

Doing More with Less:
Nashville's Green Building Future

Justin Southwick



615.385.1220 www.wilmotinc.com

Crisis & Opportunity of Green Building

Buildings results in:

40% virgin materials consumption

40% CO2 emissions

40% landfill waste

40% energy consumption

70% of U.S. electricity consumption

And:

80% of buildings in our lifetime already built

90% of our time is spent in them

Crisis & Opportunity of Green Building

The opportunities internally:

- Harvest all low-hanging “green” fruit
- Fund green transition with energy savings

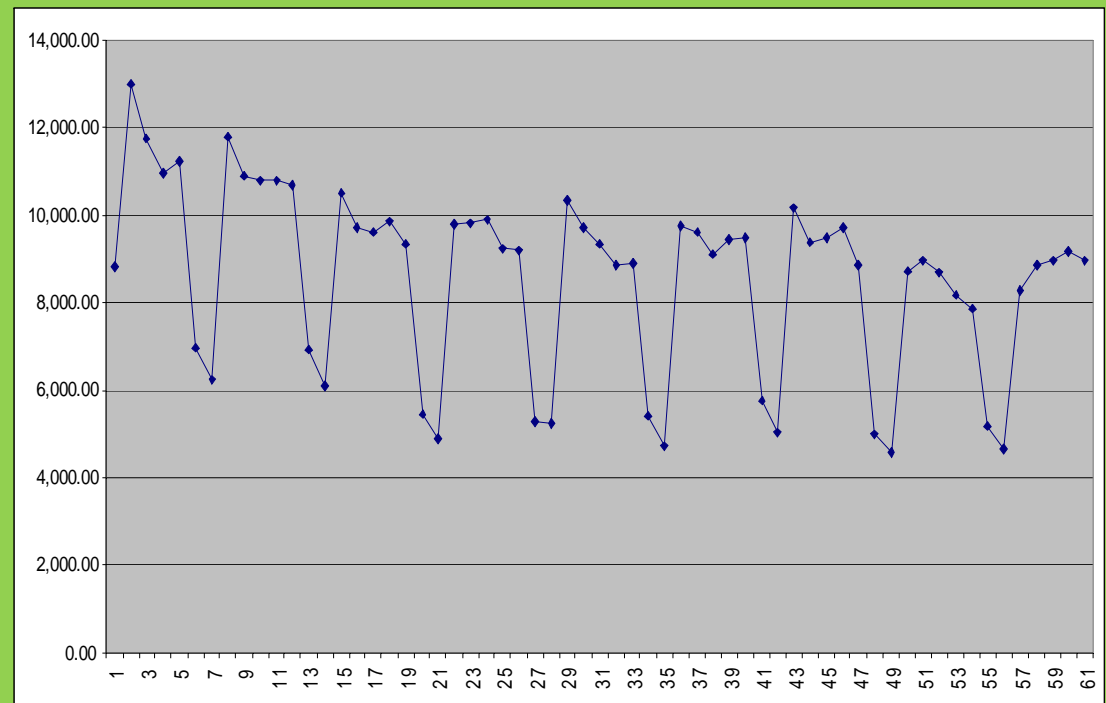
And externally:

- Carrot & stick for new buildings
- Design for sustainable growth
- Inspire existing building improvement

Harvest “Low Hanging Fruit”

- Green audit of all Metro buildings
- Benchmark energy, water, & waste metrics
- Leverage talent & budget for <3yr payback projects

- *Typical Office Building:*
Sep-Oct 2008
- Why does it use 50% of weekday kWh on weekends?



Fund “Green” Transition with Savings

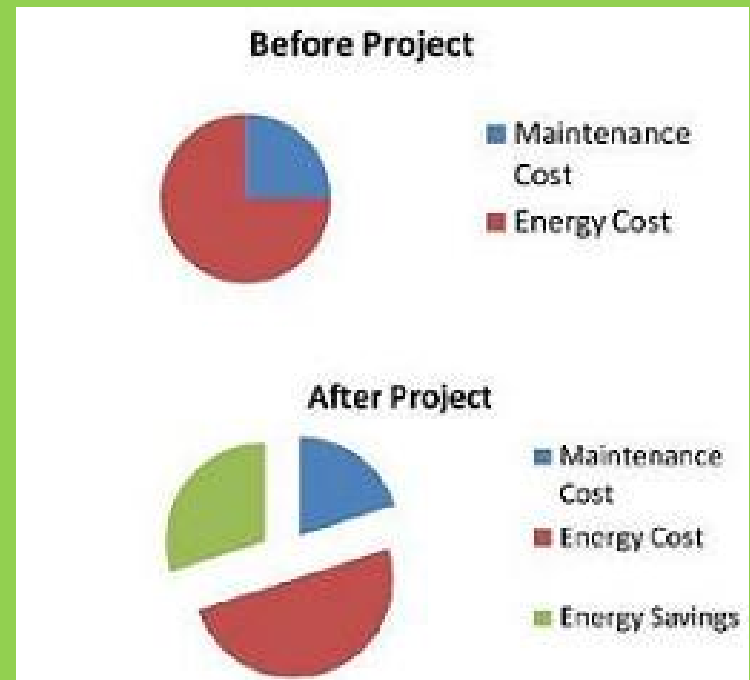
- Leverage ESCO knowledge & funding for next steps
- Include all green improvements
- ESCO agreement = no new costs to Metro

Common ESCO Upgrades:

- High Efficiency Motors & HVAC
- Building Management Systems
- Measurement & Verification

Other Green Improvements:

- Environmental Purchasing
- Green Cleaning
- Indoor Air Quality



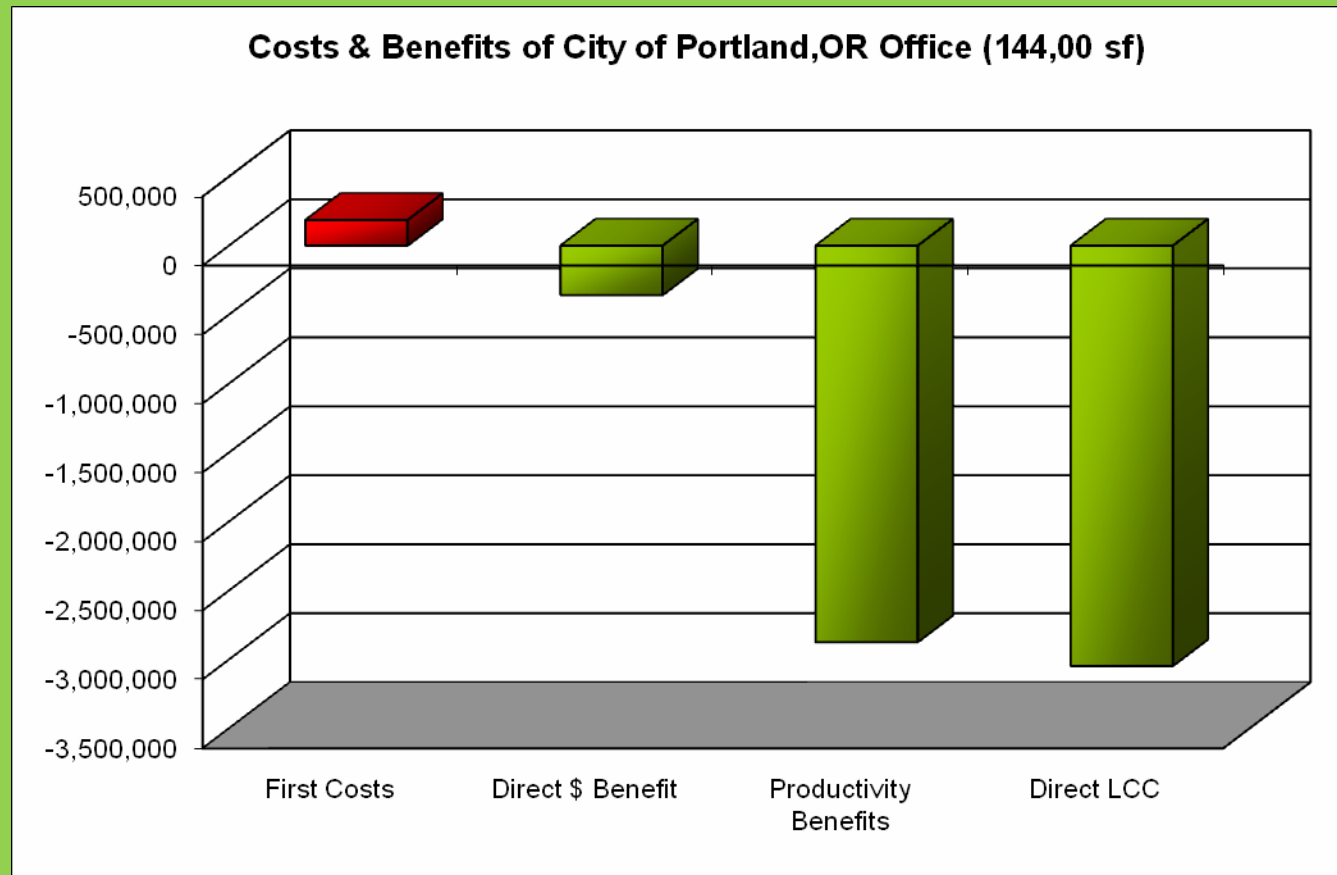
Benefits of “Green” Building

- Schools
 - National review of 30 schools
 - Direct benefits to school: \$22/ft²
 - Enough for 2 teachers
 - **Benefits not quantified**
 - Reduced teacher sick days
 - Reduced maintenance costs
 - Increased state competitiveness
 - Reduced social inequity
 - **Extremely cost-effective way to improve performance**

Financial Benefits of Green Schools (\$/ft ²)	
Energy	\$9
Emissions	\$1
Water and Wastewater	\$1
Increased Earnings	\$49
Asthma Reduction	\$3
Cold and Flu Reduction	\$5
Teacher Retention	\$4
Employment Impact	\$2
Total	\$74
Cost of Greening	(\$3)
Net Financial Benefits	\$71

Benefits of "Green" Building

- City Buildings



Carrot & Stick: "Green" Codes

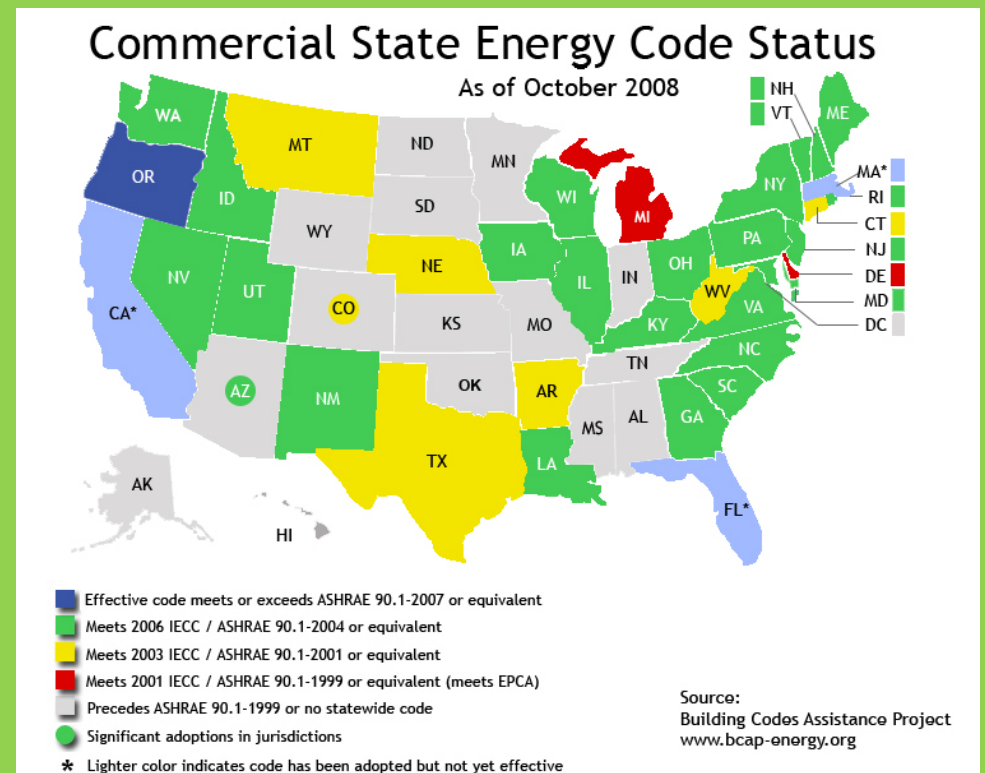
- Minimum standards for new construction
- Design budget-neutral code changes
- Provide "stretch" incentives for continued growth

Residential:

- Minimum: Energy Star
- Stretch: LEED for Homes
- Incentive: "Fast Track" Permit

Commercial:

- Minimum: Energy Star
- Stretch: LEED
- Incentive: Density Bonuses



Synergies Designing for Growth



Courtesy: tualatinriverkeepers.org

Synergies Designing for Growth

Parking Lot

BEFORE:

- Asphalt & blacktop pavement
- Storm water treatment system
- Storm water conduit to sewer
- Standard raised curb
- Striping
- Cleaning
- Re-sealing
- Re-striping
- Heat island effect
- Municipal storm water fee

AFTER:

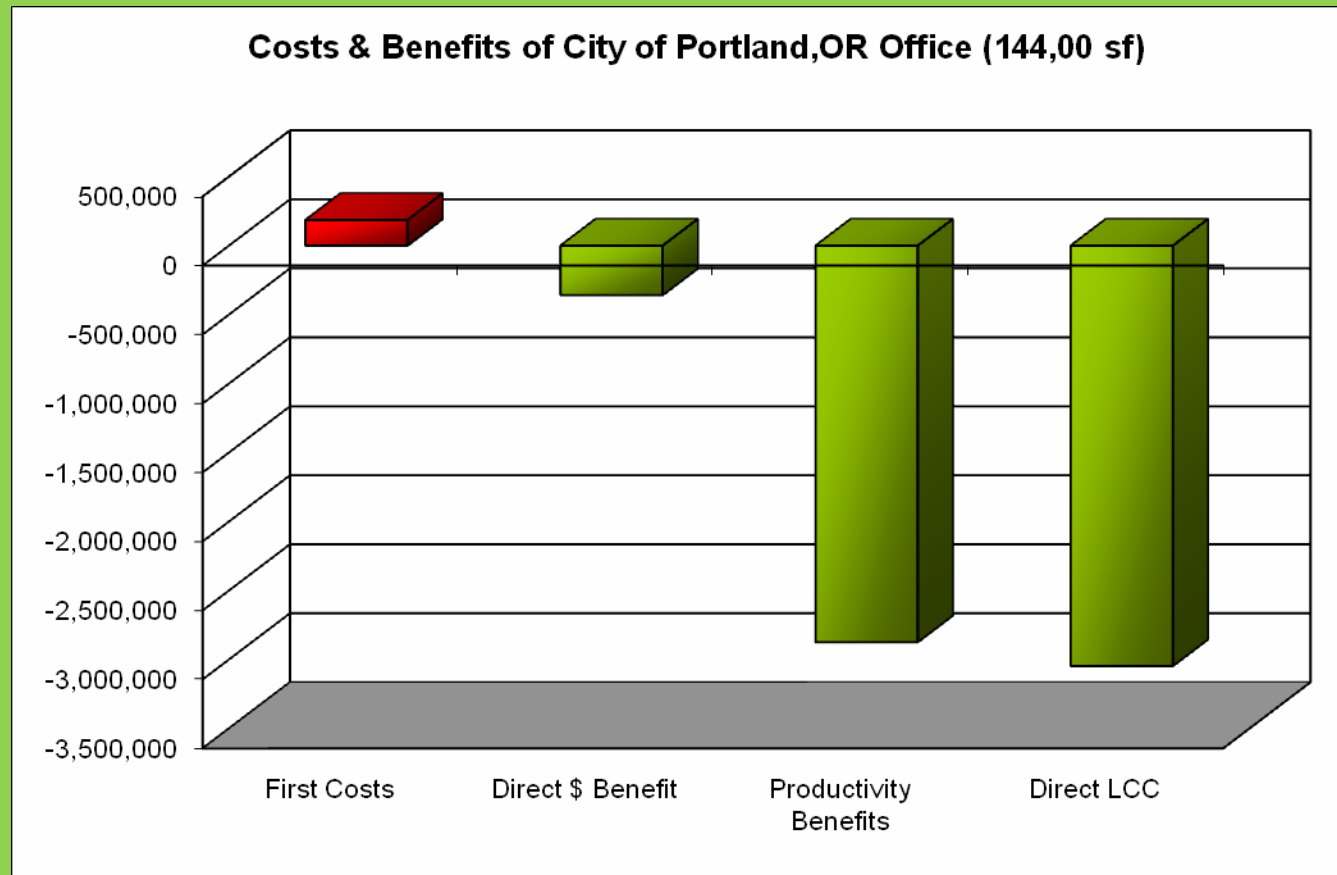
- Pervious pavers
- None (100% infiltration)
- Overflow conduit to sewer
- Bioswales / rain gardens
- Incorporated into paver design
- Rainwater & soil
- None
- None
- Minimized
- None

Synergies Designing for Growth

- **Design cost-neutral multi-benefit codes**
 - Zero CFC's in HVAC
 - All multi-family provide recycling space
 - White roofs and paving
- **Expand codes menu to create “benefits” market**
 - Create a point system to drive multiple benefits
 - Downtown density = less traffic & emissions
 - “Smart growth” points earn benefits & concessions

Inspire the “Existing Buildings”

- City Buildings



Inspire the “Existing Buildings”

- **Average Annual Building Budget**

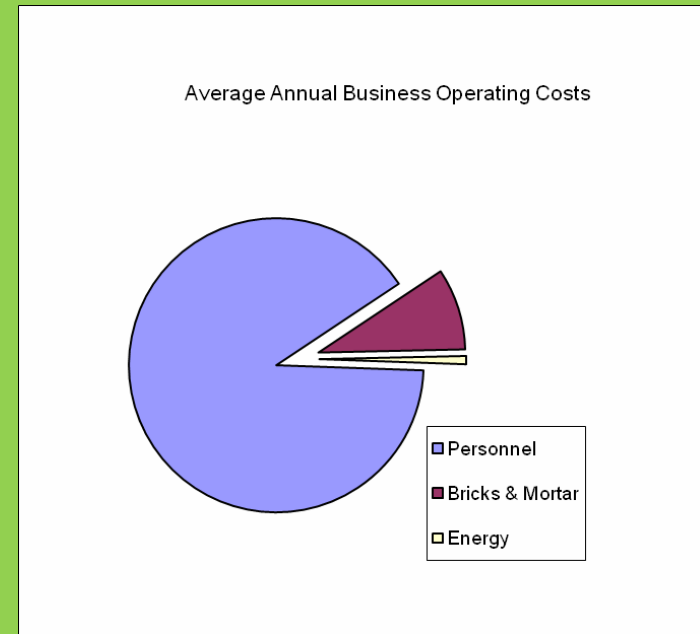
- Personnel: \$200
- Building: \$20
- Energy: \$2

- **Improve Productivity**

- 1% in Productivity = 100% Energy Costs
- Indoor pollutants: 2-5x higher inside (EPA)

- **“Green Building Roundtable” to share learning**

- Private/public sharing keeps jobs & knowledge local



Top 3 Recommendations

1. *Existing Buildings – Metro*

- Green audit of all Metro buildings - Benchmark
- Ex: Goal - 5% improvement/yr for 10 years (60%)
- Use internal talent for <3yr payback projects
- ESCO agreement for equipment & longer paybacks

2. *Existing Buildings – Private*

- Create green building roundtable with top 50 businesses to create a goal for their buildings to become green & healthy
- Ex: 10% improvement by 2012 in existing buildings

3. *New Construction – Metro & Private*

- Mandate world class minimum water & energy code for new construction
- Creative use of codes for smart growth