Measuring Obsolescence

A study of aging, downtown properties

Making Sense of Downtown

- Historic downtown areas can be quite a challenge to appraise
- How do you make sense of it all?
  - Field Review
  - Sales Analysis
  - Income Analysis
  - Obsolescence Factor

Depreciation Generally

- Depreciation is the loss in value to an improvement
  - From all causes
  - Applies to a property having a limited economic life
  - Relative to its replacement cost new

Depreciation Generally

- Depreciation may also be described as a loss in value from any cause, except depletion.
  - Depletion is the loss of value due to consumption.
    - Applies only to land
    - Examples: oil, gas, minerals, coal, precious metals, timber, etc.

Depreciation and Value Loss

- As improvements age
  - They may suffer physical deterioration, functional and external (economic) obsolescence
  - They lose value relative to newer structures as potential buyers perceive that older improvements have diminished utility.
    - Principle of substitution

Depreciation and Demand

- Depreciation is driven by consumer demand
- As demand for older properties decreases
  - Sale prices for properties with older improvements fall below those of properties with new improvements
  - Depreciation is the result

Depreciation Measured

- **The true measure of depreciation is <u>the effect on marketability and sales prices.</u>**

Three Types of Depreciation

- Physical Deterioration
- External (Economic) Obsolescence
- Functional Obsolescence

Physical Deterioration

- The loss in value due to wear and tear and the forces of nature
  - All man made objects begin to deteriorate as soon as they are created
  - Decay may result from normal chemical changes in the material's composition or from mechanical causes
- May be curable or incurable

Physical Deterioration

- Common causes of physical deterioration are:
  - Wear and tear through use
  - Breakage
  - Negligent use
  - Termite infestation
  - Dry rot
  - Moisture
  - The elements

Physical Deterioration

Physical Deterioration

Physical Deterioration

External (Economic) Obsolescence

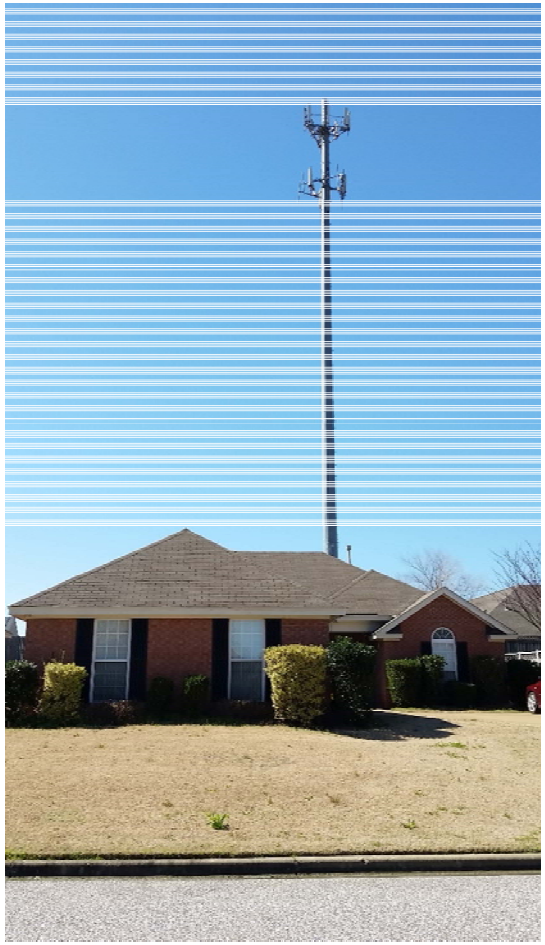
- The loss in value from diminished utility and desirability caused by **factors external to the property's boundaries**.
- Generally deemed incurable
- Often caused by:
  - Non-complementary land use
  - Traffic volume
  - Inadequacy of essential services

External (Economic) Obsolescence

- May be caused by a change in highest and best use due to market shifts or governmental actions
  - Economic conditions (nationally & locally)
  - Closure of heavy industry nearby
  - Neighborhood decline
    - Median household income
    - Crime rates
  - Highway relocation
  - Zoning

Economic Obsolescence

Economic Obsolescence



Economic Obsolescence

Functional Obsolescence

- The loss in value due to the **inability of the structure to adequately perform** the function for which it is currently used – loss of utility.
- May be curable or incurable

Functional Obsolescence

- Loss of value results from changes in:
  - Design
    - Style
    - Taste
  - Demands (needs)
  - Technology

Forms of Functional Obsolescence

- Three forms of functional obsolescence:
  - Deficiency
  - Need for modernization
  - Superadequacy

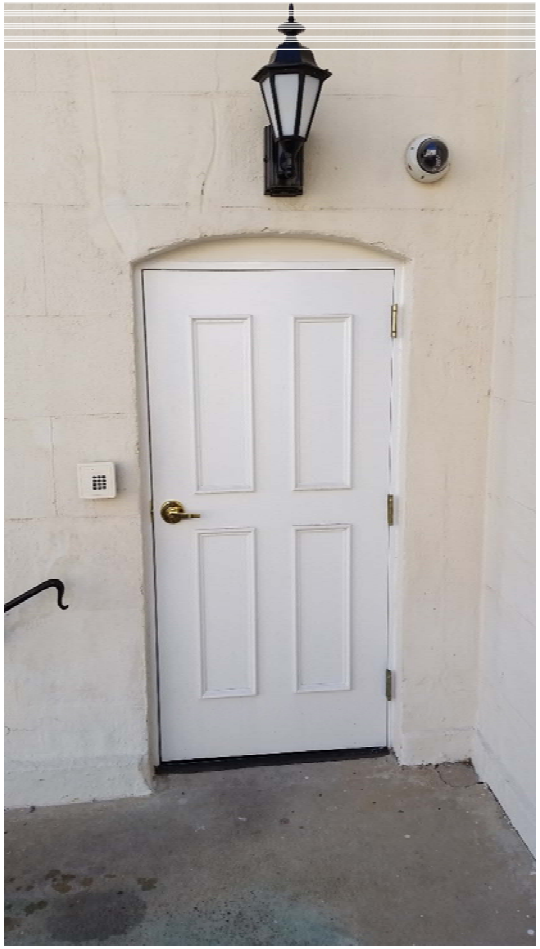
Forms of Functional Obsolescence

- Deficiency
  - Insufficient number of bathrooms
  - Low ceiling height (factories & warehouses)
  - Insufficient electrical capacity or number of outlets
  - No central heat & air
  - No fire suppression system
  - No elevator in a multi-story commercial building

Functional – Deficiency (Cured)

Functional - Deficiency

Functional - Deficiency



Functional - Deficiency

Forms of Functional Obsolescence

- Need for modernization
  - Outdated electrical components
    - Old aluminum wiring
    - Fuse box
  - Narrow column spacing in a warehouse
  - Lead pipes
  - Brightly colored bathroom fixtures (1930's – 1970's)
  - "Shotgun" style houses

Functional - Modernization

Functional - Modernization

Functional – Modernization

Functional – Modernization

Functional - Modernization

Forms of Functional Obsolescence

- Superadequacy - A component of the property that exceeds market expectations, and where cost does not equal value.
  - Examples:
    - Sauna in an office building
    - Excessive building height
    - Twenty dock doors on a 10,000 square foot warehouse
    - Four car garage
    - Large custom-built home in a modest neighborhood

Functional - Superadequacy

Functional - Superadequacy

Functional - Superadequacy

Functional - Superadequacy

Practical Application

The Process

- Planning
- Field Review
- Sales Analysis
- Income Analysis
- Apply Obsolescence Factor

Planning

- Identify the core historic downtown areas
- Divide the area into small sections for thorough review
- Prepare spreadsheets to capture and stratify field data.

Field Review

- Exterior review
  - Corrections to sketches
  - Corrections to construction units
  - Height adjustments
    - Beware of the facade
    - Use technology
      - GIS (aerials & oblique aerials)
      - Laser measuring devices

Field Review

- Interior inspections
  - Record materials by floor
    - **Reconcile units & assign based on total building area**
  - Update extra features
    - Plumbing Features
    - Heating & Cooling
    - Fire Suppression Systems
  - Correct use codes
  - Class properties consistently

Composite of Upper & Lower

Base Area

Upper Area

Int. Finish:	**¼ Drywall, ¼ Acoustic, ¼ Plywood, ¼ Unfinished**
Floors:	**½ Hardwood, ½ Double Pine**
Heat & Cooling:	**3,000 Sq. Ft. FHA / AC, 3,000 Sq. Ft. Suspended Heat**

Field Review

- Estimate physical condition
  - Reasonable estimate of **physical percent good**
    - Unfinished areas will be accounted for through construction units
  - Total physical condition
    - Composite of interior & exterior
    - Composite of all floors
  - Equity is key

Sales Analysis

- The true measure of depreciation is the effect on marketability and sales prices
- Sales can accurately measure depreciation levels
  - Keys to the analysis
    - Accurate land values
    - Correct property inventory
    - Sufficient sales data

Sales Analysis Case Study

- Required Data
  - Sale information
  - Land value
  - Building area (base, upper, total living)
  - Replacement cost new
  - Condition

Sales Analysis Case Study

- Initial Data Sort

Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	Obs Cond
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	45%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	40%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	50%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	40%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	55%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	50%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	60%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	50%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	35%
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	60%
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	45%
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	50%
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	60%
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	50%

Sales Analysis Case Study

- Calculate: % UFA to Total Area (UFA / Total Living)

Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	% UFA to Total Area	Obs Cond
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	0%	45%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	0%	40%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	0%	50%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	0%	40%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	0%	55%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	0%	50%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	0%	60%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	0%	50%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	0%	35%
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	35%	60%
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	38%	45%
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	47%	50%
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	50%	60%
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	67%	50%

Sales Analysis Case Study

- Calculate: Indicated Imp. Value (SP – LV)

Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Obs Cond
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	0%	$82,400	45%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	0%	$119,800	40%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	0%	$107,200	50%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	0%	$59,300	40%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	0%	$82,500	55%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	0%	$198,400	50%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	0%	$75,400	60%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	0%	$65,500	50%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	0%	$161,000	35%
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	35%	$494,070	60%
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	38%	$197,500	45%
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	47%	$197,150	50%
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	50%	$166,400	60%
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	67%	$120,900	50%

Sales Analysis Case Study

- Calculate: Ind. Pct. Good (Ind. Imp Value / RCN)

Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Ind Pct Good	Obs Cond
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	0%	$82,400	28%	45%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	0%	$119,800	34%	40%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	0%	$107,200	41%	50%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	0%	$59,300	41%	40%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	0%	$82,500	55%	55%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	0%	$198,400	56%	50%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	0%	$75,400	57%	60%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	0%	$65,500	60%	50%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	0%	$161,000	78%	35%
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	35%	$494,070	71%	60%
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	38%	$197,500	23%	45%
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	47%	$197,150	29%	50%
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	50%	$166,400	18%	60%
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	67%	$120,900	21%	50%

Sales Analysis Case Study

- Analyze: Indicated percent good by story height

Parcel Number	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Ind Pct Good	Obs Cond
15-02-04-4-000-181.001	5,779	0	5,779	0%	$82,400	28%	45%
15-02-04-4-000-071.000	8,239	0	8,239	0%	$119,800	34%	40%
15-02-04-4-000-170.000	5,693	0	5,693	0%	$107,200	41%	50%
15-02-04-4-000-165.000	2,946	0	2,946	0%	$59,300	41%	40%
15-02-04-4-000-072.000	2,619	0	2,619	0%	$82,500	55%	55%
15-02-04-3-000-055.001	7,459	0	7,459	0%	$198,400	56%	50%
15-02-04-4-000-181.000	2,461	0	2,461	0%	$75,400	57%	60%
15-02-04-4-000-164.000	2,407	0	2,407	0%	$65,500	60%	50%
15-02-04-4-000-179.000	4,240	0	4,240	0%	$161,000	78%	35%
15-02-04-4-000-124.000	12,224	6,500	18,724	35%	$494,070	71%	60%
15-02-04-4-000-135.000	12,400	7,600	20,000	38%	$197,500	23%	45%
15-02-04-4-000-174.000	6,218	5,596	11,814	47%	$197,150	29%	50%
15-02-04-4-000-130.000	10,126	10,250	20,376	50%	$166,400	18%	60%
15-02-04-4-000-127.000	6,250	12,500	18,750	67%	$120,900	21%	50%

Range of Observed Percent Good

All Samples

Median One Story	50%	50%
Average One Story	47%	
Median with Upper	50%	50%
Average with Upper	53%	
Difference bt One story & w/ Upper		0%

Range of Indicated Percent Good from the Market

All Samples

Median One Story	55%	55%
Average One Story	50%	
Median with Upper	23%	23%
Average with Upper	32%	
Difference bt One story & w/ Upper		32%

Sales Analysis Case Study

- Calculate: Indicated obsolescence for each sample

Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Ind Pct Good	Obs Cond	Obsolescence (Ind Pct Good - Obs Cond)
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	0%	$82,400	28%	45%	-17%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	0%	$119,800	34%	40%	-6%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	0%	$107,200	41%	50%	-9%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	0%	$59,300	41%	40%	1%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	0%	$82,500	55%	55%	0%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	0%	$198,400	56%	50%	6%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	0%	$75,400	57%	60%	-3%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	0%	$65,500	60%	50%	10%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	0%	$161,000	78%	35%	43%
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	35%	$494,070	71%	60%	11%
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	38%	$197,500	23%	45%	-22%
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	47%	$197,150	29%	50%	-21%
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	50%	$166,400	18%	60%	-42%
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	67%	$120,900	21%	50%	-29%

Sales Analysis Case Study

- Analyze: Indicated obsolescence by UFA

Parcel Number	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Ind Pct Good	Obs Cond	Obsolescence (Ind Pct Good - Obs Cond)
15-02-04-4-000-181.001	5,779	0	5,779	0%	$82,400	28%	45%	-17%
15-02-04-4-000-071.000	8,239	0	8,239	0%	$119,800	34%	40%	-6%
15-02-04-4-000-170.000	5,693	0	5,693	0%	$107,200	41%	50%	-9%
15-02-04-4-000-165.000	2,946	0	2,946	0%	$59,300	41%	40%	1%
15-02-04-4-000-072.000	2,619	0	2,619	0%	$82,500	55%	55%	0%
15-02-04-3-000-055.001	7,459	0	7,459	0%	$198,400	56%	50%	6%
15-02-04-4-000-181.000	2,461	0	2,461	0%	$75,400	57%	60%	-3%
15-02-04-4-000-164.000	2,407	0	2,407	0%	$65,500	60%	50%	10%
15-02-04-4-000-179.000	4,240	0	4,240	0%	$161,000	78%	35%	43%
15-02-04-4-000-124.000	12,224	6,500	18,724	35%	$494,070	71%	60%	11%
15-02-04-4-000-135.000	12,400	7,600	20,000	38%	$197,500	23%	45%	-22%
15-02-04-4-000-174.000	6,218	5,596	11,814	47%	$197,150	29%	50%	-21%
15-02-04-4-000-130.000	10,126	10,250	20,376	50%	$166,400	18%	60%	-42%
15-02-04-4-000-127.000	6,250	12,500	18,750	67%	$120,900	21%	50%	-29%

Indicated Obsolescence: Difference b/t Market Indicated Percent Good and Observed Condition

All Samples

Median One Story	0%	0%
Average One Story	3%	
Median with Upper	-22%	-22%
Average with Upper	-21%	
Difference bt One story & w/ Upper		22%

Sales Analysis Case Study

- Reconcile the data & Determine Obsolescence Factor:

Measured Obsolescence by Upper Floor Area

All Samples

Median One Story	0%	0%
Average One Story	3%	
Median with Upper	-22%	-22%
Average with Upper	-21%	
Difference bt One story & w/ Upper		22%

Range of Indicated Percent Good from the Market

All Samples

Median One Story	55%	55%
Average One Story	50%	
Median with Upper	23%	23%
Average with Upper	32%	
Difference bt One story & w/ Upper		32%

Selected Functional Obsolescence Factor: 22%

Sales Analysis Case Study

- Sales Ratio Before Obsolescence Factor Applied:

Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Ind Pct Good	Obs Cond	Total Percent Good	Imp Value	Total Value	Ratio
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	0%	$82,400	**28%**	**45%**	**45%**	$131,400	$173,000	139.52%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	0%	$119,800	**34%**	**40%**	**40%**	$142,600	$187,800	113.82%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	0%	$107,200	**41%**	**50%**	**50%**	$131,200	$154,000	118.46%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	0%	$59,300	**41%**	**40%**	**40%**	$57,920	$73,620	98.16%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	0%	$82,500	**55%**	**55%**	**55%**	$82,940	$97,440	100.45%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	0%	$198,400	**56%**	**50%**	**50%**	$178,200	$235,400	92.10%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	0%	$75,400	**57%**	**60%**	**60%**	$78,720	$88,320	103.91%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	0%	$65,500	**60%**	**50%**	**50%**	$54,950	$69,450	86.81%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	0%	$161,000	**78%**	**35%**	**35%**	$72,170	$95,770	**51.88%**
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	35%	$494,070	**71%**	**60%**	**60%**	$416,340	$474,440	85.92%
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	38%	$197,500	**23%**	**45%**	**45%**	$392,175	$444,675	**177.87%**
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	47%	$197,150	**29%**	**50%**	**50%**	$343,400	$372,500	**164.64%**
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	50%	$166,400	**18%**	**60%**	**60%**	$568,680	$621,880	**283.19%**
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	67%	$120,900	**21%**	**50%**	**50%**	$294,550	$323,650	**215.77%**
																Median	**108.86%**
											Functional Obs Factor	**0%**				**COD**	**38.98%**

Sales Analysis Case Study

- Sales Ratio After Obsolescence Factor Applied:

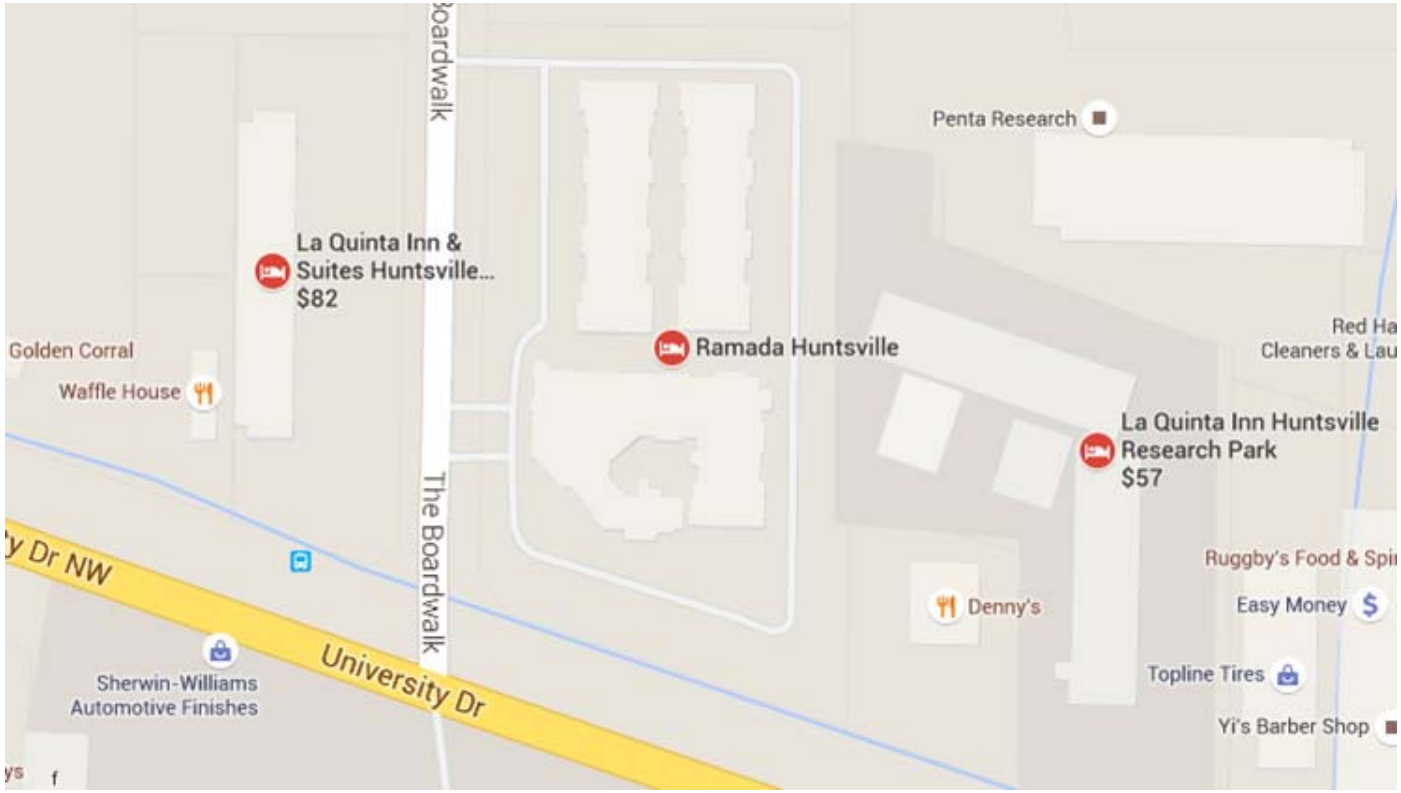
Parcel Number	Sale Price	Land Value	Class	Yr Blt	Build Type	RCN	Base Area	UFA	Total Living Area	% UFA to Total Area	Indicated Imp Value	Ind Pct Good	Obs Cond	Total Percent Good	Imp Value	Total Value	Ratio
15-02-04-4-000-181.001	$124,000	$41,600	D0	1914	500	$292,000	5,779	0	5,779	0%	$82,400	**28%**	**45%**	**45%**	$131,400	$173,000	139.52%
15-02-04-4-000-071.000	$165,000	$45,200	D0	1945	500	$356,500	8,239	0	8,239	0%	$119,800	**34%**	**40%**	**40%**	$142,600	$187,800	113.82%
15-02-04-4-000-170.000	$130,000	$22,800	D0	1920	500	$262,400	5,693	0	5,693	0%	$107,200	**41%**	**50%**	**50%**	$131,200	$154,000	118.46%
15-02-04-4-000-165.000	$75,000	$15,700	D0	1910	500	$144,800	2,946	0	2,946	0%	$59,300	**41%**	**40%**	**40%**	$57,920	$73,620	98.16%
15-02-04-4-000-072.000	$97,000	$14,500	D0	1930	500	$150,800	2,619	0	2,619	0%	$82,500	**55%**	**55%**	**55%**	$82,940	$97,440	100.45%
15-02-04-3-000-055.001	$255,600	$57,200	D0	1914	500	$356,400	7,459	0	7,459	0%	$198,400	**56%**	**50%**	**50%**	$178,200	$235,400	92.10%
15-02-04-4-000-181.000	$85,000	$9,600	D0	1914	500	$131,200	2,461	0	2,461	0%	$75,400	**57%**	**60%**	**60%**	$78,720	$88,320	103.91%
15-02-04-4-000-164.000	$80,000	$14,500	D0	1910	500	$109,900	2,407	0	2,407	0%	$65,500	**60%**	**50%**	**50%**	$54,950	$69,450	86.81%
15-02-04-4-000-179.000	$184,600	$23,600	D0	1922	500	$206,200	4,240	0	4,240	0%	$161,000	**78%**	**35%**	**35%**	$72,170	$95,770	**51.88%**
15-02-04-4-000-124.000	$552,170	$58,100	C0	1901	610	$693,900	12,224	6,500	18,724	35%	$494,070	**71%**	**60%**	**38%**	$263,682	$321,782	**58.28%**
15-02-04-4-000-135.000	$250,000	$52,500	C0	1910	500	$871,500	12,400	7,600	20,000	38%	$197,500	**23%**	**45%**	**23%**	$200,445	$252,945	101.18%
15-02-04-4-000-174.000	$226,250	$29,100	D0	1925	500	$686,800	6,218	5,596	11,814	47%	$197,150	**29%**	**50%**	**28%**	$192,304	$221,404	97.86%
15-02-04-4-000-130.000	$219,600	$53,200	D0	1959	610	$947,800	10,126	10,250	20,376	50%	$166,400	**18%**	**60%**	**38%**	$360,164	$413,364	**188.23%**
15-02-04-4-000-127.000	$150,000	$29,100	D0	1920	500	$589,100	6,250	12,500	18,750	67%	$120,900	**21%**	**50%**	**28%**	$164,948	$194,048	129.37%
																Median	**100.82%**
											Functional Obs Factor	**-22%**				**COD**	**21.89%**

Income Analysis

- Functional obsolescence is measured by rent loss due to the deficiency
- A survey of local market rents should indicate lower rents for obsolete properties
- Obsolescence is taken into account when developing the rental rate

Obsolescence Reflected in Rental Rates

- Example: $82-$57 = $25 then $25/$82 = **30%**



Testing via Income Analysis

- Case Study:
  - Developed rental rates for one story, but no information available for buildings with upper floor
  - Tested the obsolescence factor that was derived from sales analysis in the income method
  - Factored rental rates by the indicated obsolescence factor for buildings with upper floor area

Testing via Income Analysis

- Sales Ratio Before Obsolescence

Parcel Number	Base Area	UFA	Total Living Area	Market Rent	PGI	V&C	EGI	Expenses	NOI at Market	Value at Market Rent	Sale Price	New Sales Ratio
15-02-04-4-000-181.001	5,779	0	5,779	$5.00	$28,895	$5,779	$23,116	$9,246	$13,870	$129,260.02	$124,000	104.24%
15-02-04-4-000-071.000	8,239	0	8,239	$4.50	$37,076	$7,415	$29,660	$11,864	$17,796	$165,854.99	$165,000	100.52%
15-02-04-4-000-170.000	5,693	0	5,693	$5.00	$28,465	$5,693	$22,772	$9,109	$13,663	$127,336.44	$130,000	97.95%
15-02-04-4-000-165.000	2,946	0	2,946	$8.00	$23,568	$4,714	$18,854	$7,542	$11,313	$105,430.01	$75,000	140.57%
15-02-04-4-000-072.000	2,619	0	2,619	$8.00	$20,952	$4,190	$16,762	$6,705	$10,057	$93,727.49	$97,000	96.63%
15-02-04-3-000-055.001	7,459	0	7,459	$5.00	$37,295	$7,459	$29,836	$11,934	$17,902	$166,836.91	$255,600	65.27%
15-02-04-4-000-181.000	2,461	0	2,461	$8.00	$19,688	$3,938	$15,750	$6,300	$9,450	$88,073.07	$85,000	103.62%
15-02-04-4-000-164.000	2,407	0	2,407	$8.00	$19,256	$3,851	$15,405	$6,162	$9,243	$86,140.54	$80,000	107.68%
15-02-04-4-000-179.000	4,240	0	4,240	$6.50	$27,560	$5,512	$22,048	$8,819	$13,229	$123,287.98	$184,600	66.79%
15-02-04-4-000-124.000	12,224	6,500	18,724	**$5.10**	$95,492	$19,098	$76,394	$30,558	$45,836	$427,179.42	$552,170	77.36%
15-02-04-4-000-135.000	12,400	7,600	20,000	$3.50	$70,000	$14,000	$56,000	$22,400	$33,600	$313,140.73	$250,000	125.26%
15-02-04-4-000-174.000	6,218	5,596	11,814	$4.00	$47,256	$9,451	$37,805	$15,122	$22,683	$211,396.83	$226,250	93.44%
15-02-04-4-000-130.000	10,126	10,250	20,376	**$4.20**	$85,579	$17,116	$68,463	$27,385	$41,078	$382,833.33	$219,600	174.33%
15-02-04-4-000-127.000	6,250	12,500	18,750	$3.50	$65,625	$13,125	$52,500	$21,000	$31,500	$293,569.43	$150,000	195.71%
											Median	**102.07%**
											COD	**24.74%**

Testing via Income Analysis

- Sales Ratio After Obsolescence

Parcel Number	Base Area	UFA	Total Living Area	Factored Market Rent	PGI	V&C	EGI	Expenses	NOI at Market	Value at Market Rent	Sale Price	New Sales Ratio
15-02-04-4-000-181.001	5,779	0	5,779	$5.00	$28,895	$5,779	$23,116	$9,246	$13,870	$129,260.02	$124,000	104.24%
15-02-04-4-000-071.000	8,239	0	8,239	$4.50	$37,076	$7,415	$29,660	$11,864	$17,796	$165,854.99	$165,000	100.52%
15-02-04-4-000-170.000	5,693	0	5,693	$5.00	$28,465	$5,693	$22,772	$9,109	$13,663	$127,336.44	$130,000	97.95%
15-02-04-4-000-165.000	2,946	0	2,946	$8.00	$23,568	$4,714	$18,854	$7,542	$11,313	$105,430.01	$75,000	140.57%
15-02-04-4-000-072.000	2,619	0	2,619	$8.00	$20,952	$4,190	$16,762	$6,705	$10,057	$93,727.49	$97,000	96.63%
15-02-04-3-000-055.001	7,459	0	7,459	$5.00	$37,295	$7,459	$29,836	$11,934	$17,902	$166,836.91	$255,600	65.27%
15-02-04-4-000-181.000	2,461	0	2,461	$8.00	$19,688	$3,938	$15,750	$6,300	$9,450	$88,073.07	$85,000	103.62%
15-02-04-4-000-164.000	2,407	0	2,407	$8.00	$19,256	$3,851	$15,405	$6,162	$9,243	$86,140.54	$80,000	107.68%
15-02-04-4-000-179.000	4,240	0	4,240	$6.50	$27,560	$5,512	$22,048	$8,819	$13,229	$123,287.98	$184,600	66.79%
15-02-04-4-000-124.000	12,224	6,500	18,724	**$4.00**	$74,896	$14,979	$59,917	$23,967	$35,950	$335,042.68	$552,170	60.68%
15-02-04-4-000-135.000	12,400	7,600	20,000	$2.75	$55,000	$11,000	$44,000	$17,600	$26,400	$246,039.14	$250,000	98.42%
15-02-04-4-000-174.000	6,218	5,596	11,814	$3.10	$36,623	$7,325	$29,299	$11,719	$17,579	$163,832.54	$226,250	72.41%
15-02-04-4-000-130.000	10,126	10,250	20,376	**$3.30**	$67,241	$13,448	$53,793	$21,517	$32,276	$300,797.61	$219,600	136.98%
15-02-04-4-000-127.000	6,250	12,500	18,750	$2.75	$51,563	$10,313	$41,250	$16,500	$24,750	$230,661.70	$150,000	153.77%
											Median	**99.47%**
				22%	**Functional Obs. Factor**						**COD**	**20.99%**

Conclusion

- "Although it may not always be necessary to distinguish and label different forms and causes of depreciation, it is essential to account for *all* depreciation. The depreciation estimate must be supported by current market data." (IAAO, 1990, pg. 225-226)*

* The International Association of Assessing Officers. (1990). *Property Appraisal and Assessment Administration.* Chicago, IL: IAAO.