically. On the other hand, the number of valuation models that need to be recalibrated every year could in most cases be substantially less than the one per neighborhood that has been past practice. Notably, the indicated staffing requirement of twenty-nine in table 3-2 is consistent with the benchmark data presented in table 3-1.

In addition to staffing and computer support, the assessor has the use of several city vehicles. Office space appears adequate. The office does not have subscriptions to commercial sales data sources, such as Reis, Inc., which provide market-specific sales and other real estate performance information or to periodic surveys, such as the *Korpacz Real Estate Investor Survey*, published by PricewaterhouseCoopers (appraisers sometimes do receive the latter on a hand-me-down basis from cooperating real estate appraisers). Such information sources are especially important when direct sources are inadequate, and they provide useful support to commercial property valuation models. We recommend that the City budget for these services.

## 3.2 Organization and Staffing

The Norfolk assessor's office is one of the departments that reports to the city council. It has a total authorized staff of 22. In addition to the executive staff (the assessor and the chief deputy assessor), the office has a three-member technical team (with one vacancy), a five-member clerical team, two four-member residential appraisal teams, and a four-member commercial team.

The technical team provides important IT and mapping/GIS services. In addition to taxpayer assistance and general support duties, the clerical team assists with ownership transfer (sales) processing and with building permit processing. Team leaders have functional responsibilities as well as supervisory duties. Because of his qualifications, one of the residential team leaders is responsible for the valuation of some income-producing properties (and the chief deputy assessor was responsible for others during the transition between the past and the current assessor). The commercial team leader is responsible for commercial land valuation and for valuing new construction. One commercial appraiser is responsible for valuing all apartments and condominiums, most of which are residential. The remaining two appraisers assigned to the commercial team are responsible for exempt and some residential properties. Thus, while on paper there are four full time commercial appraisers, less than three person-years of their time is available for commercial appraisal activities. In view of our estimated resource requirements, we believe this situation merits further study.

Virginia law requires that professionally qualified assessors (certified by the Department of Taxation) determine general reassessments. Although we did not examine credentials in detail, the executive and commercial appraisal staff is experienced, and the assessor, the chief deputy assessor, and some of the appraisers have recognized professional credentials. Computer skills appear to vary, and additional training in mass appraisal may be warranted.

## Table 3-2: Pro Forma Staffing Analysis

| Position/activity | Assumed Workload | Productivity rate/day | Days | Indicated staffing need (FTEs) | Current FTE |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| **Executive** | | | | **5.0** | 5 |
| Real Estate Assessor | | | | 1.0 | |
| Chief Deputy Real Estate Assessor | | | | 1.0 | |
| Executive & technical support | | | | 3.0 | |
| **Real Estate Clerical Operations** | | | | **4.5** | 4 |
| Deeds | 12,000 | 50 | 240 | 1.1 | |
| Map changes | 300 | 30 | 10 | 0.0 | |
| Permits logged | 8,100 | 50 | 162 | 0.7 | |
| Exemptions | 5,000 | 20 | 250 | 1.1 | |
| Customer service | 20,000 | 80 | 250 | 1.0 | |
| Appeals logged | 70 | 10 | 7 | 0.0 | |
| Notices reviewed/mailed | 77,200 | 750 | 103 | 0.5 | |
| **Non-residential property appraisal** | | | | **6.1** | 3 |
| Screen sales | 300 | 20.0 | 15 | 0.1 | |
| Inspect sales | 150 | 15.0 | 10 | 0.0 | |
| I&E questionnaires | 400 | 15.0 | 27 | 0.1 | |
| Modeling building/QA | 10 | 0.5 | 20 | 0.1 | |
| New work (permits) | 1,900 | 2.0 | 950 | 4.3 | |
| Change reviews | 6,500 | 25.0 | 260 | 1.2 | |
| Field data verification | 470 | 12.5 | 38 | 0.2 | |
| Appeal defense | 10 | 0.5 | 20 | 0.1 | |
| **Residential property appraisal** | | | | **10.4** | 10 |
| Screen sales | 10,000 | 30.0 | 333 | 1.5 | |
| Inspect sales | 5,000 | 15.0 | 333 | 1.5 | |
| Modeling building/QA | 10 | 0.5 | 20 | 0.1 | |
| New work (permits) | 6,300 | 10.0 | 630 | 2.9 | |
| Abatement program | 200 | 4.0 | 50 | 0.2 | |
| Change reviews | 62,600 | 100.0 | 626 | 2.8 | |
| Field data verification | 10,260 | 35.0 | 293 | 1.3 | |
| Appeal defense | 60 | 10.0 | 6 | 0.0 | |
| **Sub-total** | | | | **26.0** | 22 |
| **Overhead** | Relevant staff | Hours per year | | **2.6** | |
| Professional development | 16 | 20.0 | 320 | 1.5 | |
| Other | 26 | 10.0 | 260 | 1.2 | |
| **Total** | | | | **28.7** | 22 |

## 3.3 Work Management and Quality Assurance

Management is the art of getting work done through people. Managers communicate their expectations, evaluate performance, communicate their findings, acknowledge good performance, address sub-standard performance, and revise expectations as circumstance dictate. Especially in larger organizations, work procedures and standards need to be documented.

The Norfolk assessor's office does not have a general policy and procedures manual, and there is little formal documentation of commercial appraisal procedures. Given the small number of people involved, this is not a serious deficiency. Moreover, the Excel spreadsheets that are developed have common elements, reflecting a consistent approach. The ProVal system also provides a structured approach to valuation. As a practical matter, staffing constraints likely inhibit the development of procedure documentation.

The ProVal system also documents individual property assessments. In addition, the office maintains envelopes that hold not only an historic property record card but also copies of building permits, income and expense statements, and the like. They are centrally filed, and there appear to be adequate manual controls on the removal and replacement of records from the files. We do not believe, however, that it is cost-effective to maintain current assessment information on paper records.

Another apparent inefficiency is having appraisers manually stuff assessment notices in envelopes for mailing. The practice of issuing notices as work on a market segment (generally, a "neighborhood") is completed has the advantage of distributing inquiries over several months rather than in the weeks after the assessment completion deadline. The practice makes it impossible to take advantage of lower postage rates and makes machine stuffing less economical, but in Norfolk these cost inefficiencies would seem to be trivial. On the other hand, using highly paid appraisers to perform essentially a clerical task is dubious, given the small number of appraisers and the need for improvements in appraisal practices.

We were impressed by the conscientiousness of top management in the assessor's office. Nevertheless, there are opportunities for improving management effectiveness. While the present ProVal system makes sales ratio studies comparatively difficult, as explained in section 4.5 below, we believe it is imperative to develop better statistics on assessment level and uniformity. In the past, responsibility for the valuation of major income-producing properties has been allocated to various individuals, so errors or inconsistencies could go undetected. With the filling of the assessor position, we believe that the assessor's and chief deputy assessor's appraisal responsibilities should be limited to setting standards, evaluating change recommendations developed by appraisers, and generally evaluating appraisal accuracy.

## 3.4 Communications

The assessor's communications with taxpayers and other stakeholders include:

- *Assessment notices*—the assessor's office produces several types of legally required assessment change notices. The basic notice is in a compact "landscape" format (8 ½ inches wide by approximately 4 inches high), and it contains minimal information (basic legal assessment requirements, a property description, previous and new assessed values, and a telephone number for discussing the assessment).

- *Customer service*—the assessor's office has a small but reasonably appointed customer service area with access to the computer system, maps, etc. The staff responds to inquiries from visitors, telephone callers, and letters.

- *Website*—the City's website provides minimal information about real estate tax assessments, and a goal of the assessor's office is to improve it. However, there is a page that provides access to basic information about the assessments of specific properties (via address and account number). The City's GIS website allows one to see copies of maps and also images. In addition, the Treasurer has a page of frequently asked questions about tax payments.

- *Outreach*—the assessor's office maintains contact with local real estate appraisers. Such contacts can increase acceptance of assessment practices.

- *Forecasting*—top city management requests estimates of future assessed values as part of the budgeting and property tax rate setting processes, and the assessor's office attempts to meet this need. Because the budget cycle and the assessment cycle do not mesh well, accurately forecasting future growth at the beginning of April is problematic. Although that is the beginning of the 4th quarter of the fiscal year, the assessor is just finishing 3rd quarter work, and the 4th quarter situation, especially regarding partial assessments, is not known until July. Basically, 4th quarter additions are posted in the new land book (the 1st quarter of the fiscal year).

Given the communication and documentation requirements in IAAO's technical standards and in the Uniform Standards of Professional Appraisal Practice (USPAP), we conclude that there are opportunities to improve communications with taxpayers, city budget officials, and others. More information could be provided about assessment trends and about assessments procedures generally, including appraisal methods and appeal rights. When assessments are based on formal valuation models established from market data, consideration should be given to publicizing value trends and key valuation benchmarks like sales prices per square foot, rents, and the like. The annual report published by the Virginia Beach assessor and the "area reports" posted on the website of the King County, Washington, Department of Assessments provide good examples of the types of information that could be made public.[4] Good documentation tends to increase the credibility of the assessment product, which tends to reduce the number of problematic appeals.

[4] See http://www.vbgov.com/file_source/dept/realestate/Document/TheAnnualReport.pdf and http://www.metrokc.gov/assessor/AreaReports/2006/AreaReportSums.htm.

# 4. DATA PROCESSING AND CAMA SYSTEM

This section discusses the City's computer-assisted mass appraisal CAMA) system, procedures for capturing new construction and physical changes to properties, the capture of sales and income data, use of sales ratio studies for monitoring appraisal accuracy and uniformity, and the potential for leveraging geographic information system (GIS) software.

The existing database provides adequately for property data needed in the valuation process. Effective procedures for tracking building permits are in place and the City has acquired the latest technology for identifying new or previously undetected additions to properties. In sections 4.3 and 4.4 we offer recommendations for validating commercial sales and improving requests for income information. In section 4.5 we recommend that the assessor's office track and adjust sales prices for price trends and strengthen its use of ratio studies. In section 4.6 we recommend that the City begin to use GIS tools to plot and analyze market data.

## 4.1 ProVal System

Norfolk's CAMA software is ProVal 7.8 developed by ProVal and since acquired by Manatron, a major CAMA vendor (ProVal 7.10, the latest version the software, is currently being installed). ProVal provides for entry and maintenance of data commonly maintained by assessors and for various valuation methods and techniques. It also provides for various assessment support activities including production of assessments, report generation, and appeals processing.

As explained in more detail in section 5, ProVal supports various tables used in the valuation process. These include land valuation tables and tables used to generate estimates of rents, expenses, capitalization rates, construction costs, and depreciation. However, while ProVal allows user to build and apply valuation tables, it is not an analytical tool for developing appropriate valuation rates and adjustments, although users can request reports that aid in such analyses.

Importantly and as also explained in more detail in section 5, Norfolk uses the ProVal income tables only for apartments. All other income data are maintained in Excel, where values are calculated and then entered into ProVal for generation of assessment notices and interface with the City's tax billing and collection system. In section 5 we recommend that income data be consistently entered and maintained in ProVal and, similarly, that the ProVal income tables be used for all major property groups valued on the income approach. This does not mean, however, that Excel would no longer be used for income analyses. Rather, income and other relevant data should be downloaded to Excel for analysis and the determination of appropriate valuation rates and factors, which would then be entered into ProVal for value calculation purposes. Besides Excel, other analytical software, such as a statistical package and GIS, could also be leveraged for such analyses.

As a general matter, we find ProVal adequate for commercial valuation purposes and recommend that the City make better use of its data maintenance, table building, and valuation capabilities.

## 4.2 Property Characteristic Data

The current system adequately provides for land and building characteristics needed for reassessment and commonly found in other assessment jurisdictions. Building permits are worked on an ongoing basis. This work is facilitated by the City's HTE permitting system, to which the assessor's office has access. Daily, the clerical team extracts relevant permits, maintains a log of them and the appraiser to which each permit is assigned, and generates an appraisal worksheet that is distributed to the relevant appraiser, who monitors construction progress. Permit data also are entered into ProVal. In addition, "exceptions," such as invalid property addresses, are researched. In summary, permit processing and monitoring procedures appear effective.

The system provides for both actual and effective year built, which are generally not the same, meaning that appraisers are tracking and capturing renovation and remodeling activities that cause effective age to differ from actual age while at the same time preserving original construction year.

Of course, with the various property characteristics important in commercial property valuation accounted for, the key question concerns actual accuracy of the data. In addition to traditional aerial photos, the City has the latest version of Pictometry, which provides oblique aerial photos and permits unlimited panning and zooming to obtain detailed views of properties. The technology highlights changes between updated and prior photo sets that help identify physical additions to property (e.g., a building addition or new garage). Also, building dimensions can be calculated with reasonable accuracy. Traditionally assessors ensured the accuracy of data by periodically reinspecting properties on a rotating cycle, so that each property was reviewed at least every five or six years. While Norfolk does not conduct systematic field reviews of this type due largely to lack of available staff, the aerial images and change detection software, in conjunction with the City's building permit tracking system, are sufficient to identify the large majority of new construction and physical changes to property.

Although we made no audit of what is recorded in ProVal against what is actually on the ground, it appears that Norfolk has in place the tools and procedures needed to ensure that property characteristics data are reasonably accurate and uniform. In addition to size (area), two key characteristics for commercial valuation are the class or grade of properties (e.g., class A, B, C, and D office buildings) and physical condition as captured in effective age. Because they are more subjective and can change over time with renovations and the like, these two characteristics are more subject to error or inconsistency than data based on counts, measurements, or other objective criteria. Thus, management should focus on ensuring consistency in coding these key characteristics. The office also should consider the feasibility of capturing leasable area of rental properties in addition to gross floor area, because the real estate industry uses leasable area in its leases and statistical compilations. Section 5.9 addresses the issue of effective age and depreciation in more detail.

## 4.3 Income Data

Income data used in the appraisal process consists of incomes and expenses obtained from property owners or managers, as well as from various third party sources, such as trade publications. The Assessor's Office annually sends a letter to commercial property owners requesting income and expense data "to assist us in computing the … assessment for the property." The letter states that "A copy of the year-end-statement showing itemized income and expenses will sufficiently answer our request."

The letters are mailed toward the end of the calendar year and the deadline for submission is March 1 of the following year, although extensions can be requested in writing. It further states that "In the event this information is not received, this office will use the best available information for computing your assessment."

The fact that property owners can satisfy the request by submitting a recent income and expense statement makes responding easy and, in and of itself, should help increase the response rate. In recent years the response rate has been approximately 25% to 33% (which is quite typical for such requests). Certain changes to the letter may help bolster the response. Although the letter begins with the phrase "As authorized by law…", the letter could cite Virginia statutes that bar a taxpayer from using income and expense data in contesting assessments if the data was not been provided to the assessor. We recommend removing the statement that the submitted information will be used to compute the upcoming assessment "for the property", which would seem to imply that the higher the reported income, the higher the assessment is likely to be. Instead, we suggest a statement to the effect that the owner's submitted information will be analyzed along with that submitted for other commercial properties to help the office develop valuation rates for the upcoming year. Best mass appraisal practices calls for assessing property using typical figures assuming typical management, so that two similar properties would have similar assessments regardless of whether one was better managed than the other. Further, the statement that "the best available information" will be used if a reply is not received may leave the impression that failure to submit will result in the assessment being calculated upon prior data, thus yielding a lower value, and in any case is not particularly compelling or helpful.

The apartment income mailer differs from that used for other property types. Respondents are requested to return the mailer by February 15, which provides more time for processing and analysis. Also, the back of the form contains a worksheet that respondents can use to supply the necessary information in lieu of submitting accounting statements. The typical response rate is approximately 40%, somewhat higher than for other commercial properties.

We recommend that the Assessor review the income mailers and consider revisions that could potentially increase the response rate. If the first is not received in, say, 30 days, sending a second mailer may be helpful. In addition, we like the idea of including an optional form for completion in lieu of submitting copies of income or accounting statements. To facilitate analysis and entry, the form could be devised to be compatible with ProVal income tables. Noting that submitted data will be held in confidence could also be helpful.

In addition to information received from property owners, the Office uses several widely accepted trade publications that provide income and expense benchmarks and norms, both nationally and for major metropolitan areas such as Norfolk/Hampton Roads. The *Hampton Roads Market Review* published annually by Old Dominion University is particularly helpful.

As discussed further in section 5, the Office uses trade publications as the chief source of capitalization rates. Generally, national average rates are used for the type of property in question. We believe that the Office should attempt to validate these capitalization rates locally and make necessary adjustments.

## 4.4 Sales Data

As a requirement of recordation, all sales of real property in Virginia must disclose the assessor's parcel identification number(s). If not stated in deeds, sales prices can be calculated from tax stamps required in connection with the transfer tax. Deeds are recorded with the Clerk of the Circuit Court. The Clerk's office scans the deeds and captures basic transfer information in a system designed by International Land Systems, Inc. The Assessor's Office has access to this system. Daily, members of the clerical team examine the previous day's list of transfers and prints copies of deeds. A clerk reads the deeds, attempts to match the property transferred with a previously assessed property or properties and decides which actions need to be taken next (further research, update ownership, update the legal description, process sales data, and the like). ProVal records are updated. Another clerk performs quality control. Sales reports are generated for the appraisers. Deeds processing seems effective.

Commercial appraisers are responsible for validating sales that occur for properties for which they are responsible and can access the ProVal database as needed or desired. Sales are assigned two validation codes: one for state use and one for internal use. Generally sales coded valid for one use are also coded valid for the other use, although there are some exceptions, the most important being that the State is unable to use multiple parcel sales while the City can.

While we are glad to see that appraisers validate commercial sales, we would like to see greater standardization. We recommend that a series of validation codes modeled after those in the IAAO *Standard on Ratio Studies* be developed and applied. We also suggest that the City consider assigning one or two senior appraisers to commercial sales validation to ensure that the process is performed accurately and consistently. Subscribing to a commercial sales reporting service (as discussed in the last paragraph of section 3.1) and a locally administered sales questionnaire could be used to obtain supplemental sales information beyond what is available from the deed and tax stamps. This would help in better understanding sales and the price paid for properties. In many cases prices could be adjusted for personal property or other special considerations to arrive at a price more representative of the real property transferred. Although the office uses records of the Commissioner of Revenue to discover furniture, fixtures, and equipment from business tax returns, a sales questionnaire would help clarify whether these items of personal property were included in sales of the properties.

## 4.5 Sales Ratio Studies

Ratio studies are the chief means by which assessment performance is measured. They commonly measure three important facets of performance: (1) the overall level of assessment, measured by the median assessment to sale price ratio for recent, valid, arm's-length sales; (2) the general level of accuracy, measured by the coefficient of dispersion (COD), which indicates whether the individual ratios cluster tightly around the median or are more widely dispersed; and (3) the extent to which appraisal levels vary among property groups or with the market values of the assessed properties, measured by the price-related differential (PRD). The IAAO *Standard on Ratio Studies*, recently updated in 2007, provides the primary guide to the conduct of ratio studies at both the state and local level.

While both the City and Department of Taxation conduct ratio studies, both studies are rudimentary. In fact, the City does not prepare a ratio study report. While ratio study statistics are commonly calculated in conjunction with valuation analyses and workflow tracking (section 5), we found no evidence of systematic analyses of appraisal performance citywide or by various property classes and groups.

While the State does conduct a regular (annual), systematic study, it is simplistic in that it shows only median ratios and not the full range of recommended statistics. It is also procedurally deficient in that it does not devote the attention to sales validation that it should for the results to be reliable.

An issue in ratio studies that has received considerable attention nationwide in recent years is that of time-adjustments. The issue is important because sales, which occur over a span of time, are used to gauge the accuracy of assessments targeted for a particular point in time (namely July 1 of the assessment year in Norfolk). If real estate prices are changing significantly, as they have in recent years, failure to adjust sales for price trends will result in a mismatch between the values compared in a ratio study. Thus, many state and local jurisdictions adjust sales prices used in a ratio study for time trends, as called for in the IAAO Standard.

Neither the City nor State does so. Although the ProVal system supports time adjustments, the City does not make them, preferring to use only more recent sales (generally one year) in its analyses. This leads to problems of insufficient sales discussed in sections 5 and 6 below. The State's failure to make time adjustments is particularly troublesome because of the lag between sales used and assessments studied. For example, while the 2007 study compares 2007 assessments with 2007 sales, Norfolk's 2007 assessments reflect a base date of July 1, 2006, so that there is effectively a one year lag between the assessments studied and the midpoint of sales used in the study.

Another weakness of the State's study is the long time lag until publication. The 2005 study, for example, which used 2005 sales (and values with a base date of July 1, 2004 in Norfolk) was not published until March 2007.

Still, for all its weaknesses, the State's study does provide a comparison of how Virginia's cities and counties rank in terms of a common yardstick.

In any case, we strongly recommend that the City strengthen its ratio study analyses. Sales should be systematically researched and entered into the ProVal database. Unless the market has been sufficiently stable, time trends should be studied and sales adjusted to the assessment date. In addition to analyses done by front-line appraisers, a staff person with the requisite training and analytical skills should prepare periodic studies that summarize the level and uniformity of assessments in compliance with IAAO standards. A summary report or booklet of key results should be prepared annually.

## 4.6 GIS Support

To its great credit, the city of Norfolk has both a functioning geographic information system (GIS) and a geographic-based parcel identification number (PIN). The latter allows analysts to undertake sophisticated spatial analyses without sophisticated (and often expensive) GIS software. Virtually all statistical software, including Excel, can take advantage of the X-Y coordinates embedded in a geographic-based PIN to plot data in a rudimentary fashion. More advanced analyses using affordable software can be used to compute distances and identify the closest sales to a given parcel.

Virtually none of these potentials is being tapped by the commercial appraisal operations of the assessor's office. No statistical analyses are being done outside of what is possible in ProVal, supplemented by some tabulations in Excel. Neither of these has a spatial aspect as described above. Further, there is no use made of GIS/mapping tools to organize market data for appraisal analyses. Other jurisdictions often make effective use of large-scale maps to annotate such information as sales prices and dates, assessment ratios, and indicated values per front foot or square foot. The process involved, given the GIS software in place in Norfolk, is relatively elementary, as the ease with which we were able to produce such displays as Figure 6.3 attests.

Although the City does possess a suite of GIS products from ESRI, a recognized leader in the GIS software market, and the City's IT department is working on developing applications for the Assessor's office, nothing is currently available. The Assessor's office does have Parcel Analyst, a useful software tool from Smart Data Strategies (SDS) for developing statistical summaries of data extracted through spatial queries, but staff has yet to be trained on the product.

The assessor's office has both a dedicated GIS position and a separate information technology position, both of which are staffed. Unfortunately, the staff responsible for GIS is dedicated full time to the essentially routine processes of entering splits and other changes to parcel boundaries from deeds, subdivisions, and the like. We recommend that management explore the possibility of dedicating additional staff resources to the analytical processes that GIS makes possible. Another role that such resources could help fulfill, in addition to those discussed immediately above, is improved neighborhood delineations (including capturing the apartment location "groups" to be discussed in section 5) and enhanced analyses based on such groups.

# 5. VALUATION METHODS AND TECHNIQUES

There are three well-accepted appraisal approaches: the sales comparison approach, the income approach, and the cost approach. In mass appraisal the sales comparison approach is based on statistical models that relate recent sales prices to relevant property characteristics and location variables. The sales comparison approach is the preferred approach for properties with plentiful sales, most obviously residential properties. The income approach is based on a consideration of income data, vacancy and expense ratios, and the relationship between net rents and market value as expressed in "capitalization rates." It is the preferred approach for properties that are usually leased or rented, for example, apartments and office buildings. The cost approach develops separate estimates of land and building values which are summed and sometimes multiplied by a "market adjustment factor" to estimate total property value. Land values are based on vacant land sales where available. Building values are based on construction costs and estimated depreciation, which can result both from physical wear and tear and internal or external loss in value due, for example, to outdated building styles or adverse location influences. The cost approach can be applied to all improved properties but is usually only preferred when there is insufficient market data to use the sales comparison or income approach.

Norfolk uses two of these three approaches. The income approach is used for apartments, offices, shopping centers, mini-storage properties, mobile home parks, and marinas. Apartments are appraised using the ProVal system. Assessors conduct spreadsheet (Excel) analyses for the other property types, collectively termed "IN99" properties, and manually enter the resulting values into ProVal. These are identified by entering "IN99 Income Property" into the ProVal memo field. All other commercial properties are valued with the cost approach. Aside from land valuation, the sales comparison approach is not used for commercial and industrial properties.

In this section we review commercial appraisal activities and methods in Norfolk. While the assessor's office has identified neighborhoods for all properties, they could be aggregated into more meaningful sets for commercial valuation. The ProVal system provides adequately for land valuation and, aside from the problem of too many neighborhoods, valuation procedures are basically sound. Apartments have been grouped into meaningful neighborhood groups for analysis and capitalization rates appear consistent with contemporary market conditions. We recommend offices, shopping centers, and other property types appraised on the income approach with Excel also be valued using ProVal's income tables and that typical rent, vacancy, expense, and capitalization rates be applied to those that fail to report rental and expense data. The City's use of Marshall & Swift cost tables to appraise other commercial properties is sound. We concur with the City's tentative decision to convert to the more frequently updated "black box" cost system and recommend that local studies be undertaken to help evaluate depreciation adjustments.

## 5.1 Workflow Tracking

A "Reassessment Tracking Form" is maintained for each commercial neighborhood. The top of the form identifies the number of commercial, non-taxable, and condominium parcels in each such neighborhood. Activities identified on the form include:

- Generation and review of property characteristics reports
- Development of proposed changes
- Valuation model building or trending
- Determination, posting, and certification of values
- Production and mailing of notices

Assessors date and initial the activities as completed. Old and new valuation rates are often posted to the notes section at the bottom of the form. The form provides for reporting assessment ratio and COD statistics in conjunction with the first and fourth activities above, although there are rarely sufficient sales for meaningful analysis and the form does not provide for sale counts. Values notices are mailed as neighborhoods are completed, which typically range from as early as September to as late as March.

The Reassessment Tracking Forms provide an obviously valuable management control tool. We caution, however, that the forms tend to focus on the trees rather than the forest and provide little feedback on the overall accuracy and consistency of values across neighborhoods and property types. Managers must not assume that completion of each piece of the puzzle guarantees that the final picture looks as intended.

## 5.2 Neighborhood Delineation

The City has defined approximately 250 valuation areas, each identified by a 4-digit number (e.g., 0233). Neighborhoods consist of these areas followed by a two digit suffix: 00 = residential, 50 = waterfront, 55 = water view, and 90 = commercial (e.g., 023390). Thus there are potentially some 250 commercial neighborhoods, although not all contain commercial parcels.

Neighborhoods are used to establish land values and identifying the location of properties. While this is basically sound, commercial neighborhoods could be reconfigured to better support other valuation activities. First, the same geographic footprints need not be used for residential and commercial properties. Even commercial properties are subject to various location influences. A prime retail area, for example, may not be well suited for industrial buildings or for apartments. Second, the number of commercial neighborhoods is too large for meaningful geographic analyses. As will be seen, the apartment appraiser has grouped these neighborhoods into logical "groups" for valuation purposes. In addition, the lead commercial appraiser sometimes moves individual parcels from one neighborhood to another to achieve more logical valuation groups.

While commercial neighborhoods can be built from the same geographic polygons as residential, we recommend that they be aggregated into a more manageable number. Further, separate aggregations can be used for different types of commercial properties: apartment, office, retail, and industrial. The new neighborhoods should be sufficiently large to generate adequate data for analysis.

## 5.3 Land Valuation

Aside from the fact that commercial neighborhoods are too numerous and coterminous with other property types, we judge the land valuation system to be adequate.

All commercial land in Norfolk is appraised predominately on a square foot basis. Four land types have been defined: 9 = residential, 11 = commercial primary, 12 = commercial secondary, and 90 = waterfront. Virtually all commercial land falls into categories 11 or 12. The appraiser defines different valuation classes and corresponding rates, for example, $6.00 per square foot for a class 1 site, $8.00 for a class 2 site, $10.00 for a class 3 site, and so forth. Per square foot rates can be applied to reflect variations in per square foot rates for various lot sizes. The appraiser can also apply as many as three "site influence codes" to a property to account for variations in view, topography, and so forth. For each parcel, the appraiser enters the appropriate code from a predefined table and the desired adjustment factor, say -15% for uneven terrain. Optional descriptions (e.g., "part of site unusable") can also be added. While site influence codes provide high flexibility, the factors are not table-driven and must be maintained at the parcel level.

Appraisers can specify multiple land lines to accommodate different land rates for the same parcel, e.g., one rate for primary land and a second rate for secondary land. The option can be used for leased land in order to provide the owner with a breakout of land value for each lessee.

Appraisers annually review and revise land rates as needed based on a review of available sales and sales ratios (only the assessor and chief deputy assessor have authority to update valuation tables and rates). Since the ProVal system is neighborhood-driven, this process becomes problematic when there are few sales for a given neighborhood, as is typically the case since there are only about 20 usable commercial land sales per year. Although 2-3 years of sales are considered, the number of neighborhoods itself exceeds the number of commercial sales and the commercial appraiser relies heavily on general trends and patterns in establishing recommended land rates. If appraisers were experienced with GIS and had access to the necessary software, plotting sales on maps would aid in analysis.

## 5.4 Apartment Valuation

Norfolk has over 1,000 apartment buildings, defined as multi-family properties of five or more units, in a wide variety of styles, ages, and sizes. The appraiser responsible for apartments is also responsible for condominiums and thus must divide his time between these two major property types in the tight window between receipt of income mailers and generation of final values. As mentioned, apartments are the only property type appraised on the income approach using the ProVal system.

As mentioned in 4.3, the apartment income mailer differs from that used for other property types. Respondents are requested to return the mailer by February 15 (versus March 1 for other commercial properties), which provides the appraiser more time for processing and analysis. The back of the form contains a worksheet respondents can use to supply the necessary income and expense information in lieu of submitting accounting statements. The typical response rate is approximately 40%.

The apartment appraiser has established 20 neighborhood groups for apartments (termed groups "A" through "T). As mailers are received, the appraiser periodically reviews them and enters reported data into ProVal. As each property is completed, the appraiser hits a key to copy the data to an adjacent "reconstructed" data column, where they can be overridden or adjusted as appropriate. When a neighborhood group is complete, the appraiser asks the technical team leader to run a Crystal report listing rents by bedroom counts, along with vacancy rates, which the appraiser reviews to determine typical rents and vacancy rates. The appraiser accesses ProVal's "Edit Income Model" and enters the determined rates. Unfortunately, this process is much more time-consuming and tedious than it should be because the rates must be separately entered for each neighborhood in the neighborhood group being worked (for control purposes the appraiser maintains a sheet listing the neighborhoods in each group). Defining separate apartment neighborhoods in ProVal for the 20 appraisal groups would eliminate this redundancy.

Of course, rents and vacancy rates vary considerably among the various neighborhood groups. Vacancy rates ranged from approximately 5% to 13% in the most recent (FY2008) assessments.

Expense ratios fall in one of four groups (A-D) depending on services provided and whether they are the units are furnished. For the most recent year expense ratios ranged from 42% to 47%. We note, however, that location and the age/condition of buildings are not part of the determination. Newer buildings in better locations often have lower maintenance and insurance costs than older buildings in more marginal neighborhoods. Consideration could be given to redefining expense ratio categories or, provided ProVal will support it, varying expense ratios for each of the four current categories by neighborhood group.

Capitalization rates are derived from the *Korpacz Real Estate Investor Survey* and other available information (e.g., the Old Dominion University market survey) for each of four "property type" ratings (average, good, very good, and excellent). For the most recent assessment year these capitalization rates were 0.105, 0.095, 0.085, and 0.075.

Several high rise apartment complexes are appraised individually in Excel. The appraiser enters the reconstructed income data, rent rates, expense ratios, and capitalization rates to generate income approach estimates for these properties.

## 5.5 Office Buildings

Norfolk has approximately 75-80 office complexes, about 25 of which reported income and expense data last year. Like other non-apartment properties valued on the income approach, these are appraised outside of ProVal using Excel and calculated improvement values after

subtraction of land values are hand-entered into ProVal. Spreadsheet columns provide for gross area, reported income and expenses, calculated expense ratios, allowable expenses, sale date and price, and prior and current values.

The standard capitalization rate last year was 0.105 (including taxes). This was derived principally from Korpacz, where cap rates average approximately 0.09 (before taxes). Actual capitalization rates in Norfolk can vary about the 0.105 standard and ranged from 0.09 to 0.12 (including taxes).

Median and mean rents per square foot, expenses per square foot, and expense ratios are calculated for reference but not used in valuation. When income and expenses are reported, values are computed as reported income less allowable expenses divided by the selected capitalization rate. When income and expense data were not reported, prior values were increased by 10% last year. This dual treatment can create inconsistency in the way similar properties are valued and we were unable to discern the basis of prior year values. We recommend that, like apartments, typical rates be applied to all properties, although reported figures could be used if within a reasonable window of typical figures. Where no figures are reported, rates near the average of reported figures should be used.

Like apartments, the appraiser currently responsible for office buildings also has residential appraisal responsibilities.

## 5.6 Shopping Centers

The City has approximately 70 shopping centers. Like office buildings, shopping centers are appraised by the income approach using Excel. Spreadsheets provide for size, reported income and expenses, calculated expense ratios and expenses per square foot, the appropriate expense ratio determined by the appraiser, resulting NOI (net operating income), and prior and new value. For the most recent year, expense ratios ranged from .15 to .40 and capitalization rates from .105 to .125 (the basis for the variations is not documented). When income and expense were not reported, prior values were increased 6 percent (recently sold properties may be valued still differently). Responses to last year's survey were received from 31 of 68 properties.

As with office buildings, the use of different valuation procedures for respondents and non-respondents can create valuation inequities. We would prefer to see the same set of valuation rates used for all properties (with actual figures optionally used as long as consistent with typical figures). The basis for variations in expense ratios and capitalization rates should be better documented. As with office buildings, valuing these properties using the ProVal income engine would largely address our concerns.

## 5.7 Hotels and Motels

The City has approximately 40 hotels and motels, about half of which reported income information in the prior revaluation. While each was appraised based on a consideration of all available data, there are no worksheets or documentation showing value calculations, including expense ratios or capitalization rates. Where properties failed to report requested data, prior

values were generally increased 6% based on an analysis of value changes for those properties for which reported figures were available.

Hotel and motel valuations calculations should be documented. We also recommend that values be expressed on a per room basis to facilitate comparisons among properties. Valuation procedures should be consistent with typical figures used for non-reporting properties.

## 5.8 Mini-Storage, Mobile Home Parks, and Marinas

There are approximately 30 mini-storage properties in the City, about a dozen mobile home parks, and eight marinas. All are valued by the income approach using Excel. The spreadsheets contain size, reported income and expenses, the appraiser's determination of allowable expenses, the resulting expense ratio and net operating income (NOI), capitalization rate, the applicable tax rate, the overall capitalization rate (OAR) including taxes, calculated values (NOI divided by OAR), value per square foot, prior values, percent increase, applicable comments, and the appraiser's determined final value. Because of the shortage of commercial appraisers, different appraisers have worked on these property types over the last several years.

. There are few responses to income mailers upon which to base appraisal decisions. Because of this, values for mini-storage properties for 2007 were increased 6% over 2006 values based on the best information available.

The limited data for these property types obviously makes appraisal analyses difficult. Still, like other income properties, we recommend that they be migrated to ProVal, where appraisers can specify appropriate market rents, vacancy rates, expense ratios, and capitalization rates. These can then be updated or adjusted annually as needed, avoiding the need to factor prior values.

## 5.9 Other Commercial and Industrial Properties

All other commercial properties are appraised on the cost approach. These include standalone retail properties and warehouses. ProVal periodically provides the City (and other clients) with updated commercial cost rates derived from rates developed and reported by Marshall & Swift, the leading commercial provider of such rates. Although these rates are received digitally and require no manual entry, they are not updated annually (the last update was 2-3 years ago). The City is contemplating converting to the Marshall & Swift "black box" system, which contains quarterly updates of commercial costs and for which ProVal also provides client supports. The downside of this service is that 'black box" cost tables are not viewable. Nevertheless, cost reports do show rates and factors used in individual value calculations and the City does subscribe to the Marshall & Swift Valuation manual. Given the wide acceptance of the system and the fact that it is updated quarterly rather than only every several years, we support conversion to this option.

In any case, commercial cost rates in the current ProVal system are a function of building type, wall type (e.g., frame or brick), floor (first, upper, basement or sub-basement), perimeter/area ratio, floor height, and framing type (wood joist, reinforced concrete, or steel). Base values

obtained from these rates can be further adjusted for various extra features and miscellaneous improvements.

The ProVal commercial system also provides for the application of market adjustment factors based on property type, neighborhood, or parcel. Norfolk has avoided using these options, instead preferring to adjust effective age or to apply functional or economic obsolescence or depreciation overrides to obtain desired values. We calculate that 79.3% of commercial cost model properties have effective age adjustments, which we see as reasonable for the generally older inventory extant in Norfolk. Functional obsolescence has been applied to approximately 4% of properties, economic obsolescence to approximately 3%, and depreciation overrides to 4%. Allowing for properties that receive multiple adjustments, we calculate that one or more such adjustments are being applied to 6.2% of commercial properties appraised on the cost approach. We find these percentages reasonable. Thus, it does not appear that functional obsolescence, economic obsolescence, or depreciation overrides are used excessively – at least in an overall sense.

However, given the importance of depreciation in calculation of values by the cost approach for older improvements, we recommend that staff undertake a depreciation study in conjunction with the contemplated conversion to the Marshall and Swift commercial "black box" approach. The study could include an analysis of building residuals and sales ratios calculated from sold properties (older sales could be adjusted for time to bolster sample sizes).

# 6. PERFORMANCE ANALYSIS

Sales ratio studies, which involve a comparison of assessments with recent sales, are the chief means by which assessment performance is measured. This section provides the results of our independent ratio study using 2007 assessments (base date of July 1, 2006) and commercial sales from June 2006 through July 2007 provided by the City and coded as being valid for the purpose of such studies. Thus there is a lag of up to a year in sales used in the study. Results are also complicated by substantial changes in value over the study period. Nevertheless results of our study indicate that there is substantial room for improvement since the results fall short of the performance standards in the IAAO *Standard on Ratio Studies.* On the positive side, we found that properties were assessed equally regardless of whether they had been recently sold or experienced new construction or physical change.

## 6.1 Results on Standard Measures

The available data on validated commercial and industrial sales data spanned the years 2004-2007, although the only validated sale preceding 2006 was a 15-parcel transaction in 2004 that did not appear to differ significantly from the pattern established by the other sales. It was excluded from further consideration in view of the issue of adjusting it for the effects of time (or real estate price inflation) that did not arise for the balance of sales straddling the date of January 1, 2007. The remaining validated multi-parcel sales were retained. As will be discussed further below, there were relatively few available sales.

Table 6.1
Assessment / Sales-Price Ratio Statistics for
Commercial and Industrial Property Assessments in Norfolk as of July1, 2007,
Using Validated Sales from June 2006—July 2007

| Major Property Class | Median Ratio | 95% Confidence Interval for Median Ratio | | Price Related Differential | Coefficient of Dispersion | Count of Validated Sales |
|---|---|---|---|---|---|---|
| | | Lower Bound | Upper Bound | | | |
| Industrial, Vacant Land | 0.51 | | | 1.00 | - | 1 |
| Industrial, Improved | 0.56 | | | 1.00 | - | 1 |
| Commercial, Vacant Land | 0.61 | 0.33 | 1.13 | 1.90 | 0.69 | 16 |
| Commercial, Improved | 0.69 | 0.65 | 0.77 | 1.00 | 0.35 | 108 |
| Overall | 0.69 | 0.62 | 0.75 | 1.03 | 0.38 | 126 |

Table 6.1 summarizes the essential statistics. The statistical results for industrial property, where there was only one sale each in the categories for vacant land and improved parcels, are unreliable and will not be discussed further. The level of assessment is best indicated for

purposes of performance analysis by the median ratio of assessment to sales price.[5] The table indicates that the level of assessment is less than the minimum ratio of 0.90 called for in the IAAO *Standard on Ratio Studies*. There is also a suggestion that vacant land may be assessed at a lower ratio than improved parcels, but the inference is not reliable, given the wide confidence interval about the median for vacant parcels. .

The coefficients of dispersion (CODs) also fail IAAO standards. The COD can be described as the average absolute error of assessments, expressed as a percentage.[6] The IAAO standard on ratio studies suggests that CODs should be less than 20 for all property classes under consideration here. The COD for commercial property in table 6.1 is 35 percent.[7] To put a COD of 35 percent into perspective, consider that as an average inaccuracy, two property owners with equal but opposite average errors of that magnitude would face dramatically different tax burdens for hypothetical properties that should have been assessed equally. One with a ratio of 1.35 would face more than double the effective tax burden of a property with a ratio of 0.65.[8]

The price-related differential (PRD) indicates whether assessment ratios tend to vary by the value of the property, as opposed to being uniform for all property as they should be in the absence of contrary law. According to the IAAO standard, PRDs should fall is the range of 0.98 to 1.03. A PRD greater than 1.03 is suggestive of assessment regressivity, a practice of assessing high-valued property at lower levels than lower-valued property. The PRD for vacant land is well above this threshold, although the modest sample size of 16 sales makes it difficult to draw any reliable conclusions. In contrast, the PRD for improved commercial properties (108 sales) is exactly 1.00 and the overall PRD (126 sales) is 1.03.

In addition to the overall results shown in Table 6.1, an assessment ratio study typically includes a variety of analyses at finer levels of detail. Appendix tables A1 and A2 present additional details on the specific classes of property as well as results by each particular neighborhood. Since the number of sales available for analysis does not support drawing any performance-related conclusions from such tables, we do not discuss them here, although we will return to such issues generally in section 6.3.

[5] The median is defined as the middle value after a set of numbers has been sorted by value (or the midpoint of the two middle values if there is an even number of observations in the set of numbers).

[6] The COD is the result of subtracting each assessment ratio from the median ratio, taking the absolute value of each of the differences, finding the average of all those absolute values, and expressing it as a percentage of the median ratio. In Tables 6.1 and 6.2 the COD has not been multiplied by 100; thus .35 signifies 35 percent.

[7] The IAAO standard includes language about withholding conclusions of failure to meet the COD standard unless the results can be shown to hold up once the possibility of sampling error is taken into account. The results summarized in Table 6.1 do in fact fail the COD standard after taking sampling error into account by means of the protocol outlined in Gloudemans "Confidence Intervals for the Coefficient of Dispersion: Limitations and Solutions," *Assessment Journal* (2001): 23-27.

[8] If the general level of assessment is lower than 100%, as Norfolk's appears to be, the general conclusion remains valid. If the general assessment level were in fact 69%, as suggested by the table, the specific ratios might be .45 and .93 instead of .65 and 1.35.

## 6.2 Results from Special Tests

This section describes several tests to determine whether properties with physical changes or that had sold were appraised differently than properties that did not. We found no such evidence and conclude that valuation rates and adjustments are applied equally to all properties regardless of a physical change or sale.

To evaluate whether properties with physical changes were appraised differently than those without, we repeated our study eliminating properties for which a change had been recorded in the physical characteristics of the improvement since 2005.[9] Table 6.2 summarizes the results of analyzing the data set after it has been purged of such properties. The results differ only trivially from those reported in Table 6.1, substantially putting to rest the possibility that properties with physical changes are valued differently than properties without such changes.

Table 6.2
Assessment / Sales-Price Ratio Statistics for
Commercial and Industrial Property Assessments in Norfolk as of July1, 2007,
Using Validated Sales from June 2006—July 2007
Excluding Properties with Recorded Physical Changes Since 2005

| Major Property Class | Median Ratio | 95% Confidence Interval for Median | | Price Related Differential | Coefficient of Dispersion | Count of Validated Sales |
|---|---|---|---|---|---|---|
| | | Lower Bound | Upper Bound | | | |
| Industrial, Vacant Land | 0.51 | | | 1.00 | - | 1 |
| Industrial, Improved | 0.56 | | | 1.00 | - | 1 |
| Commercial, Vacant | 0.73 | 0.52 | 1.17 | 1.43 | 0.53 | 9 |
| Commercial, Improved | 0.69 | 0.64 | 0.81 | 0.99 | 0.33 | 96 |
| Overall | 0.69 | 0.64 | 0.78 | 1.02 | 0.35 | 107 |

Two tests were performed to determine whether sold properties were appraised differently than unsold properties (a reprehensible practice colloquially known as “sales chasing”). The first was a test for a differential propensity to change the subjective descriptors (such as grade or condition) of a property that recently sold relative to unsold properties. This practice can amount to sales chasing since the changes can be designed to produce a value near the sale price.. Happily we found no significant difference in the tendency of assessors to change the subjective characteristics of sold and not-recently-sold properties. The second test considered differences in the percentages by which assessed values changed for sold vs. not-recently-sold properties. The difference in median value changes for the two groups was less than five percent, which we judged to be insignificant.

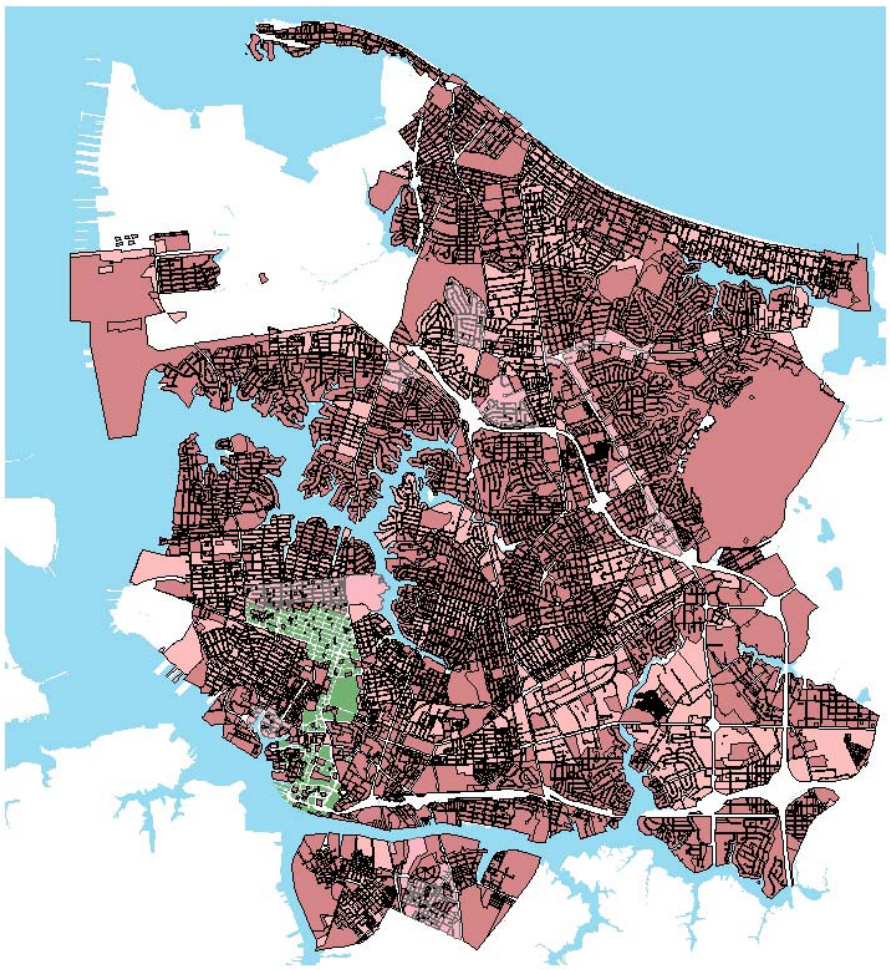
[9] The list of characteristics from the “improvements” table of the assessor’s database that we examined for changes is given in appendix table A3. .

## 6.3 Considerations Affecting Analytical Possibilities

As indicated in Table 6.1, there were only about 126 recent validated commercial and industrial (C&I) sales transactions available from which to draw inferences on the quality of assessments for the approximately 6,335 active C&I parcels in the assessor's database. This made it impossible to conduct meaningful neighborhood analyses in most of the approximately 195 neighborhoods with commercial or industrial properties. As discussed in section 4.5, the most practical way to increase sample sizes is to extend the window of time from which validated sales are drawn and adjust prices for price trends to a common valuation date. We recommend that the assessor ensure that sales are being validated in a timely matter and that multiple years of commercial sales time-adjusted to the valuation date be used in appraisal analyses and sales ratio studies.

As described in 5.2, except for apartment valuation, neighborhoods delineated for C&I purposes are coterminous with neighborhoods delineated for residential valuation purposes. Thus, the number of neighborhoods defined for C&I properties greatly exceeds the ability of the available sales data to support them. Although not necessarily bad in the abstract, this is severely problematic in the absence of a mechanism for allowing neighborhoods to be aggregated to larger, substantially homogeneous "economic areas," that could feasibly be supported by the available sales. As a result, appraisers must grapple with approximately 195 C&I neighborhoods when only about 60 of them have any sales at all, and only 3 neighborhoods have five or more sales, the threshold mentioned in the IAAO *Standard on Ratio Studies* as the minimum sample size from which one should attempt to draw conclusions. The situation is graphically portrayed in Figure 6.3 in which a map of Norfolk is shown indicating the neighborhoods with a minimal number of sales, an insufficient number of sales, and no C&I validated sales at all. As discussed in section 5.2, we recommend that C&I neighborhoods be aggregated into supportable market areas for analytical purposes.

Figure 6.3
Commercial and Industrial Assessment Neighborhoods of Norfolk
By the Number of Sales per neighborhood



Neighborhoods with at least 5 validated commercial and industrial sales are colored green.
Neighborhoods with 1-4 such sales are colored a lighter rose shade.
Neighborhoods with no such sales at all are shown in a darker coral color.

# 7. CONCLUSIONS AND RECOMMENDATIONS

Overall, we find that while appraisers have done a credible job in a challenging environment, there is considerable room for improvement. The legal framework is strong. The computer commercial assisted appraisal system (CAMA) provides needed functionality. While thinly stretched, commercial appraisers are experienced and knowledgeable. We recommend that the City review the staffing situation. We also recommend a number of changes in sales validation, income data collection, valuation procedures, sales ratio studies, and other areas. In the valuation area, an overarching recommendation is that, perhaps aside from unique or special purpose properties, all commercial properties should be valued in ProVal and that valuation procedures be similar across a given type of property, regardless of whether they report or fail to report requested income information. Specific recommendations are summarized below.

## 7.1 Setting, Management, and Administrative Practices

1. Sales disclosure declaration. The City of Norfolk should lobby for a legal requirement that, in connection with paying the recordation tax, real estate sellers and buyers be required to complete and file a real estate transfer declaration. The purpose of the declaration would be to provide assessors and the Department of Taxation with information needed to determine whether a sale is usable for appraisal or for ratio study purposes. It would require disclosure of the particulars of each sale.

2. Sales confirmation form. In the meantime, the real estate assessor should develop a questionnaire to be used as necessary in sales confirmation and screening efforts.

3. Staffing. The assessor's office faces a formidable challenge in reappraising all properties in the City each year at market value. When one considers the procedural improvements that we recommend and staffing that would be expected based on industry benchmarks and workload analyses, we are concerned that the office cannot indefinitely meet its challenges without additional staff. This risk could be exacerbated if the market slumps substantially, which could trigger additional appeals. We recommend that, as a matter of priority, the City carefully evaluate staffing needs in the assessor's office.

4. The income mailer should be reviewed and revised. The letter could better explain the purpose and use of the requested information, cite relevant statutory provisions, and provide assurances that submitted data will be held in confidence. Considerations should also be given to including a standard form that could be completed in lieu of submitting accounting/income statements, as well as sending out a second notice if the first were not returned within a specified period.

5. Subscription services. We recommend that the budget provide for subscriptions to commercial sales data reporting services and industry surveys covering office buildings, hotels, shopping centers, apartments, and the like.

6. The Assessor's office should develop a set of standard codes for use in sales validation. The list can be modeling after that in the IAAO *Standard on Ratio Studies*. Consideration should also be given to assigning one or two senior appraisers to commercial sales validation to help ensure the accuracy and uniformity of the process.

7 High emphasis should be placed on validating sales and ensuring that the maximum number of usable sales be available for appraisal work. Sales provide the essential link to market value and all reasonable efforts should be taken to ensure the maximum availability and use of sales information.

8. The City should bolster its ratio studies. Currently only informal analyses are done as part of work reporting and valuation analyses. Using validated sales adjusted for time and other considerations as necessary, a qualified analyst should periodically produce a systematic ratio study in compliance with IAAO standards. A report or booklet of key results should be prepared at the end of each reassessment.

## 7.2 Valuation Methods and Techniques

9. All commercial properties should be appraised by a dedicated, full-time commercial appraisal staff. Commercial valuation requires considerable experience and specialized knowledge and the considerable value of these properties and their importance in the City's tax base demands that they receive the necessary attention and expertise.

10. Separate neighborhoods should be defined for apartments. This would eliminate the tedious process of having to enter income rates and parameters for neighborhoods falling within each of the 20 existing apartment neighborhood groups. Apartments are subject to many of the same location influences that affect owner-occupied residences and do not follow the same location patterns observed for office, retail, or industrial properties.

11. New neighborhoods should be defined for other commercial property types. These neighborhoods need not share a common footprint. Retail neighborhoods, for example, tend to follow major streets and traffic patterns, while office buildings are located either in the city center or other areas zoned for office development. In any case, the neighborhoods should be drawn so as to ensure adequate data for meaningful analysis. Existing neighborhoods could be aggregated for this purpose.

12. Apartment vacancy rates should consider location and the age/condition of buildings. This could be accomplished by redefining expense ratio categories to recognize these influences or, if possible, varying expense ratios for the four existing categories by neighborhood group.

13. Perhaps aside from unique properties, all valuations based on the income approach should be applied in ProVal. ProVal adequately provides for the application and archiving of valuation rates. Although Excel is better suited to data analysis and the determination of valuation rates, once developed, these rates should be entered into the

ProVal income valuation engine. This will also save the need to hand-enter individual values.

14. Properties should be valued consistently regardless of whether they respond to income and expense mailers. Actual income figures can be used where reasonably close to typical figures. Where mailers are not returned, rates based on reported figures should be used.

15. Valuation procedures and calculations for properties appraised by the income approach should be better documented. Because ProVal is table-driven, migrating properties valued on the income approach to ProVal would largely address these concerns.

16. The City should implement the Marshall & Swift "black box" of commercial costs. While the system hides underlying cost tables used in calculations, it is widely accepted, does show cost calculations for individual properties, is also available electronically from ProVal, and is updated quarterly (as opposed to only every 2-3 years in the case of the current tables obtained from ProVal).

17. Staff should conduct a depreciation study in conjunction with the planned conversion to ensure that depreciation schedules are realistic and take remedial measures where problems are indicated. This should be done in conjunction with implementation of the new system in order to avoid the need for further changes and value shifts. What role, if any, market adjustment factors should play in the new system should also be addressed.

18. Sales should be more effectively incorporated into valuation analyses. Related to our recommendation that the City improve its use of sales ratio studies, we recommend that sales be better utilized in appraisal analyses, including depreciation studies, the development of capitalization rates, and the determination of market adjustment factors. Adjusting older sales for time trends would bolster sample sizes for these purposes.

# APPENDIX 1 - RATIO STATISTICS BY PROPERTY GROUPS

**Table A1**
Assessment / Sales-Price Ratio Statistics for
Commercial and Industrial Property Assessments in Norfolk as of July1, 2007,
Using Validated Sales from June 2006—July 2007
By Specific Class of Property

| Property Class | Median | 95% Confidence Interval for Median | | Price Related Differential | Coefficient of Dispersion | Count of Validated Sales |
|---|---|---|---|---|---|---|
| | | Lower Bound | Upper Bound | | | |
| 300 Industrial Vacant Land | 0.51 | | | 1.00 | - | 1 |
| 340 Industrial Lt Mfg/Assembly | 0.56 | | | 1.00 | - | 1 |
| 400 Commercial Vacant Land | 0.61 | 0.33 | 1.13 | 1.90 | 0.69 | 16 |
| 401 Apartment 5-11 Fam Desig | 0.62 | 0.51 | 0.74 | 1.14 | 0.36 | 23 |
| 402 Apartment 5-11 Fam Conv | 0.62 | 0.46 | 0.77 | 0.93 | 0.25 | 2 |
| 403 Apartment 12-48 Fam Desi | 0.61 | 0.52 | 0.87 | 1.08 | 0.37 | 9 |
| 405 Apartment 49+ Low Rise | 0.69 | | | 1.00 | - | 1 |
| 406 Apartment 49+ Mid Rise | 0.77 | | | 1.00 | - | 1 |
| 411 Commercial Hotels | 0.90 | | | 1.00 | - | 1 |
| 418 Retail/Apartment Over | 0.20 | | | 1.00 | - | 1 |
| 420 Commercial Small Retail | 1.65 | | | 1.00 | - | 1 |
| 423 General Commercial | 0.92 | 0.60 | 1.29 | 1.23 | 0.25 | 5 |
| 424 Com Full Line Dept Store | 0.99 | | | 1.00 | - | 1 |
| 429 Com Other Retail Bldg | 0.65 | 0.50 | 0.87 | 1.27 | 0.34 | 15 |
| 430 Commercial Restaurant/Bar | 0.86 | 0.81 | 0.90 | 0.98 | 0.06 | 2 |
| 436 Fast Food Resturant | 1.00 | 0.84 | 1.15 | 0.96 | 0.15 | 2 |
| 440 Com Dry Clean/Laundry | 0.74 | 0.68 | 0.80 | 1.04 | 0.08 | 2 |
| 442 Com Medical Clinic/Office | 0.66 | 0.43 | 1.00 | 0.80 | 0.29 | 3 |
| 444 Com Full Service Bank | 1.06 | | | 1.00 | - | 1 |
| 447 Com 1 & 2 Sty Office Bldg | 0.65 | 0.51 | 1.00 | 0.84 | 0.28 | 13 |
| 449 Com Office O/T 47 Elev | 0.68 | | | 1.00 | - | 1 |
| 450 Com Condominium | 0.71 | 0.57 | 0.98 | 1.13 | 0.55 | 9 |
| 451 Commercial Leasehold | 0.99 | | | 1.00 | - | 1 |
| 455 Commercial Garage | 0.67 | 0.54 | 0.93 | 0.97 | 0.19 | 3 |
| 456 Commercial Parking Lot | 0.30 | | | 1.00 | - | 1 |
| 480 Commercial Warehouse | 0.86 | 0.41 | 1.00 | 0.95 | 0.18 | 8 |
| 485 Com Mini Warehouse | 0.86 | | | 1.00 | - | 1 |
| 499 Commercial Other Structure | 1.12 | | | 1.00 | - | 1 |
| Overall | 0.69 | 0.62 | 0.75 | 1.03 | 0.38 | 126 |

**Table A2**
Assessment / Sales-Price Ratio Statistics for
Commercial and Industrial Property Assessments in Norfolk as of July1, 2007,
Using Validated Sales from June 2006—July 2007
By Neighborhood

| Neighborhood Code | Median | 95% Confidence Interval for Median | | Price Related Differential | Coefficient of Dispersion | Count of Validated Sales |
|---|---|---|---|---|---|---|
| | | Lower Bound | Upper Bound | | | |
| 110190 | 0.69 | | | 1.00 | - | 1 |
| 110290 | 0.85 | | | 1.00 | - | 1 |
| 110590 | 0.49 | 0.41 | 0.52 | 0.98 | 0.08 | 4 |
| 110790 | 0.52 | 0.50 | 0.52 | 1.00 | 0.01 | 4 |
| 110890 | 0.33 | | | 1.00 | - | 1 |
| 120990 | 0.81 | | | 1.00 | - | 1 |
| 130290 | 0.90 | | | 1.00 | - | 1 |
| 130790 | 0.56 | | | 1.00 | - | 1 |
| 130990 | 1.95 | | | 1.00 | - | 1 |
| 131490 | 0.88 | 0.77 | 0.99 | 1.08 | 0.13 | 2 |
| 140590 | 0.41 | 0.20 | 0.62 | 0.84 | 0.52 | 2 |
| 140690 | 0.70 | 0.44 | 0.81 | 0.99 | 0.17 | 4 |
| 140990 | 0.46 | 0.12 | 0.80 | 3.14 | 0.75 | 2 |
| 141090 | 0.48 | 0.44 | 0.68 | 1.04 | 0.17 | 3 |
| 141190 | 1.00 | | | 1.00 | - | 1 |
| 141290 | 0.86 | 0.41 | 0.94 | 1.15 | 0.18 | 5 |
| 150190 | 0.59 | 0.58 | 0.60 | 1.00 | 0.01 | 2 |
| 150390 | 0.46 | 0.41 | 0.66 | 0.91 | 0.20 | 4 |
| 150590 | 0.72 | 0.51 | 0.99 | 0.95 | 0.23 | 7 |
| 150690 | 1.06 | 0.77 | 1.10 | 0.94 | 0.10 | 3 |
| 150790 | 0.57 | 0.41 | 2.67 | 2.20 | 1.21 | 5 |
| 150990 | 1.00 | | | 1.00 | - | 1 |
| 151090 | 0.84 | 0.71 | 0.98 | 1.02 | 0.16 | 2 |
| 160290 | 0.53 | 0.19 | 0.88 | 0.88 | 0.65 | 2 |
| 160390 | 0.84 | 0.83 | 0.95 | 1.01 | 0.05 | 3 |
| 170190 | 0.83 | 0.69 | 0.98 | 1.03 | 0.17 | 2 |
| 170290 | 0.72 | 0.70 | 0.93 | 0.99 | 0.10 | 3 |
| 170390 | 0.69 | | | 1.00 | - | 1 |
| 170490 | 0.43 | | | 1.00 | - | 1 |
| 170890 | 0.80 | 0.68 | 1.29 | 1.05 | 0.23 | 4 |
| 171190 | 0.86 | 0.60 | 1.17 | 1.08 | 0.22 | 3 |

| Neighborhood Code | Median | 95% Confidence Interval for Median | | Price Related Differential | Coefficient of Dispersion | Count of Validated Sales |
|---|---|---|---|---|---|---|
| | | Lower Bound | Upper Bound | | | |
| 171290 | 1.72 | | | 1.00 | - | 1 |
| 180190 | 0.57 | 0.45 | 0.60 | 1.04 | 0.09 | 3 |
| 180690 | 0.55 | | | 1.00 | - | 1 |
| 190390 | 0.68 | | | 1.00 | - | 1 |
| 190890 | 0.73 | | | 1.00 | - | 1 |
| 191090 | 1.56 | 0.65 | 2.47 | 1.16 | 0.59 | 2 |
| 191190 | 0.78 | | | 1.00 | - | 1 |
| 200190 | 3.10 | | | 1.00 | - | 1 |
| 200290 | 0.62 | | | 1.00 | - | 1 |
| 200390 | 0.56 | 0.51 | 0.61 | 1.04 | 0.09 | 2 |
| 210690 | 0.24 | | | 1.00 | - | 1 |
| 210790 | 1.15 | | | 1.00 | - | 1 |
| 210990 | 0.81 | 0.64 | 1.13 | 1.12 | 0.20 | 3 |
| 211090 | 0.50 | 0.30 | 0.70 | 0.97 | 0.40 | 2 |
| 221790 | 0.72 | 0.71 | 0.92 | 1.01 | 0.10 | 3 |
| 221990 | 0.79 | 0.44 | 1.15 | 1.42 | 0.44 | 2 |
| 240590 | 0.76 | 0.61 | 0.90 | 1.14 | 0.19 | 2 |
| 240890 | 0.80 | 0.60 | 1.00 | 0.90 | 0.25 | 2 |
| 240990 | 0.58 | 0.50 | 0.67 | 1.09 | 0.14 | 2 |
| 241090 | 0.56 | | | 1.00 | - | 1 |
| 250290 | 0.68 | | | 1.00 | - | 1 |
| 250390 | 0.99 | 0.86 | 1.12 | 1.08 | 0.13 | 2 |
| 250690 | 0.51 | | | 1.00 | - | 1 |
| 250790 | 0.54 | | | 1.00 | - | 1 |
| 250890 | 0.83 | 0.61 | 1.05 | 0.94 | 0.27 | 2 |
| 251090 | 0.69 | 0.32 | 0.85 | 0.93 | 0.31 | 4 |
| 260790 | 0.96 | 0.52 | 1.65 | 1.08 | 0.32 | 4 |
| 260990 | 0.50 | | | 1.00 | - | 1 |
| Overall | 0.69 | 0.62 | 0.75 | 1.03 | 0.38 | 126 |

**Table A3**
Recorded Characteristics Extracted from the Improvement Table of the Assessors Database for Testing in Connection with Section 6.2

| Name of Characteristic | Subjective or Objective |
|---|---|
| Improvement Type | O |
| Improvement Attached, Flag | O |
| Improvement Height | O |
| Improvement Width | O |
| Improvement Length | O |
| Improvement Capacity | O |
| Construction Type | O |
| Grade | S |
| Year Built | O |
| Effective Year Built (Considering Remodeling) | S |
| Year Remodeled | O |
| Condition | S |
| Improvement Characteristic02 | O |
| Improvement Size05 | O |
| Unit Type | O |
| Physical Depreciation | O |
| Override of Physical Depreciation | S |
| Obsolescence Depreciation | S |
| Functional Depreciation | S |
| Percent Complete | O |
| Improvement Effective Perimeter | O |
| Improvement Perimeter/Area Ratio | O |
| Type of Finish | O |
| Obsolescence Depreciation05 | S |
| Calculated Obsolescence Depreciation | S |
| Location Adjustment Factor Proposed | S |
| Improvement Flag 2 | O |
| Location Adjustment Factor Certified | S |
| Sketch Code | O |
| Effective Year 05 | S |

## APPENDIX 2 - ACRONYMS AND DEFINITIONS

**Assessment Ratio** – the ratio of an assessment to a proxy for market value (normally the sale price for the property). See Assessment-to-Sale Ratio.

**Assessment-to-Sale-Ratio** – the ratio of an assessment to the sale price of a property. The sale price can be adjusted for time of sale or other considerations to better represent the market value of the real property as of the assessment date.

**Assessment Regressivity** – the condition in which high value properties are assessed at a lower percentage of market value than low value properties, A PRD above 1,03 tends to indicate assessment regressivity (although the measure can be inconclusive for small samples or samples with extreme values).

**CAMA** - computer assisted mass appraisal.

**Capitalization Rate** – a rate (percentage) used to convert net operating income to an estimate of value. For example, if net operating income is $300,000 and the capitalization rate is .10, estimated value = $300,000 ÷ ,10 = $3 million. Capitalization rates can either include or exclude an allowance for property taxes. If property taxes are not included, then they should be treated as an allowable expense in computing net operating income.

**Coefficient of Dispersion (COD)** – the most prominent measure of appraisal uniformity. It is computed by determining the absolute (sign-ignored) difference between each ratio and the median ratio, calculating the average absolute deviation, dividing by the median ratio to express the average absolute deviation as a percentage, and optionally multiplying by 100.

**C&I** – commercial and industrial.

**Confidence Interval** – the range in which one can have a give level of confidence that a feature of the population lies. For example, if the 95% confidence for the median assessment ratio is 0.88 to 0.96, one can be 95% certain that the true (but unknown) median for the population is between 0.88 and 0.96. The tighter the confidence interval, the more reliable the estimate.

**COR** – Commissioner of Revenue.

**ESRI** – Environmental Systems Research Institute, a leading provider of GIS software.

**Expense Ratio** – the ratio of expenses to gross income. Gross income less allowable expenses yields Net Operating Income (NOI).

**FTE** – Full time employee(s). The number of person years available or required for an activity (a calendar year is commonly assumed to have 220 work days).

**GIS** – geographic information system.

**IAAO** – International Association of Assessing Officers.

**IT** – Information Technology (Department).

**Marshal & Swift** - a leading provider of commercial software for computing building costs.

**Median** – the middle value when assessment ratios or other data are ranked in order of magnitude. When there is an even number of data points, the median is computed as the average of the two middle values.

**OAR** – overall capitalization rate (an abbreviation for Capitalization Rate).

**Parcel Analyst** - a software tool from Smart Data Strategies (SDS) for developing statistical summaries of data extracted through spatial queries,

**ProVal** – Norfolk's CAMA system and a product of Manatron, Inc.

**Price-Related Differential (PRD)** – a measure of uniformity in the assessment of low and high value properties. According to IAAO standards, the measure should be in the range of 0.98 to 1.03.

**Ratio Study** – a study comparing assessments with proxies of market value (ordinarily sales prices) in order to evaluate the accuracy and uniformity of the assessments.

**Sales Chasing** – the unprofessional practice of valuing sold properties based on their sale price while failing to adjust the assessments of unsold properties so that they are similarly close to their market values. Sales chasing causes inequity between sold and unsold properties and can render sales ratio statistics meaningless or unreliable.

**Sales Ratio Study** – see Ratio Study.

**SDS** – Smart Data Strategies, Inc.

**USPAP** – Uniform Standards of Professional Appraisal Practice, promulgated by the Appraisal Foundation.

**Vacancy Ratio** – lost income due to vacancies expressed as a percentage of potential income assuming 100% occupancy.