

EPA Technical Assistance for Sustainable Communities: Building Blocks

Technical Assistance Tool: Sustainable Design + Development

PITTSBURGH, PA

May 2-3, 2012

To: Matthew Barron, Policy Director, Office of Councilman William Peduto

Dan Sentz, Pittsburgh City Planning Department

From: Chris Duerksen, Clarion Associates

Roger Millar, Smart Growth America

Date: August 27, 2012

Re: Sustainable Code Workshop Summary And Suggested Next Steps As Outcome Of Technical Assistance

1. Overview/Background

- The May 2 evening public meeting was opened by Councilman William Peduto who has been a major supporter of sustainable development initiatives in the city. Attendees included representatives of local nonprofit environmental organizations, universities, and local architects. Although attendance was light—about 10 people including city officials—those present were engaged and very interested in seeing the city pursue incorporating sustainability elements into the city’s comprehensive plan (which is currently being updated) and then amending the zoning ordinance and subdivision regulations.
- There appears to be significant support for sustainability measures among citizens who attended evening meeting, including representatives of non-profit organizations. At the May 3 all-day workshop, a majority of council members were represented by staff, including Council President Darlene Harris. They and representatives of a number of regional agencies and non-profit organizations were very engaged in the workshop discussions of specific potential sustainable code amendments and very supportive overall of this effort to update the city’s development codes.
- Already the community has taken some important strides to promote sustainable development:
 - Adopted recently the ground-breaking Pittsburgh Climate Action Plan 2.0. It contains very ambitious greenhouse gas reduction goals and specific implementation actions.
 - Created a full-time sustainability coordinator position
 - Enacted zoning floor area and height bonuses for sustainable development
 - Retrofitted street lights with energy efficient lamps
 - Passed LEED silver standards for city and TIF-funded buildings
 - Enacted provisions allowing urban agriculture and poultry raising
 - Put in place new controls on electronic billboards that will reduce energy use

EPA Technical Assistance for Sustainable Communities: Building Blocks

- Mr. Barron and Mr. Sentz and several other participants in the workshop stressed that one of the key issue the city must address in considering sustainable code amendments is the lack of enforcement of current zoning regulations (e.g., landscaping and stormwater management facilities). According to council staff, the city Bureau of Building Inspection (which enforces the zoning code) is understaffed, has no leadership, and has publicly said that it is not enforcing the codes adequately. Additionally, they pointed out it is currently too easy to obtain variances (height, density, etc.) from the city zoning board of adjustment which makes green building incentives unnecessary or unattractive.
- City council staff expressed concern that the city planning department is very focused on an update of the city's long-term comprehensive plan and may be resistant to making code changes before that work is completed which they report may be as late as 2016.

2. Key Issues Addressed during the Site Visit

There was general agreement on three main topics for further detailed analysis in terms of potential code amendments as discussed below.

- Energy Conservation/Alternative Energy—Reduce energy use and increase use of renewable energy sources.
- Green Infrastructure and Stormwater Management—Utilize “green,” non-structural approaches to stormwater management such as bioswales, vegetation protection, and bioswales in concert with more traditional “gray” infrastructure engineered solutions.
- Housing Diversity/Choices—Provide a range of housing choices for all income and age groups.

3. Targeted Sustainable Code Issues and Recommendations Discussed during the Workshop

This section summarizes the three key sustainability issues discussed at the Day 2 workshop and recommendations for potential zoning code and other city ordinance amendments. The recommendations are set forth in three categories—removing barriers, creating incentives, and filling regulatory gaps.

- a. **Energy conservation/renewable energy goals:** Reduce fossil-fuel based energy use and increase use of renewable energy sources such as solar, wind, and geothermal (e.g., ground-source heat pumps).

Remove Barriers

i. Alternative energy facilities

1. Pittsburgh's zoning code specifically allows solar systems as an accessory use in most zone districts—but includes no definitions or standards regarding key aspects such as maximum allowable height, setbacks, and permissible site locations. Additionally, alternative energy facilities are not listed in Section 925.06 as allowable structures in setback areas. So far, staff reports no real hold ups for most solar installations, but this lack of guidance likely could create hurdles in future. Also, the code contains no provisions relating to other

EPA Technical Assistance for Sustainable Communities: Building Blocks

- alternative energy sources such as wind or geothermal (ground-source heat pumps). Lack of definitions and clear standards will likely slow review and processing of applications for those alternative energy installations (e.g., ground-source heat pumps often require equipment and underground pipes in setbacks areas).
2. The city should allow solar, wind, and district heating facilities as PRIMARY uses in some zone districts (e.g., industrial). Not currently contained in any district use lists.
 3. The city has many historic districts and structures. It should explore tailored standards for installation of solar panels on historic structures similar to those being employed in Salt Lake City. Salt Lake City is using guidelines that establish a hierarchy of preferred locations of solar on an historic site.
 4. The city should specifically add clothes lines to the list of allowed accessory uses in the zoning code and prohibit any homeowner or condominium owner association covenants that ban clothes lines when a development is seeking approval through the Section 909.01 SP Specially Planned District and Section 909.02 PUD Planned Unit Development District.
- ii. Nonconforming use/building regulations: Chapter 921 of zoning code contains fairly strict rules on expansion of legal non-conforming uses and structures (uses and buildings that do not meet current use, height, setback, etc. regulations). No enlargement or expansion is permitted without a special exception or variance. As experience in Salt Lake City and other communities demonstrates, this can be a roadblock to desired green renovations because the cost of a full upgrade of a site or building to complete conforming status may render the project infeasible. The nonconforming regulations should be amended to allow green renovations of non-conforming uses and structures without having to make a use or structure fully conforming. Under the current zoning code, an applicant can upgrade heating, ventilation, and air conditioning equipment in a non-conforming structure with a non-conforming use in a residential area notwithstanding the strict nonconformity regulations if the costs do not exceed 50% of assessed value at time of improvements. This is a good start, but this provision can be expanded to clarify it applies to a wider range of “green” energy conservation renovations, and the percentage might also be increased or such renovations be totally exempted from the nonconforming regulations.
- iii. Mixed use/TOD developments: These developments typically help reduce VMTs and associated greenhouse gas emissions by 5-25%. The Pittsburgh zoning code already has seven tailored mixed-use zoning districts, which is a very good start. However, small-scale retail uses are not allowed in residential districts, and live-work units are not permitted in some zone districts (HC, GI, UI, GT, and DR) that do not permit single-unit residential units. The city should consider targeted amendments to allow such uses as a

EPA Technical Assistance for Sustainable Communities: Building Blocks

supplement to its mixed use zone districts. Additionally, the city should explore adding a special transit-oriented district to the current zone district line up as it drafts its new transportation plans. Other cities have preserved key sites near transit stops for higher density mixed-use developments, and some have even required minimum densities in these areas.

Create Incentives

- iv. Uniform regional solar energy facility standards: The most-cited roadblock to small-scale solar installations in recent national survey of solar firms was conflicting and overlapping permitting requirements among multiple jurisdictions in a region. Pittsburgh should take the initiative to work with Allegheny County and other local governments in the region to standardize such regulations to the maximum extent possible. This is also a recommendation of Pittsburgh Climate Action Plan (p. 55). A similar effort would also be warranted for geothermal and small-scale wind facilities.
- v. Density and other development bonuses: Pittsburgh has enacted sustainable development height/FAR bonuses for sustainable “green” developments in Sections 915.04 and 915.06 of the zoning code, but they are reportedly rarely used. According to staff, developers often need multiple variances, and variances are easily obtained from the zoning board of adjustment from height, density/intensity, and other standards. Therefore instead of seeking green-related bonuses offered in the code, it is simpler to seek additional variances similar to the bonuses. This is despite the fact that under the zoning code provisions and state law, variances should be difficult to obtain. If the issue of easy variances can be brought under control, the city should consider other green building bonuses such as expedited green building permitting (offered in Miami-Dade County and Montgomery County, MD) and height bonuses downtown for any building with a green roof. (Offered in Portland and another Pittsburgh Climate Action Plan recommendation).

Fill Regulatory Gaps

- vi. Bicycle parking regulations: The city’s current bicycle parking regulations found in Section 915.05 are a good start. They require a minimum number of bicycle parking spaces based on use type and also interior bicycle storage for larger multifamily buildings. The city should consider taking the next step to amend the zoning code to require indoor storage for bicycles in larger office buildings as well as showers for bicyclist.
- vii. Solar access/orientation: If the city is serious about promoting solar energy, it must address the issue of maintaining solar access for solar installations. A number of

EPA Technical Assistance for Sustainable Communities: Building Blocks

communities that have put such protections in place including Laramie, WY, and Boulder, CO, provide a range of approaches Pittsburgh might consider. Additionally, as recommended in the Pittsburgh Climate Action Plan, the city should explore requiring solar orientation of new buildings in certain areas where it would fit the scale of existing buildings. Basically, this means the long axis of the building runs east/west to provide more exposure to the sun. This can result in significant solar gain in the winter when the largest amount of fuel is used to heat buildings in the city. T

- viii. Cool roofs: An increasing number of cities are creating incentives for or requiring buildings to be covered with cool roofs (i.e., white roofs with high reflectivity). New York City now requires all new buildings to have 75% of their roof area covered with a reflective, white coating. Studies show that with a very low initial cost differential from standard roofing, cool roofs can realize a payback in literally a few months and result in substantial energy savings over their lifetime by reducing use of air conditioning. Neither the city zoning code or building code mention cool roofs.
 - ix. Outdoor lighting standards: Title 12 of the Pittsburgh Code of Ordinances addresses outdoor lighting, but focuses mainly on light spillover and pollution, not energy conservation. Studies show that reducing outdoor lighting can result in major energy savings. The city should consider requiring businesses to substantially reduce or turn off outdoor lighting and signage when they are not open for business and to put security lighting on motion-detectors. In the longer term, the city should explore a comprehensive new approach to energy-saving outdoor lighting such as embodied in the recently published national outdoor lighting code recommended by the professional Illuminating Engineering Society of North America and the Dark Sky Association. This model code recommends energy-saving lighting budgets tailored to use types (e.g., commercial, multifamily).
 - x. Priority parking for alternative fuel vehicles: The city should adopt priority parking provisions for alternative fuel vehicles and consider requiring electric vehicle recharging stations in all large parking lots.
- b. Green Infrastructure Goals**: Stormwater management is a major issue in Pittsburgh. The city is under a decree from the U.S. EPA for water quality violations due to its combined sewer/stormwater system overflows that allow pollutants to spill into the city's rivers. The city is considering a variety of options to address this issue including both grey infrastructure (e.g., building large expensive tunnels to store stormwater so it can be treated when flows are reduced) to green infrastructure that use natural systems to cleanse stormwater (e.g., bioswales, pervious pavement, green roofs). The city's current stormwater management regulations (found in Chapter 1003 of the Code of Ordinances) are quite progressive and appear to allow a wide range of stormwater management options, including green infrastructure.

EPA Technical Assistance for Sustainable Communities: Building Blocks

According to staff, the real issues are not code-related, but rather lack of stormwater management plan reviews in the field and inspection to ensure that stormwater management facilities reviewed and approved by the planning department are actually installed and maintained. Staff reports that both the Public Works Department and Bureau of Building Inspection state they do not have sufficient staff to administer the regulations already on the books. Additionally, there was concern that appropriate city staff need to receive firm directives to enforce existing regulations and approved stormwater management plans.

With that as background, we recommend the city consider the following code amendments:

Remove Barriers

- i. Pervious pavement: The zoning code appears to prohibit pervious pavement in its parking lot regulations, but Section 1003.04 of the municipal code specifically allows and states a preference for pervious pavement and other low-impact development techniques. According to staff, however, this exception is confusing and never used. The zoning code needs to be amended to make clear pervious pavement is allowed. The city should also consider removing the major exception in Section 1003.04 for any development less than 10,000 square feet. Green infrastructure techniques are also required for public funded development and redevelopment projects in Section 1003.04, but according to staff these provisions need to be clarified so that they clearly apply to any project that receives public funding for not only buildings and structures but also associated infrastructure improvements.
- ii. Off-street parking requirements: The current off-street parking chapter in the zoning code (Chapter 914) allows some flexibility to meet off-street parking requirements such as shared parking, alternative parking plans, and transportation demand management programs (Section 914.07). These options help reduce impervious surface and resulting stormwater runoff. However, other options should be considered in the off-street parking regulations such as off-site parking within reasonable walking distance. Also, TDM (transportation demand management) alternatives should be expanded. Some individual use parking requirements also appear to be excessive and should be examined by staff (e.g., grocery store parking requirements appear to be unusually high). Excessive off-street parking results in more pavement, more runoff, and less compact development.

Create Incentives

- iii. Green roofs: Incentives for green roofs is a recommendation in Pittsburgh Climate Action Plan (pp. 13 and 56). Portland has led way with density and height bonuses for installation of green roofs in business districts and also gives stormwater fee rebates.

EPA Technical Assistance for Sustainable Communities: Building Blocks

San Francisco has expedited permit program for green roof development. Chicago now requires for all new buildings in downtown. Workshop attendees noted that there is significant resistance to green roofs by developers who worry about the weight on buildings from storing stormwater on a roof. More education is needed to inform the development community of the variety of modern green roofs and building techniques that reduce any potential problems. In the future, due to the consent decree with U.S. EPA regarding water quality and stormwater, developers may have further inducement to consider green roofs more seriously. The zoning code should be tuned up to promote this option and make clear it and other green infrastructure techniques are not only allowed but preferred as is done in Chapter 1003 (Land Operations Control and Stormwater Management).

- iv. Green infrastructure street standards: There are no provisions in the subdivision regulations addressing green infrastructure, notably for streets. Overall, the city's subdivisions regulations are woefully dated and are not available on-line as is the rest of the municipal code. Planning staff recommends that the city study and adopt modern street sections and standards that will allow and promote the use of green infrastructure (e.g., stormwater infiltration inlets for landscaping, bioswales, pervious pavement).

Fill Regulatory Gaps

- v. Hillside/steep slope protection: According to some workshop attendees, possibly the most effective step Pittsburgh could take to better manage stormwater and control runoff would be to protect existing vegetation and steep slopes (which are a defining feature of the city). The city does have some notable tree preservation standards for large trees and mitigation/replacement requirements. It is demonstrable that protection of trees and vegetation is more effective to prevent runoff than more expensive attempts to control after the fact. Attendees all agreed that more can be done. Construction on steep slopes and vegetation removal has led to landslides like the one that shut down McCardle Road a few years ago. Reportedly, the city puts thousands of dollars in its budget each year to deal with landslides. The city's current steep slope regulations are what might be called "first generation". They apply only to slopes in excess of 25%, contain vague language about protection to "the maximum extent possible" and to "minimize impervious surfaces." According to staff, this leads to uncertainty in the development review process and case-by-case negotiation. Overall, staff felt like the provisions were more in the nature of guidelines than actual standards.

EPA Technical Assistance for Sustainable Communities: Building Blocks

Based on experience in other communities such as Cincinnati and Salt Lake City and 2004 report of the Pittsburgh Hillside Committee, we recommend the city consider the following revisions:

- Tighten the regulations on all slopes over 25% by setting clear limits of disturbance based on use type (e.g., define maximum building envelopes for residential development and limit any grading outside that area), prohibit fill on slide-prone slopes, and require green roofs for larger commercial, institutional, and multi-family developments to reduce runoff.
- Apply restrictions to removal of all vegetation, not just large specimen trees.
- Severely restrict or prohibit development on slopes over 40%.
- Adopt safety valve provisions to deal with properties that do not have any developable areas less than 40% (TDRS, purchase of development rights). May need mechanism (e.g., impervious surface fee) to help fund.
- Consider extending the regulations beyond new developments to expansion of existing developments and other contexts.
- Adopt complementary standards in the Land Operations Permit section of the code (1003.03.a.3.B) that are currently weak.

- c. **Housing Diversity/Choices Goals:** Provide a range of housing choices for all income and age groups. National experts predict a massive oversupply of single-family housing and a major shortage of multi-family and smaller single-family units in the coming decade. Compared with many large cities, home prices in Pittsburgh are refreshingly affordable. The seven-county Pittsburgh region generally ranks among the top 50 most affordable housing markets in the country according to the National Association of Home Builders/Wells Fargo Housing Opportunities Index. However, the number of people on Allegheny County Housing Authority waiting lists for low-income public housing jumped 40 percent in the past year, from about 6,000 to 8,378. Housing officials say job losses and foreclosures are driving up demand, although family breakups and homelessness also are factors. With this background in mind, and based on consultation with city staff, we recommend the following code amendments to increase housing choices in Pittsburgh:

Remove Barriers

- i. Live-work units: Live/work units--incidental residential units attached to businesses and allowed in commercial, office, and industrial areas--are becoming increasingly popular. They help small business people (artists, personal services, restaurants, etc.) both from a financial and work perspective while bringing 24-hour presence to commercial areas and reducing vehicle miles traveled among other benefits. Many communities allow

EPA Technical Assistance for Sustainable Communities: Building Blocks

(Chicago, Oakland, Seattle), but this use type is not addressed in the Pittsburgh zoning code. It should be defined and added to appropriate district use lists.

- ii. Accessory dwelling units (ADUs): Accessory dwelling units (sometimes known as granny flats), both interior to an existing home or above an accessory structure like a garage, can be a very good way to add density and affordable small units near jobs and transit without building large multi-family structures. ADUs can also help seniors and young couples generate income to pay mortgage and make housing affordable. Chapter 912 of the Pittsburgh zoning code dealing with residential accessory uses does not appear to allow accessory dwelling units. Many other jurisdictions allow ADUs with compatibility standards such as requiring owner occupancy of one of the units, size limits, design standards, and limits on the number allowed in any one year. (Kansas City, Seattle, Santa Cruz, CA, Salt Lake City). The city should explore permitting accessory dwelling units in selected residential areas.
- iii. Small-lot residential: The city should consider allowing small and non-conforming lot residential development with contextual dimensional and compatibility standards. Notably, the city has already adopted contextual setback standards in Section 925.06 that will facilitate smaller lot single-family units.

Create Incentives

- iv. Density bonuses: Offer density bonuses for projects with a mix of housing types and units. Note, however, the earlier concern that the zoning board of adjustment “gives away” density through freely dispensing variances.
- v. Parking reductions: Grant parking reductions for affordable multi-family projects. Studies show that affordable housing projects demand 25% less parking than standard multi-family developments because families with lower incomes have fewer vehicles and use transit more often. If reductions are granted, the city will need to impose restrictions to ensure housing remains “affordable.”

4. Priority Amendments Checklist

The working group spent most of the afternoon session discussing implementation strategies. This discussion took into account a number of “drivers” such as the Pittsburgh Climate Action Plan, the update of the city’s comprehensive plan that is currently underway, the consent decree with the U.S. EPA related to water quality, competition among regional local governments for business and new development, and the Port Authority’s financial crisis (huge reductions in service to meet budget shortfall). The following is a list of short-term priority items that the group feels should be undertaken

EPA Technical Assistance for Sustainable Communities: Building Blocks

immediately and completed in the next year and a longer-term list that should be initiated soon, but will take longer due to the need for further study and public involvement.

Short Term

- Adopt basic solar standards for City of Pittsburgh and coordinate/standardize with surrounding municipalities. Convene roundtable of solar installers to receive input. Note that city is currently working with the Allegheny County Executive to explore how to do this through a model ordinance or countywide regulations.
 - Allow solar, wind, geothermal as primary and accessory uses. Allow ground- source heat pumps in utility use code. Require food-quality glycol or other non-toxic substance for exchange fluid. Do not permit in contaminated soils.
- Allow clotheslines in SP, RP, and AP districts and supersede any homeowner covenants.
- Require cool roofs in either the zoning or building code (with exceptions for historic structures).
- Adopt flexible parking requirements. For example, link parking minimums/maximums to transit access. Reduce parking automatically if near transit. Consider requiring more stormwater capture if parking provided exceeds maximum allowed.
- Amend zoning code to allow pervious pavement and other green infrastructure facilities.
- Create development incentives for green roofs (e.g., additional height).
- Allow live/work units in mixed-use and commercial zone districts where currently not permitted.
- Adopt expedited permitting system for green building developments.
- Provide educational workshops and information on range of sustainable development topics (solar, low-impact development, etc.) for city staff.
- Explore creation of a broad stormwater utility to address and incorporate a wide range stormwater management techniques and financing.

Long Term

- Create transit-oriented development zoning overlay district with minimum density requirements and value-capture mechanism to fund transit improvements and connections.
- Update steep slope regulations as recommended above. Link park and greenway development and to stormwater management.
- Foster multi-jurisdictional cooperation on development incentives.
- Address non-conforming use/structure regulations as discussed above. Make it easier to improve a legal non-conforming use with green building features (e.g., alternative energy, cool roof, etc.)
- Explore creation of a zero-net energy overlay district with a goal of being energy sufficient by using alternative energy and energy conservation.
- Find creative ways to address accessory dwelling units to increase density. Require owner-occupancy and incorporate design compatibility standards.
- Update lighting code for energy efficiency rather than just focusing on light intrusion.