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TUCSON GENERAL PLAN UNDERWAY

ENVIRONMENTAL INTEGRITY FOCUS AREA
Energy and Climate Change, Green Infrastructure, Water, and Environmental Quality Elements

Transcription of Exercise Sheets

Following are transcriptions of the exercise sheets completed by participants during the Environmental Integrity Working Group meeting on August 19, 2011. For this exercise there was a breakout group for each of the four elements that comprise the Environmental Integrity Focus Area. Participants selected the breakout group of most interest to them, and began by filling out the exercise sheet, providing goals that they thought should be pursued for the element and then policy concepts related to each goal. In some cases participants provided goals without policies and vice versa.

ENERGY & CLIMATE CHANGE	
Goals	**Policies**
Become "the" solar city in the US	• Increase our SEPA ratings Megawatts/watts p/person • Develop a solar regional district • Work with TEP to create a broader map for "disturbed" locations to be used as solar sites - including smaller sites for start US • Modify current ordinances to include solar required on all new mega marts • Support & partner with Pima Community College & employers to create a Tech Solar program • Mayor's office to be the spokesperson
Decrease current ozone levels	• Increase alternative fuel stations • Improve insulation requirements
Decrease heat island effect by preserving, restoring & enhancing natural environment	• Incentives for commercial uses to shade parking lots and use more permeable surfaces • Reduce the use of glass on commercial buildings • Educate people on the albedo of colors
Promote energy efficiency	• Promote incentives for utilities, customers and builders • Distribute educational materials • Provide tax rebates and benefits
Create strategic transportation	• Install alternative transportation nodes • Make transportation options consistent and inter-related • Advertise and support public transportation
Promote in-filling of urban landscape rather than sprawl development	• Provide tax incentives for infill development • Collaborate with utilities • Penalize for sprawl development • Make development fees comparable between urban/rural or make urban fees less
Develop awareness & understanding of the inter-related energy network	• Educate K-12 in energy generation, transmission and distribution of all sorts • Distribute educational materials • Provide outreach

Energy and Climate Change continued

Goals	Policies
Review and adapt effective strategies from similar plans	• Collaborate with other cities • Incentive between communities • Competition between communities to use energy wisely
Coordinate/complement other jurisdictional plans to create a regional approach	• Work with other jurisdictions to complement efforts • Collaborate on grants
Reduce residents' vulnerability to most likely climate change impacts	• Identify most likely climate change impacts in city and region • Partner with UA to conduct necessary research • Identify areas or populations most likely to be adversely impacted by climate change impacts • Improve flood control undertakings (large scale and neighborhood scale) • Require rainwater retention practices at residential scale
Require City buildings to use proven energy reduction practices (white roofs, adjust the thermostat, LEED standards, etc.)	• Retrofit with white roofs and/or solar • Allow individual light fixture control • Set thermostat a few degrees lower or higher • Require building and/or renovation to LEED standards
Increase tree canopy coverage in line with American Forests' recommendations	• Require increased green infrastructure in all new developments, large renovations, and at City buildings
Reduce impervious surface coverage	• Require pervious/cool paving in all new developments and at City buildings
Craft climate change adaptation plan	•
Encourage energy efficiency and solar PV on City facilities and encourage/incentivize citizens use of solar	• Establish a low cost purchase option to buy solar using City bond ratings • Tax credits or other benefits for EE or RE installs • Permanent fund ($/yr) for solar installations on City facilities • Meet goal of a % of renewables/year for City • Adjust building permit fees and taxes to reward low energy use buildings and penalize high energy use buildings
Reduce private car use (if powered by gas or diesel)	• Support City owned bicycles • Encourage zip car • Stop building parking lots downtown and enlarging freeways • Add city tax to gas/diesel sales and use to subsidize electric vehicles
Support train service from/to Phoenix	• Establish train station locations & parking lots for future stations • Buy right of ways now and encourage transit oriented development • Give / rent unused City land to zip car operations near train station locations
Maximize solar water heating systems	• Require solar water heaters on all new homes or whenever homes are sold • Put on workshops regarding solar water heater maintenance and operation
Encourage more electric & hybrid car usage	• Eliminate sales tax on electric vehicles and reduce on hybrids • Create free parking at meters and city garages for electric vehicles anytime

Energy and Climate Change continued

Goals	Policies
Increase residential and commercial energy efficiency at a rate that at least fully mitigates increases in demand due to growth and increasing energy use	• Establish per capital & economic output per unit E baselines, regional per capita energy use by category and include as much of the city as possible in those baselines. Set broad goal that increases efficiencies to keep total energy demand flat or going down.
Capture existing built environment in policies aimed at "greening" building environment: codes, etc.	• Develop 'cost abatement" curve to ID low-hanging fruit/quick ROI solutions that can be no/low-cost loaned; require and develop funding mechanism that is sufficient for widespread adoption
Support improvements in energy and climate change literacy in schools and business community	• Develop "challenge campaigns", expand awards/recognition for "champions , partnerships between curriculum development and content area experts & outreach experts
Reduce greenhouse gas emissions	• Fund Office of Conservation and Sustainable Dev • Fund the Clean Air Program • Expand and fund public transportation routes • Improve bike routes east/west; Broadway full / safe bikeway across town
Maximize use of alternative energy sources	• Increase use of solar • Improve and streamline the solar permit process
Provide resources and maximize opportunities for implementation of policies	• Fund positions to implement programs such as the business green program
Reduce air pollution	•
Reduce Tucson's carbon emissions (GHGs)	• Coordination of traffic patterns • Bite the bullet and build a cross town highway
Require government to maximize utilization of government buildings and adopt more aggressive alternative energy sources	• Aggressive installation of solar on government buildings • Aggressive recruitment of solar manufacturing companies
Increase alternative transportation opportunities	• Build rail system between Tucson and Phoenix • Install really safe bike lanes • Continue the expansion of street cars
Incorporate beautification of existing land use for a "greener" Tucson	• "Green" traffic islands • Partner with neighborhood associations for beautification of vacant lots • Head the charge for a "Clean Up" Tucson campaign
Meet greenhouse gas emissions standards proposed by current science	• Continue funding OCSD to provide solid science to guide the City in mitigation and adaptation to climate change
Mitigate impacts of peak oil issues on sensitive populations	• Expand efforts to include / reach out to a broad cross section of residents to serve on committees and to provide input • Provide education to assist those most sensitive to adapt to coming climate change conditions

Energy and Climate Change continued

Goals	Policies
Shift a major portion of our energy generation to renewables	• Provide incentives • Pass ordinances for construction to lead to mandatory implementation of on-site renewable energy
Integrate the above goals with all City policies focusing on overall quality of life for all residents	• Expand efforts to include / reach out to a broad cross section of residents to serve on committees and to provide input
For all goals	• Provide education programs to prepare all children for climate change issues; promote educational reform
Reduce City (internal) & community greenhouse gas emissions	• Work to improve the energy efficiency of existing building stock • Increase energy efficiency standards of new construction • Encourage residents to reduce miles traveled and/or use of alternative transportation • Encourage residents to practice fuel efficient driving and vehicle maintenance practices • Set goals for City investment in renewable energy • Encourage recycling of construction and demolition materials • Encourage use of green concrete in new construction
Improve the adaptive capacity & resiliency of the community to changing climate and more extreme weather events	• Identify critical vulnerabilities of residents, economic systems, ecosystems and building infrastructure to climate change • Monitor exposure and sensitivity of residents, economic and social systems, ecosystems and building infrastructure to climate changes • Integrate strategies/processes for responding to climate change with City planning and decision making • Utilize strategies to reduce GHG emissions that simultaneously reduce community vulnerability
Fully support efforts of TEP, the UA, school districts, businesses and residents to increase local renewable energy generation	• Identify City lands that are appropriate for solar facilities and streamline lease agreement processes • Expand on incentives to encourage increased generation of renewable energy • Explore partnerships with TEP, UA, others that make renewable energy more accessible to a broader range of businesses and residents
Invest in expanding accessibility of alternative transportation options	• Plan for additional streetcar lines and pursue funding for them • Expand bus lines and hours, especially to meet currently underserved areas
Reduce air pollution in the region	
Develop policies that are responsive to extended and unpredictable events arising from climate disruption	• Require a climate vulnerability "filter" and apply to business-as-usual planning (and City policies, programs and procedures) elements and assign probabilities to the likelihood of these climactic events occurring. Update these more often than every 10 years.
Allow for a futures planning scenario to be developed under which the region loses population as a result of cumulative climate, energy and economic disruption	• Construct a scenario in which local growth stagnates or retreats over the life of the General Plan as a consequence of cumulative climate, energy and economic disruption and build contingency plan elements in response to these.

Energy and Climate Change continued

Goals	Policies
Inventory critical community assets at risk as climate disruption, long term water scarcity, energy price volatility with economic stagflation/deflation sets in over the coming decade.	• Develop plans to protect or develop the alternatives to the structure and function of assets at risk.

GREEN INFRASTRUCTURE	
Goals	**Policies**
Use available land within City for infill and redevelopment as sites for multi-use development that incorporates green space	• Integrate policies governing green infrastructure – master framework
Provide support for washes and riparian ways to establish or re-establish natural ecology	• Build in flexibility in land use codes
Use opportunities while improving streets and transportation to incorporate tree canopies and connected corridors among green spaces	• Regional food control regulations need to be coordinated
Revise land use codes to create multi-use areas incorporating green spaces – 50% canopies with combined green spaces and connective trails, transition zones	
50% tree canopy cover	• Fund and educate on proper tree care • Funding planting projects • Maintain health of current canopy (Indicator = tree inventory)
100% water harvesting, infrastructure improvements	• Invest and install water harvesting improvements (Indicator= measure water usage)
Preserve biologically rich open space, important wildlife linkages, riparian habitat	• Implement Pima County's CLS for annexations (accomplished but needs to be integrated into new general plan) • Adopt & implement a new Riparian Habitat Mitigation Plan
Integrate transportation planning with habitat protection	• Adopt and implement environmentally sensitive roadway design guidelines (include main policies in Plan Tucson)
Ensure regulations re-enforce preservation of habitat and support improved tree planting and maintenance of reg. vegetation	
Encourage expansion of trail system to encourage walking and bike riding by reallocation of funding	
Encourage plazas and open space in land planning	

Green Infrastructure continued

Goals	Policies
Encourage walking environment through shade, wide sidewalks, increased density and re-enforce concentrations of commercial and entertainment activities	
	• Establish clearly defined green infrastructure framework to house (or map) currently fragmented policies • Clearly define process by which green infrastructure concepts are incorporated into master planning efforts (PADs, HAMPS, Southlands) in a flexible manner • Develop a coordinated strategy and approach to developing regional flood control infrastructure in harmony with habitat and recreational linkages
Focus on connectivity of existing County and City parks by trails	• Continue to work toward connecting the existing County and City parks by walking trails
Increase percentage of land for new developments to be dedicated for open space and/or trails for walking and biking	• Create a standard percentage that will be required for all new housing developments to be dedicated to open space within developments
Connect neighborhood parks by a trails system for each side of town; ex: East Side trail system	• Promote connectivity of parks through a trails system within each section of town; Ex: East Side, Midtown, Downtown, West Side, NW, etc
Create more bikeways along major roads thoroughfares such as what is currently being done with Grant Road	• Develop a major bikeway long the trolley route similar to what is being proposed along Grant Rd.

WATER	
Goals	**Policies**
Reliability / sustainability of water supply	• Maximize use of renewable resources • Indicators: (1) progress on City/County Water Study Action Plan; (2) % use of renewable water use
Efficient water use	• Water conservation initiatives adopted by M & C
Safe water	• Water quality
Sufficient financial resources to support water goals	• Need to pay for activities
Promote rainwater harvesting - both at individual and government level	• Look at ways to create harvesting/storage/reuse at City reservoir - for utilization in sewer • Need to supplement the 4 million gallons the County injects each year into the sewer system • Find ways to fund/install cisterns on private property
Removal of unnecessary hardscape to promote groundwater recharge	• Removal of cement-lined washes and restoration of the natural landscape
Look at parking lot codes to find ways to include more water harvesting	• Redesign parking - LUC changes that promote harvesting
Public education on water situation	• Public needs to understand - look at outreach to schools
Recharge	• Collaborate regionally
Grey water systems	• Building code update

Water continued

Goals	Policies
More recreation opportunities involving water - multi-use	• Collaborate regionally
Leverage existing COT / regional water studies - cost effective	• Measure effectiveness of existing studies
To dedicate a water supply for: urban landscapes in perpetuity and riparian restoration/preservation	• Maintain the health of the urban landscapes which provide health benefits and ameliorate climate change/UHI
More efficiently manage water supplies (potable, reclaimed, GW, RWA)	• Develop and adopt commercial irrigation efficiency ordinance (allotment based) • Water harvesting & AC condensate
Reduce dependency on water from non-renewable supplies - especially in sensitive areas (Tanque Verde, Cienega Creek)	• Education • Carrots and sticks for rainwater / graywater • Stronger mitigation/permitting requirements
Expand protection of rural open space to protect GW recharge potential	• Education - connection • Bond funding (P-ship with Pima SDCP)
Balance human with environmental water needs	• Education • Conservation effluent pool • Upland management
Develop person connections to H2O	• Redevelop rivers/riparian parks (Rio Salado, etc.)
Utilize renewable resources including CAP, but expanding to wastewater and stormwater utilization by marching use to water quality needed including displacing need to pump groundwater	
Prioritize maintaining existing riparian habitat and consideration of environmental needs when designing pumping strategies	
Integrate conservation message with rainwater harvesting and stormwater pollution controls, flood control, erosion	
Consider aquifer health when choosing how to expand service areas especially in GRD subdivision areas	
Determine the priorities for water use and consumption	• Initiate a process to determine community values and to educate people on the consequences of policy action
Permanent protection of GW quality	• Adjust water charges and subsidies (to people) to make water use conform to priorities
Balance water conservation efforts with ensuring that water is available to maintain quality of life especially in the face of rising temperatures and declining rainfall (climate change)	

ENVIRONMENTAL QUALITY	
Goals	**Policies**
Enhance overall community participation in addressing environmental quality.	• Provide opportunities for broad community participation through education, programming, and accessible practices. • Commit to specific training, education, and enforcement standards.
Clarify the City's roles and responsibilities in the context of the environmental quality network.	• Clarify the relationships between the offices and agencies providing environmental quality services including legislated mandates; enforcement authority; funding; testing; programming; partnering, and mutually beneficial or damaging practices.
Reinforce behavior modification related to environmental quality. Consider how each policy can change consumer/citizen behaviors and integrate these practices into policy action items.	
public expectations regarding environmental quality issues and approaches.	• Augment mass transit. • Define what "mobility" means in terms of current vehicle type/size, fuels, and road development and maintenance costs. • Apply the principles of co-location to achieve environmental quality. E.g. Civano
Balance equity and fairness for all citizens in the context of environmental quality policies, programs, and practices.	
Redefine the approach to environmental quality from mitigation (clean up) to a focus on innovation. Policies and programs should enhance economic development, sustain and improve the environment, and create renewable resources	• Develop and advertise economic incentives as a means to achieve environmental quality. E.g. Vancouver, B.C. carbon tax • Illustrate the integration and reciprocal impacts of environmental elements regarding quality of life in the community. • Promote environmental quality as a necessity, not an amenity
Raise the aquifer	
Elevate the role of Air Quality in environmental quality and community health; list it in the General Plan as a separate element.	• Evaluate and describe the impacts of poor air quality as a planning tool and define the relative importance of air quality to General Plan elements like Water and Climate Change • Evaluate Tucson's air quality in an appropriate regional context (within Arizona, the southwestern United States, and Mexico) • Assess the risks and impacts of regional pollution, disparate standards and practices, forest fires, mining operations, dust, water, and drought as it pertains to maintaining air quality in Tucson and Pima County

Environmental Quality continued

Goals	Policies
Maintain and improve upon current air quality standards	• Apply Pima County's recent air quality ratings as a minimum threshold/benchmark and enhance the community's ability to further improve air quality under Clean Air Act attainment standards • Promote full funding levels for successful programs and best management practices (collaborative partnerships). E.g. Vehicle retrofits authorized under Arizona Revised Statutes. • Encourage broad-based education and participation in air quality management practices, with a specific solicitation to private sector businesses e.g. Chamber of Commerce membership • Apply a multi-disciplinary approach to managing air quality that includes urban foresting, infill development, alternative fuels for fleet operations • Set a standard to achieve a balance between impervious surfaces and urban foresting. (Do not under estimate the impact of tree canopy as a clean-air strategy) • Target specific (declining) areas for urban foresting, e.g. dry, neglected, medians • Promote alternative fuels
Shift paradigm to a new business model for waste production, collection, and recycling. E.g. Long-term goal is to design and implement a "zero waste" production model. (Waste disposal should not be a one-way system or something we "do".)	• Create private sector partnerships that model the adaptive re-use of waste. (Create new products/markets/jobs) • Design a waste disposal/recycling system that is easily accessible to everyone---citizens, large, and small businesses
Develop an integrated waste reduction plan	• Funding • Education • Dedicated Space • Development Mandates • Recycling
Enhance City and County collaboration on waste disposal	• Develop a countywide standard that is based on inter-jurisdictional coordination to achieve consistency and accountability for all entities/businesses involved in waste disposal, including private haulers • Cross-train Directors and Department Heads in environmental quality issues, policies, and practices. • Create incentives and accountability that requires the generator of the waste to also be the party responsible for providing the disposal/recycling opportunity. E.g. construction waste model
Address waste disposal practices in a holistic fashion	• Re-evaluate and re-design the countywide hauling system. (Cost-benefit analysis of decentralization, environmental impacts of maintaining the dispersed system, jurisdictional dumping sites, and cost/maintenance/design of equipment)
Reduce neighborhood blight caused by contaminated and under-utilized properties	• Create a comprehensive system to inventory contaminated or restricted properties that includes brown fields (approx. 5,000), Davis-Monthan properties, and the 23 landfills in Pima County

Environmental Quality continued

Goals	Policies
Determine the highest and best use for brown fields redevelopment	• Calculate the scope and cost of contamination relative to development potential for identified brown fields • Establish an appropriate mechanism to advertise and assess redevelopment opportunities with potential developers/investors
Make brown fields redevelopment a community-driven process	