

SUSTAINABLE INFILL HOUSING

2009 TAPA Award for Green Development




Presented by:


- ✓ Jeff Archer, AICP, Knoxville-Knox County MPC
- ✓ Tim Dimick, City of Knoxville
- ✓ Ken Block, Knoxville Housing Partnership



Project Overview



U.S. GREEN BUILDING COUNCIL
EAST TENNESSEE CHAPTER
News + Events



LEED FACTS

LEED for Homes	
GOLD	75/136
Innovation	5/11
Location and Linkage	10/10
Sustainable Sites	14/22
Water Efficiency	6/15
Materials & Resources	3/16
Indoor Environmental Quality	17/21
Awareness & Education	2/3

October 2009
KHP LEED Gold Homes

KNOX HOUSING PARTNERSHIP, Inc.
Knoxville, Tennessee

- ✓ Located in a low income neighborhood
- ✓ Affordable housing - \$104,000 sale price
- ✓ 7 Houses, all sold or under contract
- ✓ Approx. 1,250 square feet
- ✓ All 3 bedrooms, 2 baths
- ✓ LEED Gold Certified
- ✓ Meets Infill Housing standards
- ✓ Meets “Visitability” standards
- ✓ Developed by Knoxville Housing Partnership, a local non-profit housing agency and built by Community Action Committee (CAC)
- ✓ Located within a Redevelopment Area

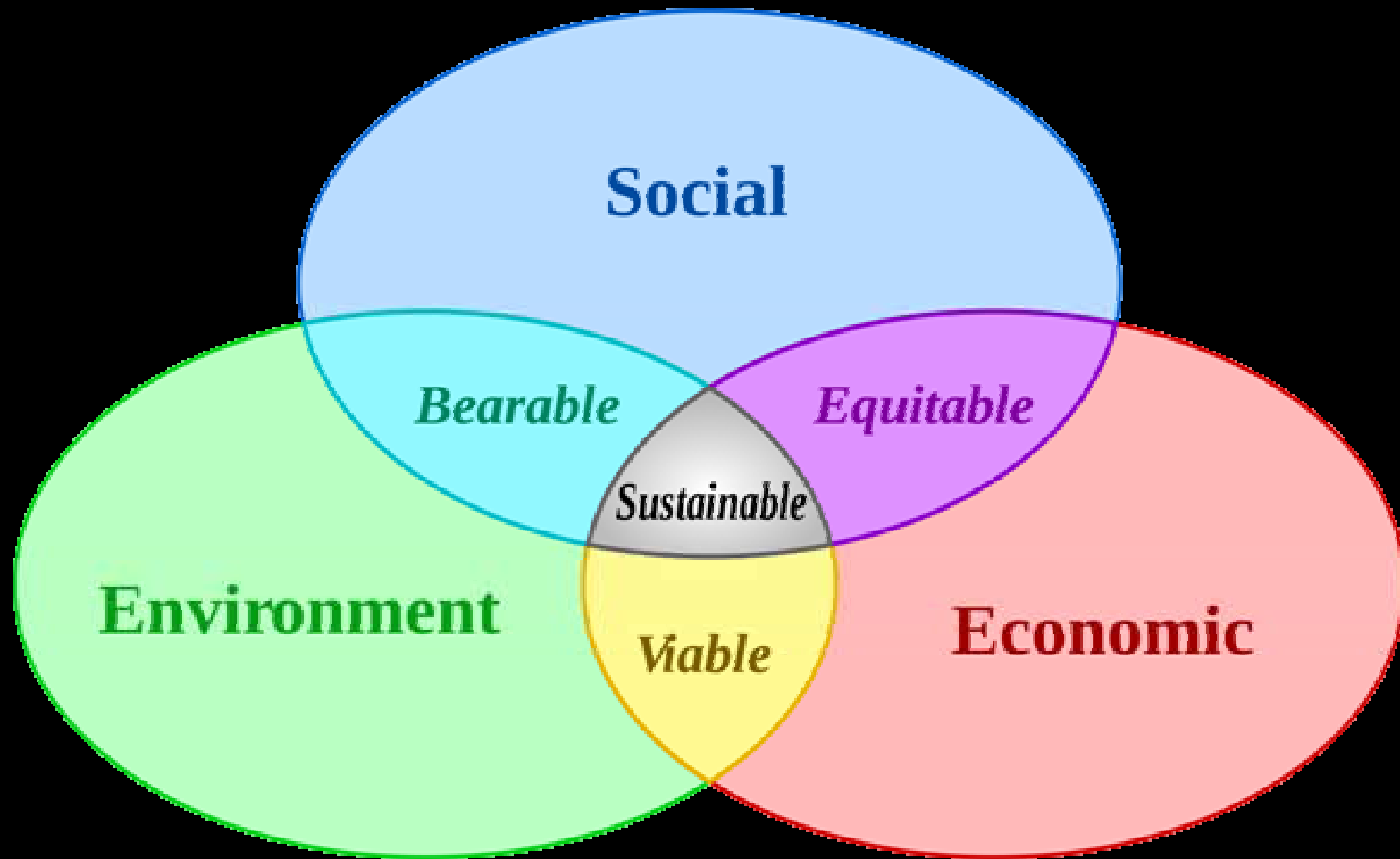
Project Overview



Landscape Plan



Project Benefits that Address the Three Pillars of Sustainable Development



Social

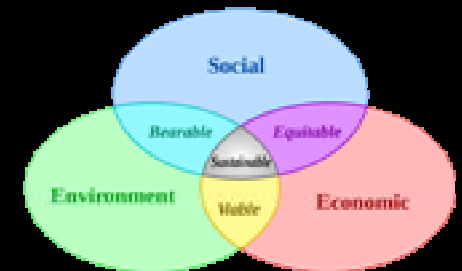
“**Visitability**” is a growing trend nationwide. The term refers to single-family or owner-occupied housing designed in such a way that it can be lived in or visited by people who have trouble with steps or who use wheelchairs or walkers.

A house is visitable when it meets three basic requirements:

- ✓ one zero-step entrance.
- ✓ doors with 32 inches of clear passage space.
- ✓ one bathroom on the main floor you can get into in a wheelchair.



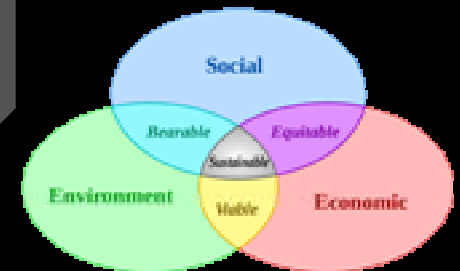
Zero-step entrance



Social



Development that fits within the neighborhood



Social

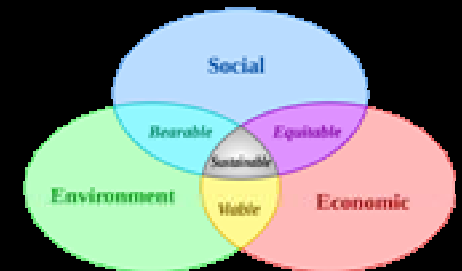
Heart of Knoxville Infill Housing Design Guidelines



HEART OF KNOXVILLE
INFILL HOUSING DESIGN GUIDELINES
Knoxville • Knox County Metropolitan Planning Commission
and
The East Tennessee Community Design Center



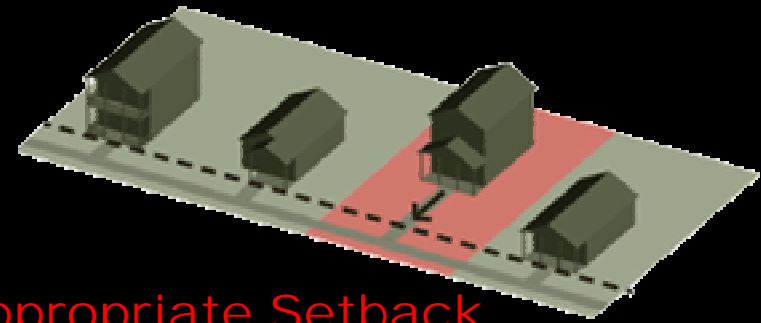
- ✓ **Build-to-lines**
- ✓ **Porches**
- ✓ **Exposed Foundation Height**
- ✓ **Roof pitches and orientation**
- ✓ **Hide parking from the street**
- ✓ **Windows/doors that face the street**
- ✓ **Tree in the front yard**
- ✓ **Scale**



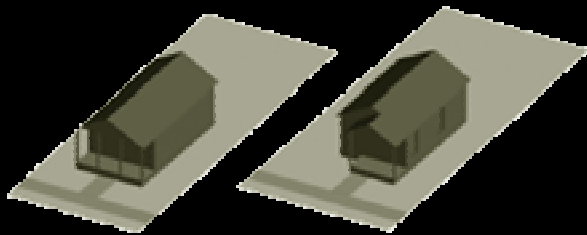
Social



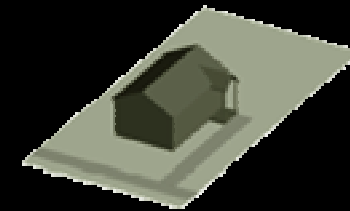
Appropriate Setback



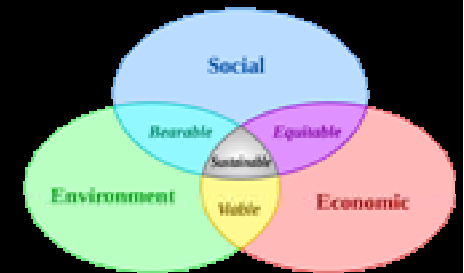
Inappropriate Setback



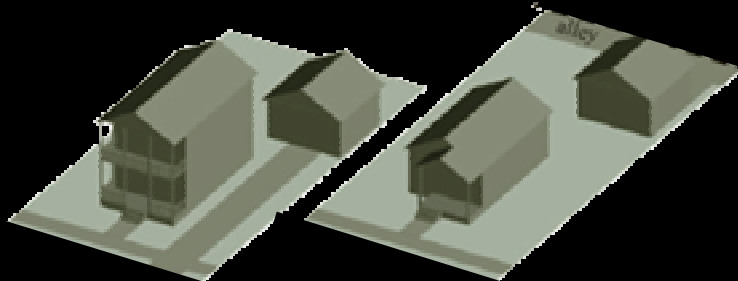
Appropriate Orientation



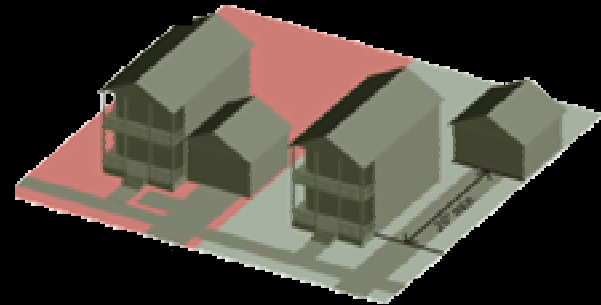
Inappropriate Orientation



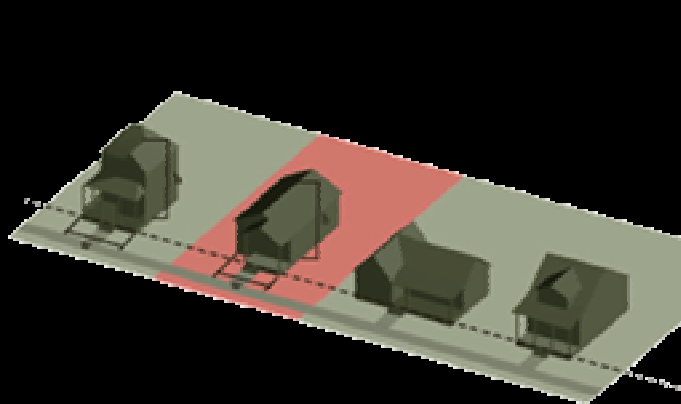
Social



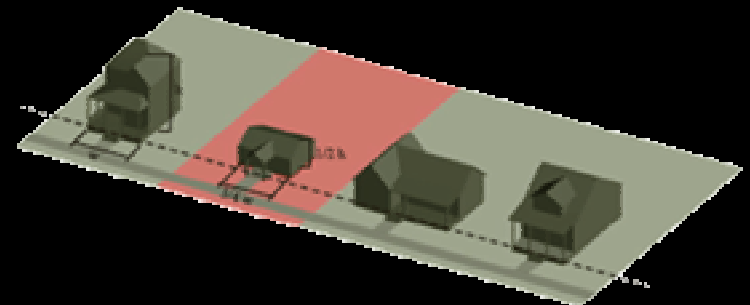
Appropriate Driveway



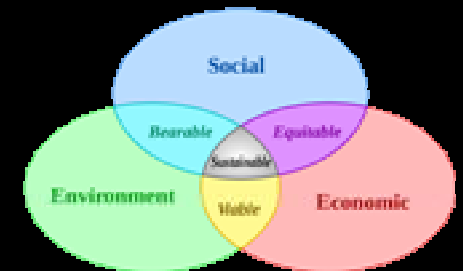
Inappropriate Driveway



Appropriate Scale



Inappropriate Scale



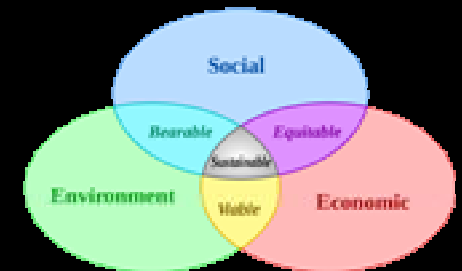
Social

Martin Luther King, Jr. Avenue Corridor Plan



Knoxville-Knox County Metropolitan Planning Commission
2006

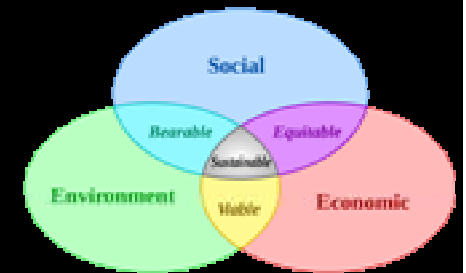
Implements an adopted plan



Social

Other social benefits....

- ✓ **Community pride (accessible within neighborhood)**
- ✓ **Community commitment (city and non-profits)**
- ✓ **Addresses blight – over 80 vacant lots in immediate area**
- ✓ **Leadership by example (practical and educational)**
- ✓ **Standards are being used in renovations**
- ✓ **Energy efficiency is attainable for everyone**
- ✓ **Awareness**



Economic

Reduced Costs for Builder:

- ✓ Fewer call backs
- ✓ Increased customer satisfaction
- ✓ Increased referral rates

Increased Revenue for Builder:

- ✓ Higher close rate
- ✓ More sales
- ✓ Increased referral rates

Higher profit for Builder

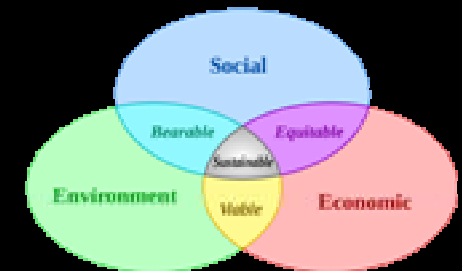
Reduced Costs for Consumer:

- ✓ Reduced utility bills
- ✓ More durable
- ✓ In this case, affordable to low-moderate income families
- ✓ Reduced cost of transportation
- ✓ Increased resale/property value

Increased revenue for government:

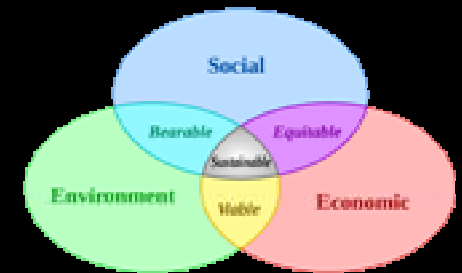
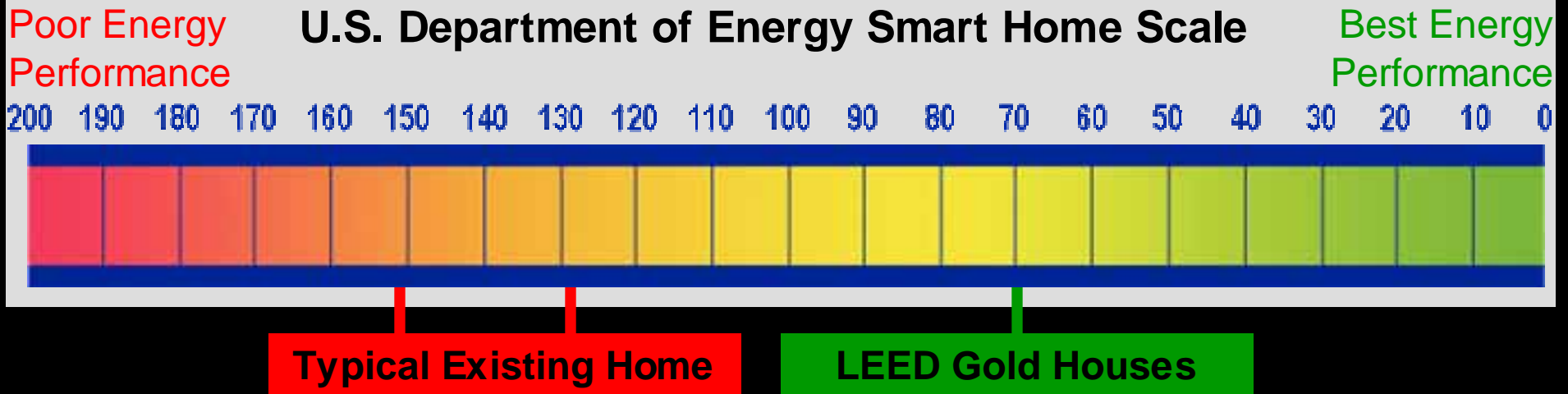
- ✓ Addressed blight
- ✓ Smart development

Financial benefits



Environment

- ✓ Healthier and more comfortable indoor environment
- ✓ Environmentally responsible
- ✓ Reduced energy, 30-60% more energy efficient



Environment



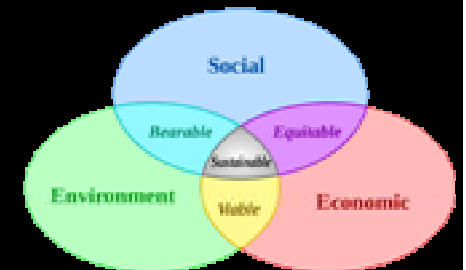
Preservation of existing trees



3rd party testing



Natural & compact fluorescent lighting



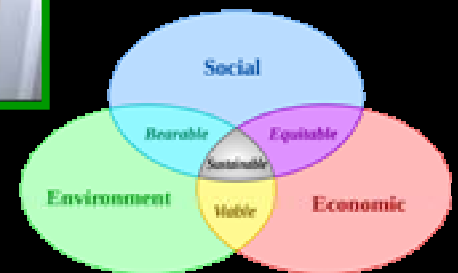
Environment



Water Use Efficiencies



HE Water heater
Dual Flush Toilet
Low Flow Bath & Lav. faucets



Environment



Mulched existing brush/trees on sites



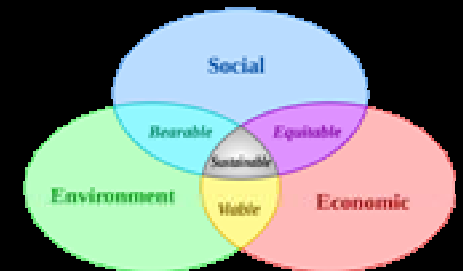
Conditioned crawl spaces



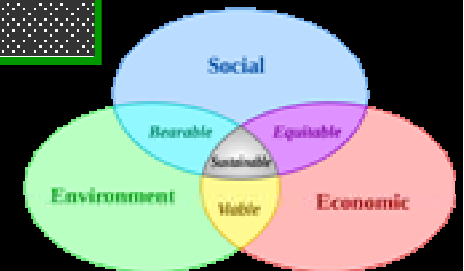
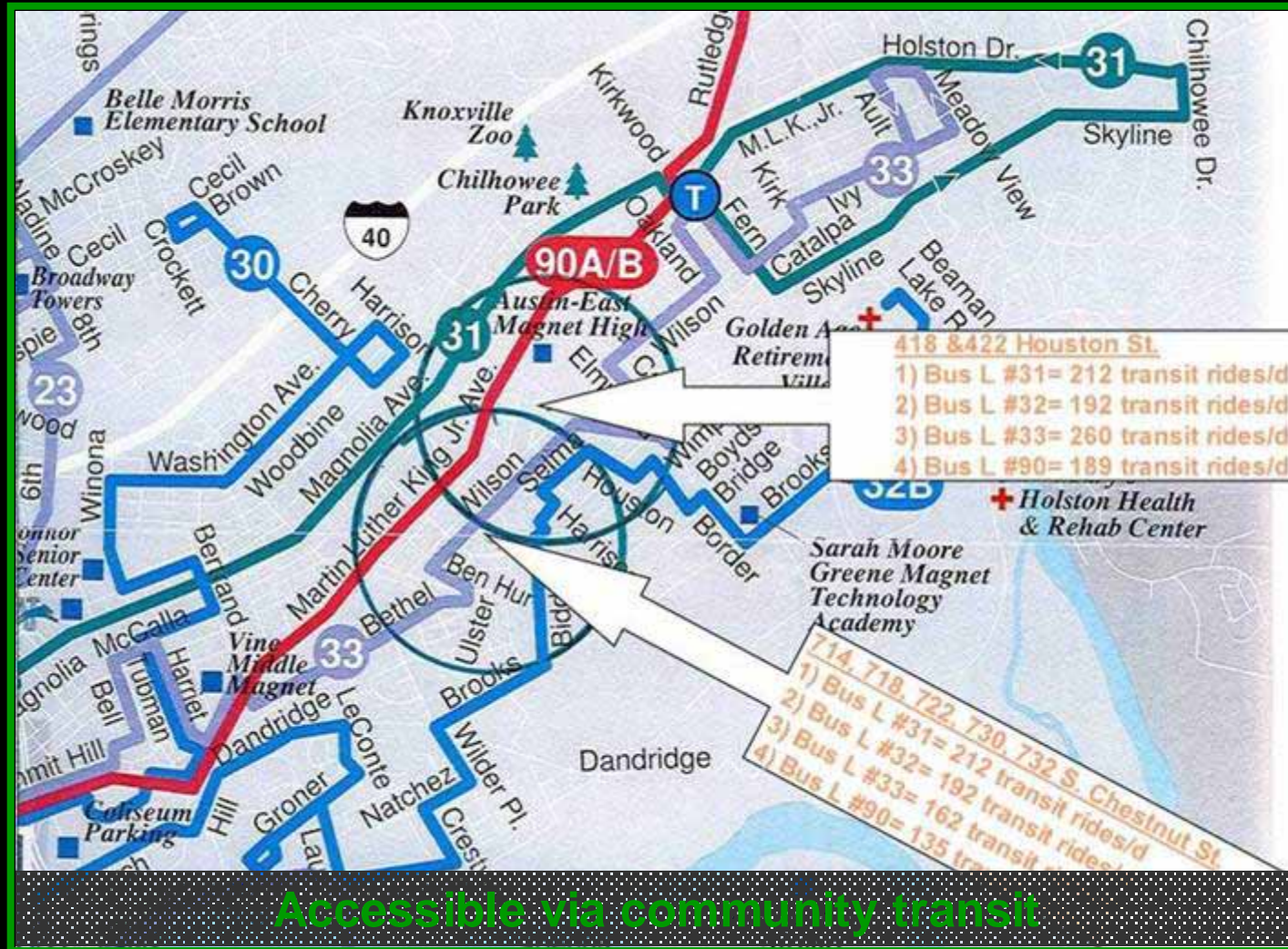
Energy Star appliances and locally made cabinets



Moisture and air management systems



Environment



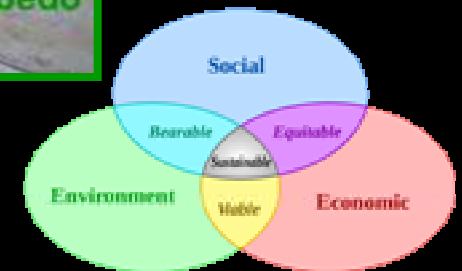
Environment



Surface water runoff directed to permanent infiltration areas

SS 4: Surface Water Management 4.1(c)
Impermeable surfaces that are designed to direct all runoff toward an appropriate permanent infiltration feature (e.g. vegetated swale)

SS 3: Reduce Local Heat Island Effects 3(a) and 3(b.ii)
Provide trees & other plantings to shade 50% of sidewalks, patios & driveways and, Installed light-colored, high albedo materials e.g. gray concrete



Environment

Durable materials used

Protect existing
Trees

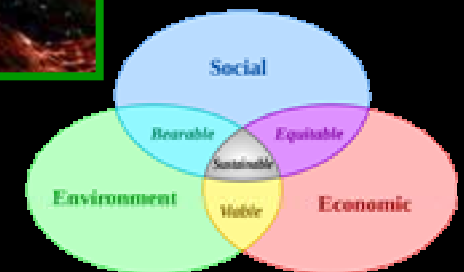
IAQ: Local
Exterior Exhaust
for Range Hood

Durability:
30 yr
Dimensional
shingle, 30lb felt,
ice shield @
valleys, walls
ridge & roof
perimeter

Soil erosion
control during
construction

Fiber cement
exterior siding

HVAC Intake vent
for make up air
system



Ongoing Sustainable Housing Projects

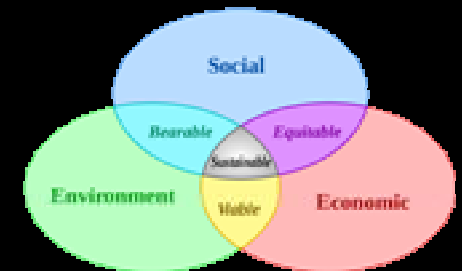
LEED Projects:

- ✓ Eastport - 85 units
- ✓ Flenniken – 48 units



Energy Star Projects:

- ✓ Minvilla Manor - 58 units
- ✓ Baker St. - 8 units

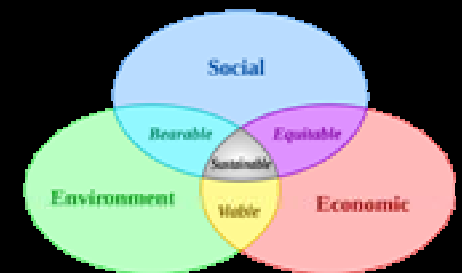




Lessons Learned



- 1. Need to identify knowledgeable consultants**
- 2. Need leadership and commitment**
- 3. Need to secure funding source that is supportive of project goals**
- 4. Need to identify builder that is flexible and willing to learn**
- 5. Educate yourself on green programs and guidelines**





Resources Available



visitability.org

usgbc.org

knoxmpc.org

khp.org

gogreencommunities.org

ci.knoxville.tn.us

