



## Ready for the Carbon Market? *By Keith Cunningham, PhD*

The voluntary trading of carbon as a commodity has been underway now for several years. Underpinning this market has been the understanding that carbon emissions cause greenhouse warming and that forest preservation banks carbon as biomass.

In 2011, \$30 billion in carbon trading transactions occurred, much of it geared towards sequestering existing carbon through forest preservation. By 2020, the carbon sequestration market is estimated to grow to \$100 billion.<sup>1</sup> Carbon trading has expanded to include trading in emissions credits in addition to the payments for sequestration.

In November 2012, California was the first state in the US to engage in carbon trading to reduce greenhouse emissions.<sup>2</sup> The California Air Resources Board expects to raise \$660 million by 2015<sup>3</sup> by issuing carbon emission allowances, largely among power companies. Only the 30-nation European carbon market is larger than California's.

It is this voluntary trading of carbon as a commodity that is driving both the carbon emission and carbon sequestration markets. And politically, there is renewed interest in how a tax on carbon emissions could help with the current budget negotiations between the White House and Congress. Discussions earlier in November estimated that \$151 billion in taxes could be raised



**By 2020, the carbon sequestration market is estimated to grow to \$100 billion.**

by 2021<sup>4</sup> under such a scheme, but this idea now seems unlikely to move forward in current budget negotiations.

The success of the carbon market will depend not on politics and regulations alone, but more fundamentally, on market transparency. Independent third parties in a position to audit and attest the transparent and honest functioning of the carbon market are already monitoring international carbon trading. This role is currently being done by academic and non-governmental organizations that track deforestation and monitor the carbon emissions. As part of their standard accounting services, the Big Four accounting firms, PwC, Ernst & Young, Deloitte, and KPMG, have all created internal specialist groups to provide assurance services for this new market.

The carbon market is here, both for managing the emission of greenhouse gases and for carbon sequestration in biomass. A strong and functioning carbon trading system will ultimately rely on the free market forces that promote the trading of carbon as a commodity. The carbon market will trickle from an international market down to state and local governments across the United States.

*Are you ready to accurately assess the value of your local carbon? For more on this market and its opportunities, contact Team Consulting. ❖*

<sup>1</sup> R. Moore, Google initiatives for SFM/REDD+, GEF STAP SFM-REDD, Sept. 2, 2010.

<sup>2</sup> <http://www.newscientist.com/article/dn22516-full-steam-ahead-for-california-carbon-trading.html>

<sup>3</sup> <http://www.reuters.com/article/2012/11/08/us-california-carbon-idUSBRE8A700620121108>

<sup>4</sup> <http://www.bloomberg.com/news/2012-11-07/obama-may-levy-carbon-tax-to-cut-the-u-s-deficit-hsbc-says.html>



Keith Cunningham

*Keith recently provided a tax-mapping workshop to the People's Republic of China, which was sponsored by Peking University, the Lincoln*

*Institute, and the Sauder School of Business. He taught the latest technology used in three-dimensional cadastral mapping and CAMA modeling using 3D building measurements. China is preparing to implement a real-property tax system to support the property-ownership reforms underway in the country.*

# A Winning Combination

By Sidwell, Inc., a TEAM business partner

Located in Buena Vista County, the city of Storm Lake, Iowa, is spread across four square miles and currently has a population of 10,600. After many years of relying on other agencies to produce their maps, the city determined it needed GIS as a resource to enable efficient and effective responses to geospatial information requests from the various city departments.

To achieve their goals, the city of Storm Lake selected Sidwell, an industry leader of GIS solutions and Esri Gold Business Partner, to develop a comprehensive geospatial inventory of critical municipal infrastructure and robust information deployment solution. Sidwell also partnered with local surveying and engineering firm Kuehl & Payer, Ltd. to complete this project.

According to Justin Yarosevich, Storm Lake assistant city manager / city clerk, "The city believed that to achieve its desired results both in terms of functionality, as well as supporting local vendors, that a partnership between Sidwell and Kuehl & Payer was the best option."

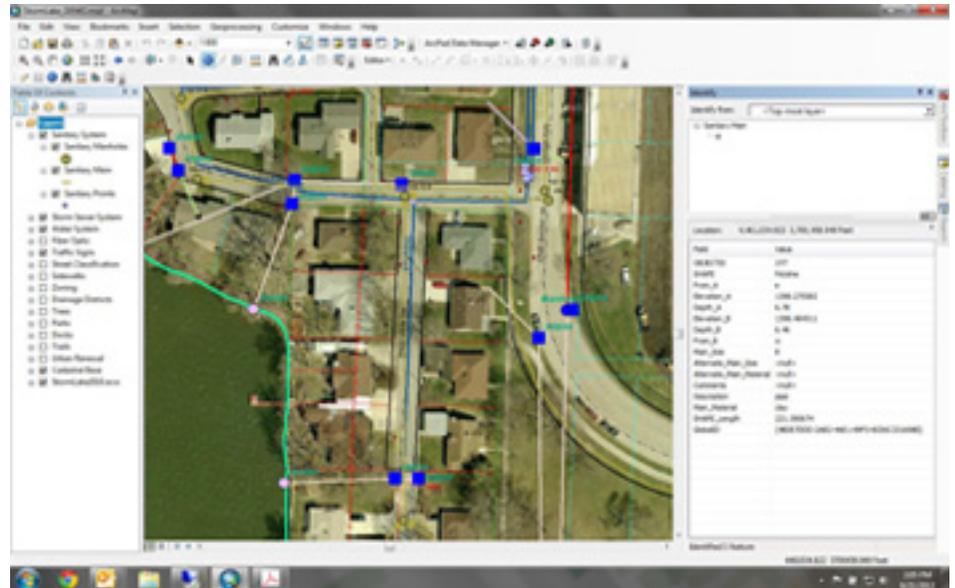
## Project Design

Sidwell was responsible for project management and the development of the city's ArcGIS geodatabase, which includes the following features:

### • Data Collection

Kuehl & Payer, a company with extensive experience in collecting survey-grade accurate data, was responsible for the GPS field collection of all new features as well as providing the necessary attribute data. Two separate levels of accuracy criteria, survey-grade and sub-foot, were established, which required the use of two distinct GPS/GNSS products for data collection.

Since Esri ArcPad data collection software was being deployed for



Storm Lake selected Sidwell to develop a comprehensive geospatial inventory of critical municipal infrastructure and robust information deployment solution.

the initial inventory process, Sidwell used the ArcPad Data Manager extension in ArcGIS Desktop to check-out the necessary features for collection purposes. After collection, Kuehl & Payer periodically uploaded data for Sidwell to check-in, process into the project geodatabase, and create intuitive mapping symbols for public consumption. Since all features collected in the field were points, Sidwell was also responsible for mapping linear features (sewer lines, storm sewer lines, etc.) based upon the collection locations and attributes of the collected points.

### • Training

Once all field data collection and compilation was complete, Sidwell provided comprehensive training to city staff on how to successfully view, analyze, and maintain the city GIS. Currently, field collection is being performed with Ashtech MobileMapper 100 and Esri ArcGIS for Windows Mobile software, which provides the field technicians an intuitive and easy-to-use tool for field collection and data editing.

### • Deployment

Based on the provided data, Sidwell developed and hosts a website for the city of Storm Lake that is built on Sidwell's Portico technology. The website is designed whereby a portion of information contained on the site is restricted to the public but accessible to city staff via password. Current documentation and asset management information from Springbrook and Laserfische is also integrated into the city of Storm Lake's Portico website. This site includes a high level of integration to make data from multiple systems easily accessible and allows each vendor to continue doing what they do best.

### • Client Satisfaction

According to Yarosevich, this project is significant in that "[t]he city sees the long-term benefits of this project enabling the city and its staff to become more efficient and provide a more timely response in everything from police calls for service to fire calls, water main breaks, and zoning requests to name a few. We

Winning combination, continued

also know that the robust and comprehensive system that we are building will be a resource for our community for generations to come."

With the flexibility of this solution, the city is also now well positioned to make further enhancements to their system with new and emerging GIS technology.

### MAPPS Geospatial Awards

In October, Sidwell was selected for the MAPPS Geospatial Excellence Award in the GIS/IT category for our work in Storm Lake, Iowa. MAPPS ([www.mapps.org](http://www.mapps.org)) is the only national association exclusively comprised of private firms in the remote sensing, spatial data and geographic information systems field in the United States. Regarding the award, Yarosevich said, "We are pleased with the partnership we have had with Sidwell, and look forward to continuing our partnership as we move forward with additional enhancements to our GIS." ❖



Ed Crapo

### Distinguished Lecture

By Ed Crapo, CFA, ASA, AAS

On September 27th, I was the Alfred A. Ring Distinguished Lecture Speaker at the Bergstrom Center for Real Estate Studies, Warrington College of Business Administration at the University of Florida. I gave a 90-minute presentation. The topic I chose was "Change," but the context of my remarks was about past, present and future changes and the importance of them within a context of reflections on property taxes, appraisal valuation, Florida history and the Florida property tax evolution from my cracked perspective. How's



## Way to go, Ken!

Congratulations to Ken on his election as the Associate Board Member on the IAAO Executive Board. Ken's term starts on January 1, 2013 and is for three years.



## TEAM Members Service to IAAO

Several members of TEAM are actively involved with IAAO. Those individuals and their roles are shown below:

- Ken Voss, MAI, SRA, CAE, Associate Member on IAAO Executive Committee
- Ed Crapo, CRA, ASA, AAS, Chair of Professional Development
- Fred Chmura, AAS, Chair of the ad hoc Infrastructure Review Committee and regular member of the Budget Committee
- Rick Stuart, CAE, Associate Member Committee and member of the ad hoc Infrastructure Review Committee

**TEAM Members who are also IAAO Senior Instructors:** Marion Johnson, CAE; Richard Norejko, CMS; Henry Riley, CAE; Rick Stuart, CAE; and Ken Voss, MAI, SRA, CAE. ❖



## We Are Everywhere

In the last three months of 2012, TEAM members taught or did contract work in the following states: Vermont, South Carolina, Indiana, Kansas, Iowa, Texas, Minnesota, Wyoming, Arizona and Oklahoma. ❖

## Ed Crapo: A Long and Distinguished Career

*Editor's Note:* These two events reported below completely fit together: A very distinguished career recognized by his peers and supported by the voters. Congratulations, Ed, on a career well done!

that for a mouth full?

I consider it one of the crowning achievements of my professional career. I think it went well and was well-received. At least, that was the feedback..

### Crapo Maintains Hold on Property Appraiser Post

By Joey Flechas and Alli Langlely, *The Gainesville Sun*, Tuesday, Nov. 6, 2012.

Alachua County [Fla.] voters easily re-elected Property Appraiser Ed Crapo on Tuesday to the post he's held for 32 years. Crapo won his ninth four-year term by collecting 97,032 votes, or 97.6 percent in unofficial results. Write-in candidate

Syed Mohammed I. Haider, a senior laboratory technician at the University of Florida, received 2,324 votes, or 2.3 percent.

"We're going to look at everything we do and the way we do it and constantly look for things to improve," Crapo said.

He has emphasized increasing the efficiency of his office if re-elected, saying that he would want to see through the last part of a two-year process to update the computer system, which he said will help staff analyze data faster. His plans include creating a Web-based exemption application and a simpler way for residents to send in questions and receive prompt answers. ❖



## No Room at the Inn!

By Bob Lehn, Pickett & Co., a TEAM business partner

Travelling here and there to visit industrial and other special purpose sites for clients is not for everyone. I enjoy it, usually, especially when arriving safely and even on time. As an engineer-appraiser, my plant sites and resort sites are usually pretty dominant in the local landscape. So, too, are the motels, airports, courthouses I find my way around and to and from. I've traveled internationally and domestically.

For the last 21 years with Pickett out of Dallas, the travel is domestic, often somewhere in Texas, but also in different parts of the U.S. Like some of my Pickett colleagues, I travel to the most convenient or cost-effective airport hub and then drive hundreds of miles, often on a week- to three-week basis.

Last winter, when I tried to visit the Bakken Area of North Dakota, no room at motels existed, although planes, trains and automobiles were plentiful. FEMA refugees, *God Bless Them*, were in remaining spaces everywhere, after rivers crested and then flooded. Things were already tight, with oilfield and construction personnel and Man--camps and all being constructed.

I was told in November of 2011 to March of 2012 or so, to wait until new motel spaces became available through construction and repairs. So, I went in April of 2012, as that was the new assessment lien date. This year when I called to make appointments, some at the plants and

# TEAM's AAS Case Study Review

## Congratulations to new AAS designees:

- **George Rooker, AAS**, Assessor for Davison County, Tenn.
- **Kim Smith, AAS**, Residential Supervisor, Virginia Beach, Va.

These new designees now bring the total to around 30 successful AAS candidates that have used the TEAM AAS Case Study Review. The workshop provides a review of materials and an understanding of the composition of a case study to help prepare for the AAS Case Study Exam. It emphasizes the most prevalent items to study for, although it cannot be all-inclusive of what may actually be on the exam. Topics include: USPAP, rates and levies, effective tax rates, economic principles, property definitions, ownership and rights, three approaches to value, attributes in an effective tax system, role of the assessor, ratio studies, and tax policy. Included are multiple problems associated with the assessment and valuation processes, and the workshop concludes with a four-hour case study exam followed by a review of the answers.

***This is not an IAAO workshop but one developed by TEAM Consulting, LLC.*** To set-up the workshop, contact Rick Stuart at [rstuart17@cox.net](mailto:rstuart17@cox.net)

all wondered why I was bothering them, again, so soon. As I am writing this article I am now (December 9–14) headed to Minot, ND, where the high next week, with luck, may rise to 32 degrees. This is for the 2013 lien date. A bunch of new facilities have been built to catch up with, and I have new clients to visit. No problems with finding a room at the inn this Christmas season. Hope your holidays were good. Talk to you from the road again soon. ❖

"I did use the review material and found it very helpful. If the material had been available earlier or if I had been aware that it existed, I would have completed the designation process much sooner. I completed the class work long ago but was reluctant to take the case study because I didn't know how to prepare. Having the review material gave me the confidence to take the case study and exam.

We have 14 or 15 people in our office that have completed most of the class work needed to get the AAS designation. We hope to offer them an opportunity to take a review class and the case study sometime next year. We plan to use the review materials that you provide. Once we get the class scheduled we will be placing an order for the materials."

—George Rooker, AAS Assessor, Nashville, Tenn.

or call 785.259.1379 . Or order the complete workshop as a self-study guide by going to: [http://www.teamconsulting.cc/images/AAS\\_Order\\_Form\\_2010.pdf](http://www.teamconsulting.cc/images/AAS_Order_Form_2010.pdf) ❖



# Mission As A Service

By Marion Johnson, CAE

As the old saying goes “the more things change the more they stay the same”. That statement was never truer than when talking about the country of Haiti. I recently returned from a mission trip to Haiti. It was my fifth trip to the country. My last visit was only six months ago. When we landed in Port-au-Prince I was prepared to board the bus and head to an old metal building to proceed through immigration. Several hundred people crowded into a 40-by-60 non-air-conditioned structure which also served as the baggage claim area. The only real way to describe the process would be mass chaos. But, to my surprise, I walked off the plane into a large, brand new, air-conditioned terminal. The facility was clean, fresh and very welcoming for visitors to this beautiful country.

The immigration process was quick and uneventful. No long lines. No more piles of bags lying on the floor to sift through. Instead it looked like any other international airport that you would find in this country. I thought to myself, maybe things have started to improve in Haiti since the earthquake that occurred three years ago in January. However, as we departed the terminal, it didn't take long to realize that in most ways this was still the Haiti I had experienced six months ago and on my previous trips.

The first thing that hits you is the smell. Burning charcoal, decomposing trash piles, livestock running free and the lack of sanitation facilities all produce an atmosphere that is unforgettable and no doubt very unhealthy.

The sights along the streets were still the same: A large number of buildings still in disrepair, large numbers of Haitians milling around, and street vendors trying to sell

their wares. Streets that are in desperate need of repair.

Getting from one location to another is not easy in this country. Just traveling 10 miles can take up to an hour most of the time. Most of the streets that are paved were built 20 or 30 years ago and have not been maintained since. Many streets were damaged during the earthquake.

As we traveled through the countryside to our guest house for the night, it was still amazing to see how many people were living in tents and other temporary structures. It brought back memories of my first trip to Haiti, which was only two months after the earthquake. At that time we were told that over a million people were living in tents across the country. It is impossible to describe the living conditions inside these tents. Our driver told us that still today over 400,000 Haitians still live in these tent villages. As noted earlier, “some things stay the same.”

One of the reasons that change does not occur was driven home to me when I was told during my visit that only \$1.06 of every \$100 donated for Haiti relief makes it to the island. At that rate change will be slow.

Our final destination was an island off the shore of Haiti. There is an orphanage there that our church has adopted. Getting to the island can only be accomplished by boat or by plane. The planes are small six-passengers and have a limit on luggage weight. Since we take supplies and clothes to the orphanage, we always have too much luggage



One of the reasons that change does not occur was driven home to me when I was told during my visit that only \$1.06 of every \$100 donated for Haiti relief makes it to the island.

weight for the airplane, which means our only way to the island is by boat.

The boat gives you two options: a small speed boat or a ferry. We chose the ferry. Neither one was a good choice on this day. The distance from the mainland and the island is about 20 miles and it takes about two hours in the ferry to make the crossing. Half way through the trip, the wind picked up and the waves began crashing into the side of the ferry. There were probably a 120 people crowded onto the boat that really had a capacity for about half that many. Water began to come in through the windows and the front doors of the ferry cabin. The crew began handing out life jackets, and our fellow Haitian passengers began singing songs to God. Needless to say, we began to wonder if we were going to make it across. We did, but it is an experience I hope I don't have again.

To me the most amazing thing about the trip on the ferry was a young mother and her two children. The girl was probably four and the boy was around one year old. Sitting on the floor, she held them both next to her and they all slept through the ordeal. Whenever, I started to wonder if we were going to make it across, I looked at her

*continued on page 6*

Mission, continued from page 5

and how peaceful they looked and it gave me peace inside. I just knew at that time that God was going to keep us all safe.

Once on the island our trip centered on our visits to the orphanage. We had brought a Christmas present for each child, and the joy of watching them open their package was something I will never forget. For most, if not all, it was the first time they had ever opened a package wrapped in Christmas paper. Our translator told us they didn't want to open them because they didn't want to tear the pretty wrapping paper. We had to help them open the packages, and the joy and smiles on their faces when they saw what was inside was another unforgettable moment.

It really brought home for me what the true meaning of Christmas was all about. It is amazing that a few small items for people who have so little and struggle each day just to survive can begin to build a relationship between two cultures. On every visit to the orphanage, I left with more than I could ever give them. Their hugs and smiles I will remember every day.

We have so much in this country to be thankful for, and we often-times fail to realize it because we are too busy trying to acquire more stuff when instead we should be appreciating all the things God has already given us, such as our family and our friends.

I started by saying "the more things change the more they stay the same." I talked about some of the changes and other things that have not changed in this country. The one thing that I am so thankful for that hasn't changed in Haiti is the spirit of the people. They are a beautiful people, who, despite their living conditions and all the things the country has gone through over the years, still always have a smile that touches your heart every time you see it. ❖



## Several Workshops Updated

*Valuation of Lodging Properties*, which was updated in 2011, has been updated again as of the first of 2013. Some current articles and very pertinent additional data was found and incorporated into the update.

The purpose of this workshop is to provide guidance and suggestions on the valuation process of lodging properties including hotel/motel properties. The workshop will look at the different classifications of hotel/motel properties, lodging terminology and how all three approaches to value can be used to value these types of properties. The workshop will also provide some internet web sites where additional information on the hotel/motel industry can be discovered. Also included is some information on what authorities in the field say lies ahead for the industry in the upcoming year or two.

The *Valuation of Self-Storage Properties* workshop was written in 2011 but has already been updated for 2013 with current information.

The purpose of this workshop is to provide guidance and suggestions on the valuation process of self-storage properties. The workshop will look at the different classifications of self-storage and how all three approaches to value can be used to value these types of properties. Month-to-month leasing, the impact of new supply, reliance on external demand generators and management intensity all make analysis and valuation of these properties difficult. Also included is some information on what authorities in

the field say lies ahead for the industry

Also updated is the one- or preferably two-day workshop titled *Collection, Interpretation and Model Building of Income and Expense Data*. The purpose of this session is to assist appraisers in the reconstruction and interpretation of income and expense statements.

This workshop concentrates on the following areas:

- USPAP Review
- Income approach definition and formulas
- Forms and methods for data gathering and additional sources
- Templates for storing and using data
- Review of reconstructing income and expense statements
- Extraction and development of the capitalization rate
- Data analysis, interpretation and model building
- Testing the income models

This workshop and many others are available as a self-study program. To see all of the other available workshops, please visit our website at <http://www.teamconsulting.cc/workshops/workshopoverview.html>.

Other workshops with scheduled updates are *Valuation of Self-Storage Units, Valuation of Residential Land, Valuation of Big Box* and *Valuation of Unique Properties*. Watch the newsletter and our website for these updates. ❖

# Functional Obsolescence: A General Overview

ABA/IPT Advanced Property Tax Seminar, March 22, 2012, New Orleans, Louisiana

By Ken Voss, MAI, SRA, CAE

## Introduction:

Definition: An element of depreciation resulting from accrued depreciation resulting from deficiencies or superadequacies in the structure.<sup>1</sup>

Functional obsolescence should be considered, although may not be, in each of the three generally accepted approaches to value: **Income Capitalization Approach, Sales Comparison Approach, and the Cost Approach.**

In the **Income Capitalization Approach**, functional obsolescence is taken into account when developing the rental rate. Any functional obsolescence present is measured

by determining the potential rent loss resulting from the deficiency. At times, sufficient comparable market data must be available to develop reliable rental rates and corresponding capitalization rates. This is particularly true when the appraised property is a type that is owner occupied and not considered an investment property.

In the **Sales Comparison Approach**, functional obsolescence is taken into account when comparing sales of similar properties to the subject. Ideally, the comparable sales have the same or similar forms of obsolescence, which precludes the need to make significant adjust-

ments. However, more frequently, adjustments are necessary. These adjustments can be quantified by developing specific functional obsolescence penalties, which are then used in the derivation of an adjustment to be applied to the comparable sales. More often than not, appraisers use judgment to derive an adjustment.

The preferred method of determining market value is through proper application of the sales comparison approach. Use of this approach can result in a reliable indication of value if sufficient comparable sales are available. Sometimes, they are no sales or lack of sales.

Most frequently, functional obsolescence is associated with the cost approach. In the **Cost Approach**, functional obsolescence is accounted for as an element of total depreciation. Total depreciation is a loss in value from all causes and presents the difference between cost new of an improvement and its market value. Total depreciation has three elements: physical deterioration, functional obsolescence, and external obsolescence.

Functional obsolescence may be caused by a deficiency or superadequacy in the property. Each of these types of depreciation can be present either individually or in a combination with each other.

When the appraiser is analyzing the cost approach, whether for an appraisal or mass appraisal assessment purpose, the appraiser will estimate the replacement/reproduction cost and then determine if deferred maintenance is present. Next, deduct a percent or dollar amount for physical incurable short-lived and long-lived items.

The next step requires a decision by the appraiser:

## TEAM Class Offerings

Several classes using TEAM workshop materials are on tap for 2013. Those that are open to enrollment to date are shown below with the contact information. If you do not see an offering you would like or have questions, contact Rick Stuart, CAE at [rstuart17@cox.net](mailto:rstuart17@cox.net).

February 12 - 13 Dupont, WA  
Leslie Mullen [lesliemu@dor.wa.gov](mailto:lesliemu@dor.wa.gov)  
Classes: • Residential Quality, Condition and Effective Age using Marshall Swift

March 18 - 21 Bloomington, IL  
Erica Larkin [planner@ipaionline.com](mailto:planner@ipaionline.com)  
Classes: • Valuation of Green Buildings  
• Valuation of Unique Properties  
• Valuation of Fast Food Restaurants  
• Valuation of Manufactured Homes

April 23 - 25 Arkansas Chapter of IAAO  
Farrah Matthews [appraiserwr@yahoo.com](mailto:appraiserwr@yahoo.com)  
Classes: • Valuation of Lodging Properties  
• The Art of Making a Powerful Presentation  
• Appraising after a Disaster or in Traumatic Events

You can check out all the TEAM workshops at <http://www.teamconsulting.cc/> and then select Workshops. Not finding what you want? Can contact us about develop a workshop to meet your needs.

• Does the property suffer from functional obsolescence? Yes or No? If no, the appraiser finishes the cost approach. If yes, the appraiser must then consider the type

• Is the functional obsolescence a deficiency or a superadequacy?

• Is the functional obsolescence curable or incurable?

• Then, how will the appraiser handle the problem?

A deficiency is an inadequacy in the structure or one of its components.<sup>2</sup> Superadequacy is the opposite, an excess in the capacity or quality a structure or structural components and determined by market standards.<sup>3</sup>

There are five types of Functional Obsolescence:

1. Curable functional obsolescence caused by a deficiency requiring an addition (installation) of a new item
2. Curable functional obsolescence caused by a deficiency requiring the substitution (replacement) of an existing item
3. Curable functional obsolescence caused by a component of real property that is not necessary and therefore adds no value to the current or anticipated use (i.e., a superadequacy that is economically feasible to cure)
4. Incurable functional obsolescence caused by a deficiency
5. Incurable functional obsolescence caused by superadequacy

Once the appraiser identifies the deficiency or superadequacy, a percentage or dollar amount must be calculate based on facts and

is defensible.

Many times analysis is complicated only because the appraiser provides a minimal narrative with a lump sum dollar or percent adjustment. If so, the appraiser is probably bending the rules slightly. The cost approach has not changed since we took our first basic appraisal class. Looking back at our first appraisal class, the instructor begins with an in-depth review of the cost approach. Briefly, the instructor states, the cost approach begins with—

- Estimate the cost new of the structure (replacement or reproduction cost)
- Estimate physical curable deterioration (deferred maintenance)
- Estimate physical incurable, Short-Lived Items
- Estimate physical incurable, long-lived items

Then immediately thereafter, the instructor begins a discussion on functional obsolescence and our brain becomes dark and closes down. How could the cost approach be so complicated?

The instructor is only stating what we have already said—

- Identify the functional problem
- Identify the component(s) in the facility (superadequacy) or lack of (deficiency) components associated with the problem
- Identify possible corrective measures (cost to cure)
- Select the appropriate measure
- Quantify the loss caused by functional problem, which results in added value if the problem is corrected
- Determine if the item is curable or incurable (if the value added is equal to or greater than the

cost to cure, the functional problem is curable).

- Apply the functional obsolescence formula (below).<sup>4</sup>

**Note:** What we (appraiser, taxpayer) consider functional obsolescence may not be functional obsolescence based on market standards as of the effective date of the appraisal.

Using the format in E. Nelson Bowes' text "In Defense of the Cost Approach,"<sup>5</sup> and The Appraisal of Real Estate, functional obsolescence is not as difficult as it seems to be.

Line 1: Cost of the Existing Item	Plus
Line 2: Less Depreciation Already Charged	Minus
Line 3: (A) Cost to Cure, or (B) Value Added	Plus
Line 4: Value of the Item	<u>Minus</u>
Line 5: Functional Obsolescence	\$

Line 1, 2, and 3 are costs. Line 4 is value. Functional obsolescence is Line 5, cost minus value.

Many appraisers gloss over functional obsolescence with minimal data and support. The Uniform Standards of Professional Appraisal Practice (USPAP) and ethical requirements from various appraisal organizations have guidelines to follow, but too often appraisers bend the rules slightly. Many appraisers, depending on their skill level or experience, will select a multiple of five. By this, I mean, when reviewing an appraisal report, the deduction for functional obsolescence is usually 5%, 10%, 15%, etc. This is similar to the generally accepted 5% vacancy/credit loss and 10% capitalization rate.

The **Cost Approach** is easy when using Marshall Valuation Services. Enter the necessary data, hit report, and you have a value. The cost approach becomes complicated when functional obsolescence is present and we must analyze the market to

support our conclusions. Remember, is functional obsolescence curable or incurable; is there a deficiency or a superadequacy and then how do you solve the problem?

Looks easy! Appraisers should not have problems with functional obsolescence since:

1. Functional obsolescence is discussed in almost every appraisal
2. The cost approach considers reproduction or replacement costs of the property appraised
3. Generally, functional obsolescence is implicit in the cost approach
4. Functional obsolescence is an element of depreciation
5. Functional obsolescence stems from a superadequacy or a deficiency in the property
6. Functional obsolescence is either a physical element that buyers are unwilling to pay for or a deficiency that impairs the utility of a property when compared with a more modern replacement
7. The underlying foundation for functional obsolescence is in the market. The appraiser must not only understand the market, but how the market operates for the type of property appraised

Part of the appraisal process is that the appraiser must understand the dynamics of the real estate market. The appraiser lists the property attributes and considers how the market perceives these attributes. The attributes of a property are those that identify its physical capabilities. Using an industrial property as an example, the following attributes are considered significant in the valuation process:

- Building configuration
- Number of floors
- Clear ceiling heights
- Bay spacing
- Loading facilities
- Construction
- Accessibility

Further, let us combine some of the issues noted above and put them into real situations.

- A building used as a warehouse has restricted clearances due to low ceilings heights, piping obstructions, and structural columns. An increase in labor costs necessitated the use of forklift trucks and high-stackers to move and store goods. The occupant cannot make maximum use of floor space.
- A building complex is composed of several attached and detached sections impede the orderly flow of production. The problem adds to the cost of material handling and may necessitate additional personnel or transportation systems.
- A machine or production line is installed that has a capacity in excess of the demand of the operation being conducted or envisioned in the future.

An estimate of functional obsolescence requires more than a casual observation of performance or a brief walk through a building.

### **Costs of Functional Obsolescence**

Cost of reproduction is the estimated amount required to reproduce a duplicate or a replica of the entire property with the same materials.

- Cost or replacement is the estimated amount required to replace the entire property with a modern new unit using the most current technology.

Estimating replacement cost is generally preferred because the typical purchaser would substitute a property of similar utility than reproduce an exact duplicate.

The depreciation must be consistent with the cost estimate. Deducting for an item of depreciation or obsolescence that is not built into the improvements through the cost estimate is inappropriate.

Care must be exercised that actual cost data does not include some items of functional obsolescence. Contemporary cost services, i.e. Marshall Valuation Services, are designed to estimate the cost by square foot, component breakdown, unit in place, segregated cost of cubic footage. The data is usually average costs for functional facilities. Therefore, the cost derived by the square foot or component breakdown method, generally reflect replacement costs. Segregated and unit in place will generally reflect reproduction cost new.

### **Some other areas we may discuss are:**

- Superadequate/Excess Construction, a form of functional obsolescence using past construction practices, such as brick-on-concrete, which would be replaced today with steel frame construction.
- Excess construction that represents a building area that is not currently or likely to be used in the future.
- Excess operating costs, a property's design that result in operating inefficiencies that create higher expenses. Excess operating costs are calculated by discounting the annual excess operating costs, over the remaining life of the improvement.

*continued on next page*

- A major question, is functional obsolescence curable or incurable?
- Identifying functional obsolescence; as competent appraisers we have a feel for functional obsolescence. Our problem is quantifying the amount. Certain characteristics of an improvement provide attributes of functional obsolescence, such as the gross building area, overall age, construction dates of additions, construction materials, etc.
- How do you measure functional obsolescence? Develop a cost new and quantify each element of depreciation. Care must be given in the sequence of deductions. ❖

<sup>1</sup> The Dictionary of Real Estate Appraisal, 4th Edition, 2002, page 122

<sup>2</sup> *Ibid*, 77

<sup>3</sup> *Ibid*, 282

<sup>4</sup> *Ibid*, 436

<sup>5</sup> In Defense of the Cost Approach, 2011, page 65 and The Appraisal of Real Estate, 13th Edition, 2008, page 437

## Meet Our TEAM

Learn more about our highly qualified consultants on our website: <http://www.teamconsulting.cc/teamconsultants.html>.

- Brent Bailey, ASA
- Kishin Bharwani
- Fred Chmura, AAS
- Ed Crapo, CFA, ASA, AAS
- Keith Cunningham, PhD
- Pete Davis
- George Donatello, CMS
- Lynn Gering
- Marion Johnson, CAE
- Dan Muthard
- Richard Norejko, CMS
- Henry Riley, CAE
- Pam Ringer
- Ron Schultz, CFA
- Rick Stuart, CAE
- Ken Voss, MAI, SRA, CAE



## What is TEAM Consulting All About?

**TEAM Consulting** is a network of experienced “problem solvers” who can offer cost-effective and practical solutions to both large and small assessment jurisdictions. The core of **TEAM Consulting** is our vision, mission and values. These items are the key elements that guide **TEAM** in creating innovative solutions and partnerships that have the potential to change assessment administration and property valuation today and in the future.

### Our Vision

TEAM’s vision is two-fold. First, our vision for the future of assessment administration and property valuation is to help build systems that are technologically efficient, cost-effective and valuable to the publics who depend on them for information. Secondly, our vision for **TEAM** is to become a recognized leader who can make a difference in assessment administration and property valuation by creating a link to all parties involved in this process. Third, **TEAM** is a strong advocate of education and will create or assist in the creation of specialty designed educational workshops and courses.

### Our Mission

“To enable the emergence of a new technology and innovative concepts and ideas to improve the performance of assessment administration and property valuation processes for the benefit of our customers and taxpayers who we all work for.”

### Our Values

TEAM’s values are central to who we are as individuals and as a team. Following are our primary values:

**Respect** – appreciating and valuing diverse perspectives; building relationships based on trust; and relating to others as individuals, without regard to role, authority, skill, experience or compensation.

**Creativity** – comes from thinking progressively and being open to the new concepts and ideas that have the potential to work better in the future and bring us closer to our mission.

**Performance** – takes many forms, but at its essence, this value reflects our desire for achievement, quality, professionalism and success.

**Growth** – comes out of education, learning from the examples of others and reflecting on our experiences in order to gain insights into how we can improve.

**Purpose** – knowing why we are doing something, which results in being more effective in our work. When we have purpose for our individual efforts that connects to the purpose of our group and corporate efforts, we have consistency of purpose as an organization.

**Service** – focusing on others rather than purely on us. Service drives our mission to create something that is of value to others.

**Ethics** – we subscribe to a code of ethics and the highest standards of our profession.

[www.teamconsulting.cc](http://www.teamconsulting.cc)