



Board of Supervisors Memorandum

May 1, 2007

Resolution In Support of New County Sustainability Initiatives

Background

The current drought, rising fuel prices, and climate change, are topics discussed daily in our news. Without action, all three have the ability to dramatically change our current lifestyles. That said, our community is known for rising to the occasion and supporting progressive changes. Whether it be coming together to finally pass a regional transportation plan that contains significant funding for transit improvements, or showing great conservation ethic and leadership by supporting the Sonoran Desert Conservation Plan. Many in this community enjoy a high quality of life, and we continue to implement initiatives in the areas of health, safety, education, job assistance, affordable housing, and neighborhood reinvestment, to assist those in need.

We need to continue to sustain and improve the quality of life of this community, without jeopardizing the ability for future generations to do the same. A sustainable and livable community requires investments in the environment, the economy, and the social fabric. We can continue this ethic by focusing efforts on the built environment, lessening our impact on non-renewable resources, and joining forces with other communities confronting global climate change.

As one of the largest employers in Southern Arizona, Pima County can be a leader in this effort. The County designs and constructs buildings as part of our voter-approved bond programs, and is therefore also one of the largest builders in Southern Arizona. This includes facilities like community centers and libraries within our cities and towns. In addition, through our development approval process, the County has the ability, through incentives, education, and regulation, to impact the private development process in unincorporated Pima County.

As you know, the topic of this year's State of the County event on May 4, 2007, is "Sustaining a Livable Community". In preparation for this event, I've placed the attached resolution on the Board's addendum for May 1, 2007. If approved, the resolution would commit Pima County to new initiatives in the areas of alternative fuel vehicles for our County fleet, energy conservation, water conservation, waste reduction, and green purchasing. This memorandum describes these new initiatives and how the County can continue its commitment to fostering sustainability.

Water, Energy, and Climate Change

Water resources are inextricably related to other resources such as energy. Each kWh of thermoelectric generation requires approximately 25 gallons of water with additional amounts used for operating pollution control devices. The United States Geological Survey estimates that in 2000, 346 billion gallons of freshwater were used per day for energy production in the United States accounting for approximately 39 percent of total freshwater withdrawals. While only 9 percent of these withdrawals are actually consumed by the generation process, they still account for approximately 38 billion gallons per day in 2006. Hence buildings with inefficient energy use, and the manufacture of building materials requiring large amounts of energy, contribute indirectly to taxing our water resources.

In addition, the built environment has complex and potentially devastating impacts on the biosphere. While only representing 8 percent of the United States gross domestic product, the construction industry consumes 40 percent of raw materials extracted or harvested in this country and generates about half a ton of waste per person each year. Regarding impacts on greenhouse gases, buildings account for 40 percent of global carbon dioxide emissions, with transportation accounting for another 33 percent. Expansion of the built environment has resulted in: lower land carrying capacity, loss of biodiversity, rise in air quality toxicity, water supply shortages, and greater energy requirements. Our long-term survival in the Sonoran Desert depends upon our ability to reduce transportation emissions and move toward green or sustainable building.

Alternative Fuel Vehicles

Motor vehicle use is a major contributor to air pollution and global climate change. At the same time, we are facing higher and higher fuel prices at the gas pump. The County has over a thousand vehicles in its fleet, excluding patrol vehicles and heavy trucks. By approving this resolution, the County would be committing to an aggressive timetable to phase those vehicles to alternative fuel vehicles.

Waste Reduction and Green Purchasing

Emphasis will also be placed on moving the County toward waste reduction and green purchasing to include Energy Star equipment and materials of low embodied energy and of recyclable content whenever possible. Energy Star is a joint program of the Environmental Protection Agency (EPA) and the Department of Energy, which certifies appliances, office equipment, light fixtures, home electronics, and other products as meeting certain energy efficiency standards. The EPA estimates that in 2006 alone, the Energy Star program has saved Americans \$14 billion on their utility bills and has avoided greenhouse gas emission equivalent to that generated by 25 million automobiles. Materials of low embodied energy are those that require little energy to produce, manufacture, and transport to their destination.

Water Conservation

Through implementation of the riparian element of the Sonoran Desert Conservation Plan, and amendments underway to the Water Resources Element of our Comprehensive Plan, the County is already making significant efforts to conserve our limited water resources. Approval of this resolution would take these efforts further by making commitments to reduce water consumption in County facilities, increase our use of effluent, and maximize the water resources we do have to protect our natural environment.

Green Building and LEED Standards

The most prominent green building standard in use today is produced by the United States Green Building Council under the name of LEED (Leadership in Energy and Environmental Design). The LEED rating system provides obtainable points in six distinct categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation & design process. Depending on the number of points obtained, buildings can be built and maintained meeting LEED certified, silver, gold, and platinum in escalating levels of performance.

Approval of this resolution means that Pima County will adopt LEED silver, already adopted by the City of Tucson and the State of Arizona. Since the County builds many facilities for other jurisdictions through voter-approved bond programs, this is a very significant commitment region wide.

Building to LEED has seen capital cost increases of over 10 percent a decade ago recently drop to below 0 percent in certain projects as designers and builders have become savvy in taking an integrative approach to sustainable construction. A 2003 study by Gregory Kats reported that the average construction premium for 33 LEED buildings across the country was 1.84 percent. The following year, Matthiessen and Morris of Davis Langdon Consulting compared 45 buildings attempting LEED certification to 93 conventional buildings, finding that there was no difference in costs per square foot. The United States General Services Administration reported that LEED silver federal courthouses cost premiums range from a negative 0.03 percent to 4.4 percent compared to their conventional counterparts. The low numbers are typically attributable to larger buildings and the high ones to small ones. While it is clear that there will be some initial capital cost increases to the County until such time that greater expertise in green building is obtained, these will be quickly offset through energy savings, and increases in productivity.

The United States Department of Energy's Pacific Northwest National Laboratory (PNNL), the National Renewable Energy Laboratory (NREL) and other organizations have compared the cost/benefit of investing in high performance commercial

buildings. Although a few years old, and therefore capital cost increases have since dropped, findings generally reflect the following patterns:

- While capital costs increase in the order of 2 percent or \$2 to \$5 per square foot for silver/gold rated LEED buildings, the total net present value (TNPV) of the energy savings over a 20-year life cycle is \$5.79 per square foot.
- Additional per square foot savings for reduced emissions (\$1.18), water (\$0.51), and operations and maintenance savings from proper building commissioning (\$8.47) bring the aggregate TNPV to \$15.95 per square foot. Added to this number are yet further potential savings gleaned from improvement of interior environments.
- More efficient and healthy interiors reduce medical costs and produce a gain in productivity estimated by researchers as high as \$36.89 TNPV per square foot for a certified/silver and \$55.33 for a gold/platinum rated buildings.

It is in the best interest of the County to adopt LEED silver for its facilities. While initial capital costs may increase slightly, this amount would be rapidly recovered simply in terms of energy saved, not counting the large savings resulting from increased productivity, quality of life, and environmental benefits.

Additional Energy Conservation Commitments

In addition to committing to a LEED silver standard for County built facilities, adoption of this resolution will also commit the County to constructing one medium size building with a net zero energy consumption, to ensuring that 15 percent of County facilities' electrical energy consumption come from renewable resources, and that the County maximize renewable resources from the production of methane in County wastewater treatment land landfill operations.

Green Building, Energy and Water Conservation and the Private Sector

The County has the ability to pursue strategies to further conservation practices on private property in unincorporated Pima County through the County's development approval processes. Among these strategies is the development of green building programs currently in the planning stage. Pima County proposes to endorse green building standards by providing incentives to builders who select to build to recognized standards.

Opportunities will also be sought to incorporate solar elements into County planning to take advantage of our greatest local energy resource. These will include requiring that a minimum of 50 percent of homes constructed after 2010 include direct solar assisted energy through solar hot water or photovoltaic elements. Adoption of the resolution will also commit the County to amending land use

regulations to require all new housing discharging to septic systems also be provided with a grey water reuse system.

In addition, a draft memorandum of understanding is being negotiated with the United States Green Building Council whereby the County would be one of three national pilot jurisdictions with authority to certify structures to LEED within both the County and its incorporated jurisdictions. LEED certification could thus be provided to the community at lower cost by reducing the paperwork documentation effort through field verification of construction conformance to the target design. The pilot program would also provide an opportunity for large-scale educational promotion of sustainable development to designers, builders and the public at large by way of the building permitting process. Finally, this effort would allow the County as well as regional American Institute of Architects and United States Green Building Council groups to play a critical role in establishing procedures and methods to be deployed at a national level.

Organizational Approach

In conclusion, departments and organizational units within Pima County will be identified to contribute to these efforts and an organizational structure facilitating the coordination of efforts established. This group will seek opportunities to further sustainable goals, while looking to resolve current procedural and code requirements which conflict with sustainable practices. Pima County will also continue to work with other jurisdictions to strive for consistent policies and programs so as to maximize the potential for success, which can only be truly realized on a regional level.

Recommendation

It is recommended that the Board adopt the attached resolution in support of these new County sustainability initiatives.

Respectfully submitted,



C.H. Huckelberry
County Administrator

(April 26, 2007)

Attachments

RESOLUTION NO. 2007-__

A RESOLUTION OF THE PIMA COUNTY BOARD OF SUPERVISORS IN
SUPPORT OF NEW COUNTY SUSTAINABILITY INITIATIVES

WHEREAS, sustainability is often defined as improving the quality of life for current generations without compromising the resources needed for future generations; and

WHEREAS, Pima County has supported past initiatives to improve and sustain a livable community, including initiatives in the areas of land and water conservation, air quality improvements, cultural resource preservation, urban development guidelines, recreation, public health, affordable housing, and neighborhood reinvestment; and

WHEREAS, the Board of Supervisors adopted the Sonoran Desert Conservation and Comprehensive Land Use Plan in 2001; and

WHEREAS, since 1974, Pima County voters have approved over \$230 million in bond funds for land purchases to conserve our natural and cultural heritage; and

WHEREAS, since 1974, Pima County has purchased over 45,000 acres of open space property, and grazing leases for 86,000 acres of open space, which property is managed by the County for conservation purposes; and

WHEREAS, Pima County has begun collecting environmental enhancement fees as a percentage of revenues from particular development projects in order to mitigate development impacts to conservation areas; and

WHEREAS, the Board of Supervisors adopted Pima County Resolution 2003-88 supporting Congressional designation of the Santa Cruz National Heritage Area to promote regional conservation of our natural and cultural heritage areas, and to sustain tourism as a key sector of our regional economy; and

WHEREAS, the Board of Supervisors adopted revisions to the Riparian Mitigation Ordinance in 2005 to avoid and minimize impacts to riparian vegetation on local washes; and

WHEREAS, the Board of Supervisors amended the golf course ordinance to require new golf courses to be irrigated with directly-served effluent, reclaimed water or Central Arizona Project (CAP) water; and

WHEREAS, in 2006 the Board of Supervisors directed staff to begin an update to the Water Resources Element of the Comprehensive Plan to better address land use and water resource planning, and to provide additional information to the Board on riparian resource issues during the review of developments; and

WHEREAS, the Board of Supervisors approved Resolution 2005-124 and 2007-15 opposing mining in biologically important areas of the County that would degrade water quantity and water quality, negatively impact key tourism sites, and compromise quality of life for surrounding residents; and

WHEREAS, Pima County uses effluent, storm water, and reclaimed water for riparian rehabilitation and restoration efforts, as well as recreational facilities; and

WHEREAS, in 2007 the County Administrator directed staff to add energy guidance into this year's update of the Comprehensive Plan; and

WHEREAS, the Board of Supervisors has adopted regulations to prevent and reduce air pollution, protect public health, and restore and preserve the quality of the outdoor air in Pima County; and

WHEREAS, in January, 2007 Pima County was the first county in the state to adopt a Transfer of Development Rights program permitting willing sellers of land with conservation value to sell development rights to owners of land more suitable for more intense development; and

WHEREAS, the Board of Supervisors adopted the Recreation Areas in Residential Subdivisions Ordinance in 2003 to require recreation areas within new subdivisions and to collect fees to benefit the regional park system; and

WHEREAS, the Board of Supervisors in 2007 approved a concept for partnering with Native Seeds/SEARCH to promote the health benefits of eating native foods and the benefits of reduced energy consumption by growing or purchasing locally grown food; and

WHEREAS, voters approved the issuance of a combined total of \$25 million in bonds since 1997 to fund Neighborhood Reinvestment projects in high stress areas of Pima County, such as traffic mitigation devices, street lights, park improvements, sidewalks, walking paths, pedestrian bridges, sports facilities, and community buildings, which neighbors report have positively benefited their communities; and

WHEREAS, the Board of Supervisors in 2005 adopted an affordable housing fee to be required for certain new subdivisions that, when combined with \$15 million of bond funding approved by voters in 1997 and 2004, provides revenues to an Affordable Housing Trust fund to expand the supply of affordable housing in Pima County; and

WHEREAS, Pima County recognizes that the scientific community has developed a consensus that increasing emissions of carbon dioxide, methane and other greenhouse gases into the atmosphere is affecting the Earth's climate; and

WHEREAS, the Board of Supervisors recognizes and accepts its responsibility to continue implementing and promoting sustainable practices that protect the County's natural and built environment; and

WHEREAS, new sustainable development initiatives for Pima County must address the environmental, economic, and social characteristics of our community;

NOW THEREFORE, BE IT RESOLVED THAT:

1. The Pima County Board of Supervisors supports sustainable development and the continual emphasis on sustaining a livable community.
2. The Pima County Board Of Supervisors supports implementation of a green building initiative and other sustainable initiatives regarding county facilities and vehicles, including the following goals and aspirations:
 - a) Shifting to more environment-friendly alternative fuels for its vehicular fleet such that: twenty-five percent (25%) or a minimum of one hundred (100) vehicles of the County's fleet of vehicles, excluding Sheriff patrol vehicles, shall consist of Alternative Fuel Vehicles by 2008. This percentage shall increase to thirty percent (30%) by 2009 and fifty percent (50%) by 2010.
 - b) Applying a green purchasing and waste reduction emphasis to all County facilities.
 - c) Maximizing County water resource assets including groundwater rights, surface rights and production and use of effluent to sustain and protect the County's natural environment.
 - d) Reducing water consumption by fifteen percent (15%) in all County facilities by 2025. Water reduction strategies will include conducting water audits, replacing high water-use fixtures and replacing high water-use decorative landscaping with drought tolerant native landscaping.
 - e) Doubling the number of County parks served by reclaimed water by 2018, subject to voter approval of bond funds to extend reclaimed water lines.
 - f) Designing and building all new occupied County buildings, including additions over 5000 square feet, for which design is initiated after July 1, 2007, to achieve a minimum of LEEDTM Silver certification level.
 - g) Maintaining All LEEDTM certified County facilities under LEEDTM for Existing Buildings and attempting to apply the same standard to all existing facilities.
 - h) Applying the above LEEDTM criteria to all projects funded through County bonds as a condition of funding and regardless of jurisdictional project sponsorship.

- i) Designing and constructing at least one medium size County building with a net zero energy consumption.
 - j) Adhering to the Renewable Energy Standard adopted by the Arizona Corporation Commission such that fifteen percent (15%) of all County facilities' electrical energy consumption shall be generated from renewable resources by 2025.
 - k) Maximizing renewable energy resources from the production of methane in County wastewater treatment and landfill operations and use them to offset non-renewable energy needs.
3. Pima County will encourage the construction of new residential, commercial, and industrial facilities employing green building concepts throughout the county by embracing a sustainable development emphasis and by considering:
- a) The creation of incentive-based green building residential and commercial programs.
 - b) The incorporation of solar systems, solar orientation of structures, solar access, and smart growth principles into County development planning including exploring the possibility of requiring that that a minimum of fifty percent (50%) of homes constructed after 2010 include direct solar assisted energy through solar hot water or photovoltaic elements.
 - c) The amendment of land use regulations to require that all new houses discharging to septic systems also be provided with a grey water reuse system.
 - d) The revision of design and construction standards to capture and mitigate storm-water generated on-site for purposes of water harvesting and the incorporation, into the pavement of parking lots and roads, of light-colored permeable materials to reduce heat-island effects, water runoff, and dust emissions.
4. In order to maintain an emphasis on sustainable development initiatives organizationally the County Administrator is hereby directed to:
- a) Appoint a sustainability coordinator from existing staff to identify departments and organizational units within Pima County that contribute to sustainability efforts, establish an organizational structure that facilitates the coordination of efforts between departments and organizational units, and coordinate sustainable policy and initiatives with other jurisdictions.
5. Appoint an Energy Manager from existing staff to produce a comprehensive County facilities energy plan, track progress of County energy programs, and help facilitate LEEDTM implementation.

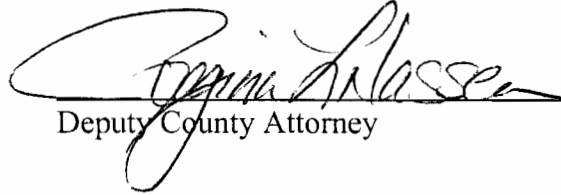
Passed and adopted by the Pima County Board of Supervisors this _____ day of May, 2007.

Chairman, Pima County Board of Supervisors

ATTEST:

APPROVED AS TO FORM:

Clerk of the Board



Deputy County Attorney