Sustainability Audit of Zoning Ordinance

The City of Cleveland Heights

Prepared by:
CAMIROS

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PURPOSE & APPROACH

Purpose

A zoning ordinance should require, allow and encourage a variety of sustainable development techniques, improving energy efficiency for all types of development and taking full advantage of existing resources and services. The purpose of this Sustainability Audit is to evaluate the City of Cleveland Heights' current development regulations and outline where current regulations can be enhanced and where new regulations are needed so that the City's Zoning Ordinance can implement the full range of sustainable development regulations and become a model sustainable ordinance.

Approach

Often, when a municipality examines the specific level of land use regulations, it is revealed that zoning has unintentionally created roadblocks to creating fully sustainable communities. While traditionally developed for the purpose of regulating land use impacts and achieving adopted community land use policy, the requirements of the zoning ordinance also directly and indirectly affect the type and amount of energy consumed and conserved within a community. For example, zoning structures a community's pattern of housing development and the ability to preserve older housing stock, its level of connectivity between pedestrians, bicyclists and motorists, and the demand upon its natural systems. From this perspective it is clear that zoning represents a potent tool to achieve actions that will help Cleveland Heights become a more sustainable community.

As stated in goal seven of the "Strategic Development Plan 2010," Cleveland Heights has identified "reduction in carbon-based pollution" and "increased energy conservation" as two goals for future energy strategies and development practices. Based upon these goals, this Sustainability Audit and revision of development regulations are guided by the following goals:

- Decrease water consumption
- Reduce impervious surface
- Increase tree and vegetation coverage and bio-diversity
- Encourage local food production
- Reduce landfill dumping
- Encourage energy efficient and clean modes of transportation

A zoning ordinance needs to be comprehensive in addressing the three components of what makes a community sustainable – the environmental, the economic and the social. Environmental sustainability is likely the component most are familiar with. Examples of environmentally sustainable regulations include limiting paved areas to allow for on-site water conservation, regulations that permit solar panels and wind turbines, and landscape standards based on principles of water conservation and bio-diversity. Economic sustainability is seen in regulations that tap into local economies, such as permissions for local food production and preservation of neighborhood commercial areas where local businesses thrive. Finally, social sustainability focuses on regulations that promote positive public health impacts and preserve established neighborhoods, allowing for current residents of all income brackets to find a home in the

community and to age-in-place. Further, the boundaries between these three components often overlap, so a Sustainability Audit must examine all parts of a zoning ordinance keeping in mind each of the three components.

The following Sustainability Audit reviews Cleveland Heights' Ordinance as a whole and assesses the roadblocks and omissions to sustainable development. Each section of the Ordinance has been reviewed and a series of potential revisions and additions is compiled in this report. In addition, public input was gathered through key person interviews, public participation at a public meeting in September 2010, and written responses to questionnaires that were distributed at that meeting. The input received provided valuable insight into the values of the community and a public perspective on what is needed in the regulations. Based on this information, this report specifically addresses the following aspects of Cleveland Heights' Zoning Ordinance and how they could be made more sustainable:

1. General zoning provisions
2. Residential district standards
3. Commercial and mixed-use district standards
4. Accessory structures and uses
5. Principal uses
6. Parking standards
7. Landscape and water conservation
8. Large-scale development processes

Each of these sections is discussed in more detail for the remainder of this report.

Next Steps

This Sustainability Audit serves as the drafting directions for Ordinance revisions. We hope to gain general consensus on the revisions proposed in this report and identify any issues that may have been missed. By its nature, this Sustainability Audit is more general in nature as the details of the specific requirements and regulations would be worked out in the drafts of the ordinance language. The next step is, based on that discussion, to prepare a preliminary draft of revisions to the Zoning Ordinance for review.

GENERAL REVISIONS

The following general revisions to the City of Cleveland Heights' Zoning Ordinance are recommended in order to reinforce the community's commitment to sustainability:

- A statement regarding sustainability should be added to the Ordinance's purpose statement and to the objectives section of other chapters of the Ordinance. This reinforces the City's policy, as articulated in the Strategic Plan, to create a more sustainable city.

- Because the current variance regulations include limitations on the types of variances that can be applied for, these regulations will need to be re-evaluated once revisions to the Ordinance are confirmed to determine if additional variances permissions are needed for new sustainable regulations.

RESIDENTIAL DISTRICTS

During the key person interviews and from an analysis of issues that frequently emerge during residential development, three issues have been identified that relate to residential districts. These issues are:

1. Lot coverage and impervious surface. Currently, the Ordinance does not have an overall limitation on lot coverage and impervious surface. These are controlled through limitations on individual yard coverage. Analysis has revealed, through the yard restrictions, that these limitations allow significant coverage – more than may be desired. The impact for sustainability is that, with more coverage allowed, more water is displaced from the site, rather than retained on-site.

2. Rear yard additions for single-family dwellings. In some areas of the A District, where lots tend to be smaller, rear additions to homes frequently require variances. Acknowledging that this is an established pattern of development, the Ordinance can allow for these types of expansions for smaller lots, but require a "trade-off." In order to obtain the additional coverage, the water that would be displaced must be managed on-site. This provides two positive outcomes in terms of sustainability. First, allowing the expansion encourages the maintenance of existing housing stock. Second, the provisions would ensure that the results of pre- and post-development on-site water management are the same.

3. Parking requirements for single-family dwellings. On some smaller lots, it may be difficult to accommodate a two-car garage. By allowing flexibility in the parking requirement for smaller lots, the need for variances can be reduced and existing one-car garages can be reconstructed or replaced on lots too small for a two-car garage.

As these three issues illustrate, there may be a need to tailor standards based on lot sizes. Those lots smaller than 7,500sf – the minimum lot area required in the A District and for single-family uses in the B District – may need additional flexibilities. A map is included at the end of this section to illustrate how lots in the A and B District meet or do not meet the 7,500sf lot area minimum.

Lot Coverage and Impervious Surface in Residential Districts

Because Cleveland Heights is comprised of primarily single-family neighborhoods, controls over impervious surface coverage are essential. By reducing the amount of impervious cover on a lot, there are a number of positive environmental impacts. It will help to minimize the increased speed and volume of water flowing into nearby rivers, lakes and streams, erosion, stream flow disruption, and pollutant and sediment deposits into waterways detrimental to aquatic life and causing changes in water temperatures.

A preliminary analysis was conducted of current lot coverage (permitted building area on a site) and impervious surface (all structures and paved surfaces) permissions. Because the City does not have an overall lot coverage or overall impervious surface limitation, this analysis was done using current yard requirements and yard coverage limitations for a standard interior lot. Table 1: Lot Coverage and Impervious Surface Coverage Analysis shows the results of current limitations for the AA District and the A and B Districts.

Table 1: Lot Coverage and Impervious Surface Coverage Analysis		
	AA District	**A & B District Single-Family: 7,500sf**
Lot Area	15,000sf	7,500sf
Lot Width	100'	60'
Lot Depth	150'	125'
Maximum Lot Coverage	*48%*	*47%*
Maximum Impervious Surface Coverage	*73%*	*73%*

The lot coverage and impervious surface percentages are higher than generally seen for similarly sized and similarly developed communities. A standard lot coverage limitation is between 30 and 35%; for maximum impervious surface, that limitation is between 60 and 65%. We would recommend applying an overall control (i.e., a percentage applied to the lot in its entirety) for both lot coverage and impervious surface. The yard coverage controls can be maintained to prevent over-paving of individual yards, but a secondary overall control should be added. If this control is added to the Ordinance, we would create an overall limitation percentage using the stated ranges (lot coverage – 30-35%; maximum impervious surface – 60-65%) as a base and then refining for Cleveland Heights specifically. These requirements could then be implemented in one of two ways. If the standards create a number of nonconformities, compliance could be required only of new development and existing homes would be deemed conforming. The second option is to apply these requirements to all lots if analysis shows that existing lots generally comply. The first option may be easier to administer as the calculations would be submitted as part of the building permit application.

Rear Yard Additions for Single-Family Dwellings

A related issue for smaller lot areas in the A District is rear additions to existing structures. The City has dealt with these additions through the variance process, but the Ordinance could address this issue directly and allow for rear additions that are sensitive to the impacts the additional coverage creates.

One approach is to allow these rear additions into required rear yards only in the A and B Districts for lots less that 7,500sf in area, where the smaller lot size has created more building constraints. In order to accommodate the addition, a 10 foot rear yard reduction would be allowed, reducing the rear yard from 30 feet to 20 feet to allow for more building area. For the purposes of this analysis, we have used a 10 foot reduction based upon an addition room depth of 10 feet, but this number can be adjusted based on typical variances the City has approved. The reason for allowing this within the Ordinance is that the City can require mitigation strategies for the additional covered surface, rather than negotiating through the variance process.

It is recommended that this type of addition be allowed through the conditional use process because certain standards must be met to offset the increased coverage. Because pervious area has been lost to additional coverage, both on-site water absorption and potential run-off to neighboring properties have been affected. The property owner should be required to mitigate that impact and show a zero impact – i.e., the impacts before and after construction of the addition are the same. A metric system could be developed that would calculate the existing impervious surface of a lot, the addition's impervious surface and, using these two calculations, establish a benchmark the lot must meet.

To help accomplish this, the City should include an impervious surface impact analysis plan as part of the conditional use submittal to verify the result. This impact analysis plan would compare the impacts of the existing impervious surface on the lot to the impacts of the proposed addition, and illustrate how the property owner intends to offset the impervious surface area of the proposed addition. Some of these techniques include:

- Installing permeable pavers, porous asphalts and concretes, grass-crete, gravel-crete or similar semi-pervious materials for a certain portion of the driveway or other paved areas
- Installing a rain barrel, cistern or drywell
- Crowning driveways to direct stormwater onto the sides of the pavement where vegetated filter strips can be planted
- Constructing french-drains down the center of the driveway to allow for direct water infiltration

The above techniques can be easily enforced as they are permanent installations. These can also be supplemented with planting techniques such as:

- Installing a rain garden
- Minimize lawn areas by planting trees, shrubs, native grasses, groundcovers and flowers at the border of the property to provide a buffer where groundwater can be recharged directly

The benefit of using the conditional use process is the ability for concerned neighboring property owners to voice their concern over whether or not the proposed addition would negatively affect their property and allow for negotiation between neighbors on design and mitigation measures. As another option, the City could use the site plan review process to review proposed additions, rather than a conditional use.

Required Parking for Single-Family Dwellings

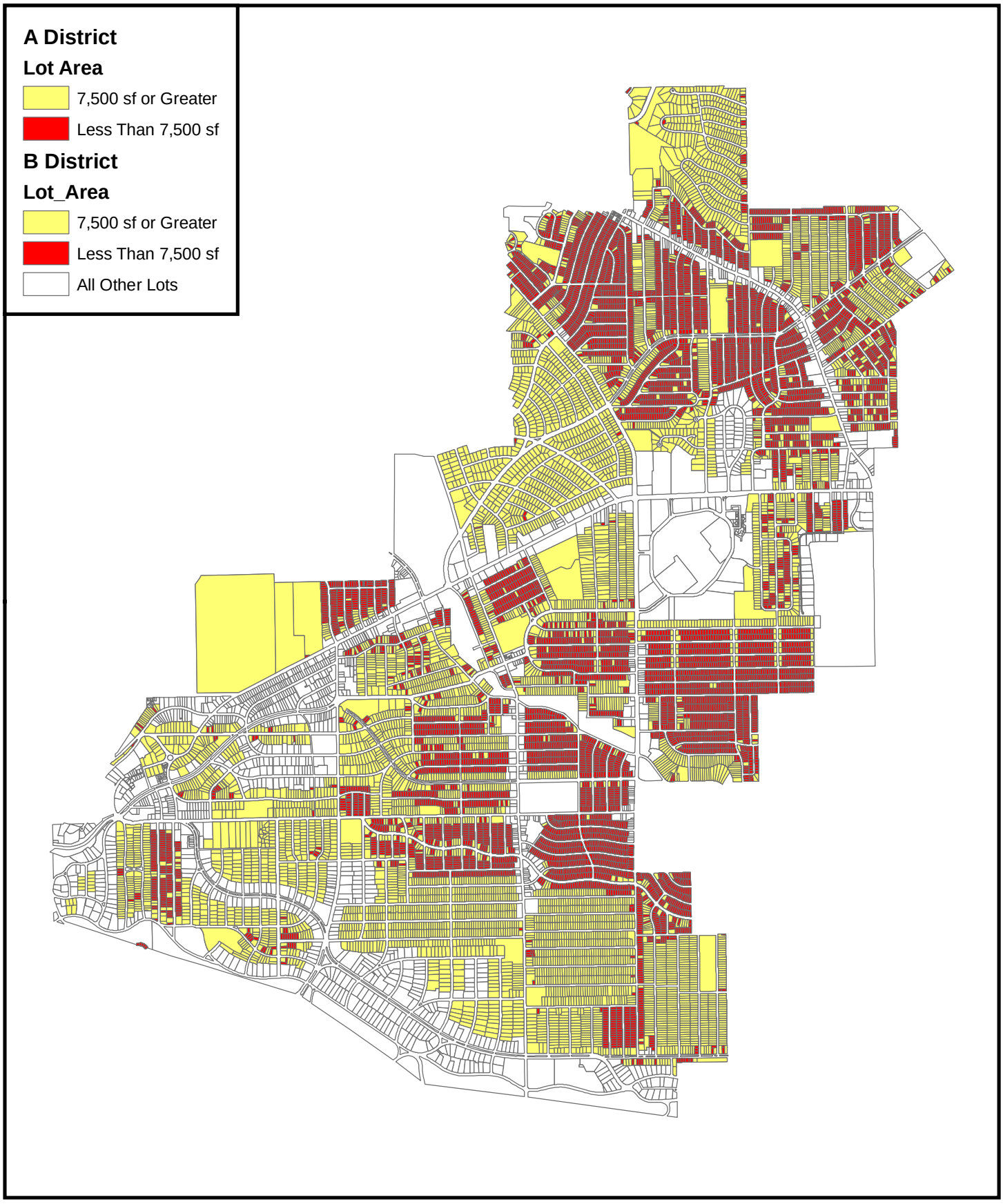
Currently, the Ordinance requires each single-family dwelling to provide two enclosed parking spaces. The requirement of two spaces per dwelling is typical, but the City may want to re-evaluate two aspects of this standard. First, the requirement that these spaces must be enclosed essentially requires a minimum of 400 square feet of lot coverage in addition to the principal structure (when constructed as a detached garage). Second, on smaller lots, especially where there is an existing home and garage, it may be difficult to accommodate a two-car garage on-site.

When looking at the issue of enclosure, there is a range of options the City can consider. These are listed below from most restrictive to most flexible, and reflect a reduction in required lot coverage:

- Require two parking spaces in a garage
- Require two parking spaces, but remove restrictions on required garage
- Require one space enclosed in a garage and allow the second space to be unenclosed
- Require one space in a garage
- Require one space, but remove restrictions on a required garage

If the City were to relax the restrictions on required enclosure, this should be coupled with design requirements for parking pads and driveways in terms of overall size and location on the lot to prevent front yard parking and maintain the character of residential districts. In addition, the parking pads should be required to be constructed of semi-pervious materials (permeable pavers, grass-crete, gravel-crete, etc.). However, it is understood that enclosed garage spaces are a typical requirement for the area and that a two-car garage, as opposed to a one-car garage, is seen as a necessity for many homebuyers. For comparison, the nearby Ohio communities of Lakewood and South Euclid require one garage space, and Shaker Heights and University Heights require two garage spaces. At a minimum, the Ordinance should require any additional unenclosed spaces on a lot to be constructed on semi-pervious parking pads.

The second issue relates to the smaller lots of the A and B Districts. In these areas it may be difficult for smaller lots to accommodate a two-car garage, the Ordinance should include a provision that allows a property owner to develop the site with a one-car garage. This should be subject to staff review and verification that the size and/or configuration of the lot makes construction of a two-car garage difficult. The standard should also allow owners of existing homes with one-car garages to maintain and rebuild the existing garage.



Data Source: Cleveland Heights GIS

Lot Sizes in A and B Districts

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Zoning Ordinance Update
Cleveland Heights, Ohio

CAMIROS
December 8, 2010

COMMERCIAL AND MIXED-USE DISTRICTS

As new commercial developments arise, including mixed-use developments, the principles of sustainability should play a key part in their physical form in terms of design. Because much of Cleveland Heights' commercial districts were historically developed with a pedestrian-orientation, commercial district design standards would ensure that new development continues to foster compact, walkable development.

Design standards should be tailored to the two scales of development present in the City. Large-scale development like Severance Circle is of a different character than local smaller-scale areas like Coventry. However, the overall goal of these standards would be the same – to maintain attractive commercial areas that are designed sustainably. This means maintaining a pedestrian-orientation in local commercial areas and creating a safe, pedestrian-friendly environment in larger-scale developments that makes a connection to surrounding areas.

Design standards that accomplish these goals include requirements for:

- Transparency along street frontages in all commercial districts to create a safe and welcoming pedestrian environment
- The location and articulation of public entrances
- Pedestrian-safe and attractive entry to larger-scale developments both from parking areas, from the right-of-way and within the development itself (this would also include bicycle access and storage)
- Connections between the larger scale development and the surrounding areas.
- High quality, sustainable building materials (can also be controlled by prohibitions on low quality, unsustainable building materials)
- Parking structures in commercial areas to reinforce a pedestrian environment, whether through design or a requirement that structures be faced with commercial uses
- Minimize the disruption of public sidewalks by limiting the number and width of driveways
- Proper integration and buffering of residential uses
- Proper landscaping to reduce the heat island effect, create public spaces and conserve water
- Allow for a "woonerf" or "shared street" district that is not car-centric but instead is a combination of automobile, public transit, pedestrian/bike friendly zones. (A woonerf is a Dutch term for a street where pedestrians and cyclists have legal priority over motorists.

It would also be appropriate to add select design standards from above to the approval standards for conditional uses. This would ensure that conditional uses, regardless of the zoning district, would further a safe, pedestrian-friendly environment.

ACCESSORY STRUCTURES

Many of the regulations related to sustainability fall under the provisions for accessory structures. The Cleveland Heights Zoning Ordinance should supplement current regulations with the following types of sustainable accessory structures and uses:

- Solar panels. The Ordinance should allow solar panels on all principal and accessory structures, as well as private ground-mounted structures in the rear yard. At a minimum the regulations should include provisions on where they may be mounted (whether on the roof or freestanding), the maximum angle at which they can be mounted on the roof, and required setbacks for panels in relation to site elements, such as neighboring properties and trees. There was general concern among public process participants regarding solar panels mounted on the front of principal buildings in residential districts. However, if a structure faces south, this may be the best location for solar panels. One option is to allow panels on the front façade of south facing structures but to include design standards to minimize any negative aesthetic impact. In addition, solar panels mounted on the front of the structure should be subject to City review prior to issuance of the building permit. The Ordinance should also include a reference to the Ohio Revised Statutes regarding solar access easements[1] to encourage neighboring properties to coordinate siting of solar panels to minimize future shadowing.

- Private wind turbines. Wind turbines should be permitted for all principal and accessory structures as well. Regulations should address location, setback, height and performance-based standards for noise and shadow flicker tailored to the different types of wind turbines - ground-mounted versus roof-mounted turbines, and those constructed with a horizontal axis versus a vertical axis. In order to ensure effectiveness, a wind test should be required before a wind turbine can be installed to provide evidence that there is sufficient wind for operation. As a participant in

[1] For reference, the following language is provided from the Ohio Revised Statutes regarding solar access easements:
5301.63 Solar access easement requirements.
For the purpose of ensuring adequate access of solar energy collection devices to sunlight, any person may grant a solar access easement. Such easements shall be in writing and shall be subject to the same conveyance and recording requirements as other easements.
Any instrument that grants a solar access easement shall include:
(A) A description of the real property burdened and benefited by the solar access easement;
(B) A description of the limits in heights, locations, or both, of permissible development on the burdened land in terms of structures, vegetation, or both, for the purpose of providing solar access for the benefited land;
(C) Any terms or conditions under which the solar access easement is granted or may be terminated;
(D) A term stating that the solar access easement runs with the land, unless terminated in accordance with the terms of the easement regarding termination, or unless otherwise agreed by the parties;
(E) Any other provisions necessary or desirable to execute the instrument.
The owner of the benefited land may prevent any obstruction of the solar access described in the solar access easement by any equitable remedy, and may maintain any action at law for any damages caused by any such obstruction.
Nothing in this section shall affect the status of any recorded easement to protect or ensure adequate access of solar energy collection devices to sunlight conveyed prior to the effective date of this section.

the key person interviews observed, in theory, private wind turbines are considered an asset but if there is insufficient wind and the turbine never moves, the turbine is both ineffective and unattractive. Standards in the Ordinance would identify what qualifies as a successful location for a wind turbine.

- Green roof. Green roofs should be allowed by the Ordinance and should count towards impervious surface and open space in existing and new developments.

- Geothermal heating. Geothermal heating should be permitted by the Ordinance. There are few aesthetic impacts from this type of system, but the Ordinance should limit the required any heat pump to the side and rear yards, allowing the pipes to be installed in any yard.

- Community-based alternative energy systems. Based upon public input, there is support for installation of community-based alternative energy arrangements (solar, wind, geothermal). In a simple example, neighbors on adjacent properties could construct a communal geothermal heating system between their properties. While any equipment used would be subject to the standards for an individual system, a community-based system would need to provide an agreement between neighbors as to access, operation and maintenance of the system, which should be filed with the City. This would be similar to a shared parking arrangement.

- Rain barrels and cisterns. The use of rain barrels and cisterns on all properties should be encouraged. The Ordinance can do this by specifically permitting them in all districts and including requirements on the permitted location on the site. It is not recommended that the number of rain barrels on a site be limited to a specific number. If there is an aesthetic concern regarding a large number of rain barrels, the Ordinance can limit the number in the side yard, where they would be most visible, and remove that restriction in the rear yard but include a screening requirement. The Ordinance should also clarify that rain barrels that collect water from copper roofs, roofs where wooden shingles or shakes have been treated with CCA (chromated copper arsenate) or roofs with installed zinc strips designed to prevent moss or algae growth should not be used on edible plants.

- Chicken coops. Over recent years, there has been significant interest by residents to raise chickens on their property; Cleveland Heights seems to reflect this national trend as well. The Zoning Ordinance should allow for chicken coops and chicken runs, with regulations that limit the number of chickens allowed on a lot (typically two to four chickens), prohibit roosters, limit the location to rear yards or detached accessory structures, require storage of chicken feed in predator/rodent-proof containers and other maintenance requirements, and encourage those who maintain a chicken coop to compost the chicken litter. The City can also make such uses a conditional use in order to ensure proper set up and maintenance.

- Apiaries/bee-keeping. The Ordinance should allow for a set number of hive structures and colonies, with regulations for structure siting, fencing, water, swarm control and queen replacement. The City can also make such uses a conditional use in order to ensure proper set up and maintenance, as well as to address any concerns if neighbors are allergic to bees. As one of the conditions, those who would like to construct an apiary can be required to get the consent of adjacent neighbors.
- Exterior lighting. The Ordinance should include a full range of exterior lighting standards, including the design and intensity of building-mounted lighting and light poles in residential and non-residential districts, neon tubing, and illumination of signs, buildings and canopies. The current best practice standards on appropriate exterior lighting are based on information compiled, and model code standards created, by the International Dark Sky Association (IDSA), a non-profit organization that seeks to minimize light pollution and conserve energy. We would recommend using the IDSA model ordinance as a basis for regulations, tailoring the model to the specific needs and monitoring capabilities of the City and incorporating applicable lighting regulations from the Crime Prevention Through Environmental Design (CPTED) standards.

- Deer fences. Fence regulations should be enhanced with additional permissions for deer fences. Deer fencing is a plastic mesh grid and, when installed between trees or posts, is approximately seven feet in height, with six inches of the fence grid flared onto the ground (preventing deer from pushing underneath the fence). The netting is thin, so the fencing is not very visible. Deer fence regulations should address height, location and permitted locations. This is especially important for community gardens and urban agriculture, where deer would be attracted to a significant food source. While, the fencing would be less obtrusive for those uses, regulations should be carefully crafted for where such fencing can be used for private gardens, so that it does not create a negative aesthetic impact.

- Greenhouse. Greenhouses should be permitted as an accessory structure and regulated as both permanent structures and temporary structures (hoophouses) in terms of size, location and setback.

- Vegetable gardens. In recent years, homeowners have expressed more interest in planting vegetable gardens in their front and corner side yards. These gardens both enhance local food production efforts and have the potential to conserve water on-site. In order to encourage this, the Ordinance should allow vegetable gardens in all yards and provide maintenance requirements similar to lawn care regulations for gardens in the front and corner side yards.

- Farmer's markets and farmstands. Farmer's markets and farmstands provide opportunities for locally produced food to be sold within the community. A farmstand should be permitted as part of a community garden or urban agriculture use, allowing for the sales of items grown at the site. Farmstands are temporary structures that should be permitted during the growing season and should be located solely on the site

where items are grown. Farmer's markets provide an opportunity for numerous local vendors to sell fresh dairy goods, fruits, vegetables, juices, flowers, plants, herbs and spices produced or grown by the vendor, baked goods made by the vendor, and arts and crafts products made by the vendor. Farmers markets are permitted for any non-residential use in any zoning district and typically take place within parking lots when the principle use is not open for operation.

- Misc. accessory structures. The following sustainable accessory structures and uses should also be allowed in the Ordinance. These are regulated simply by including a definition, limitations on their locations, typically the side and rear yard, and setbacks.

  - Compost piles, including community-based compost facilities
  - Laundry clotheslines
  - Public electric automobile charging stations, including solar charging models
  - Sub-surface or underground water tanks
  - Coldframe, unheated outdoor structure used for protecting seedlings and plants from the cold
  - Allow for agriculture related accessory structures in districts where urban agriculture and gardens are allowed

USES

New Sustainable Uses

There are numerous principal uses that can contribute to a community's sustainability. By allowing for such uses within appropriate districts a community can accomplish a number of sustainable goals, for example promoting local food production, creating a broader economic base by allowing for "green" industries, and allowing for large-scale alternative energy production. The City should consider allowing the following principal uses within the Zoning Ordinance.

- Community gardens. Cleveland Heights currently has a number of community gardens, and public input has indicated a high level of support for these uses. Community gardens should be allowed both to stand alone and co-locate with other uses, such as schools and places of worship. One clarification that needs to be made within the Ordinance is the current use of "non-commercial garden" as a permitted use in the AA, A, B, MF1, MF2 and MF3 Districts. It is unclear if this use is intended to apply to personal gardens or community gardens. We would recommend eliminating a "non-commercial garden" as a use and clearly distinguishing personal gardens and community gardens, including appropriate standards for each.

- Urban agriculture. Urban agriculture is distinguished from community gardens in terms of the intensity of farming operations that take place on site. As with all farming operations, there are impacts that need to be mitigated, such as noise, dust, odor and livestock operations. Acknowledging that there are limited sites of sufficient size for urban agriculture in the City, there may be opportunities to establish such a use as part of larger redevelopment projects and to co-locate such uses with others such as schools. Therefore, the use should be included. The ability to create vertical farms should also be included as a type of urban agriculture, as well as Community Supported Agriculture (CSA). A CSA is a form of food production and distribution where a group of community members pledge financial support to a farm or agriculture operation in return for shares in the farm's harvest throughout the growing season. Distribution of food may be by delivery truck or pick-up.

- "Green" industry research and development. The current Zoning Ordinance prohibits all types of manufacturing within the City. However, the City may want to consider allowances for research and development, in particular green industry R&D. As defined by the United Nations Environment Program, green industries "work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute(s) substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution." The Ordinance could allow for research and development, and the City could specifically target the green industry, prohibiting large-scale manufacturing operations.

Because the City lacks an industrial district, one way to closely control this new type of use is to create a new zoning district - the "Green Industry R&D District" - that would allow for these types of uses with proper standards and supportive uses.

- Solar farms and wind farms[2]. Unlike private solar and wind systems, solar farms and wind farms are large-scale operations that serve the larger public and require significant land area. Similar to the constraints on urban agriculture, there may be limited opportunities within the City boundaries for these uses, but they could be part of larger redevelopment projects or co-location with other uses, such as green industry. Solar farms in particular may have the most potential in Cleveland Heights. (These uses could be part of the suggested Green Industry District as well.)

Adaptive Reuse

Adaptive reuse of existing structures is a key part of being sustainable, as the most sustainable structure is the one that already exists. To that end, the Zoning Ordinance should make adaptive reuse an easy option for new development in the City. These provisions would be focused on the adaptive reuse of institutional buildings in residential districts, such as churches and schools. The conversion of these structures into compatible uses, such as multi-family dwellings and office buildings, should be considered. Standards can be integrated into the residential districts that specifically deal with the impacts felt when slightly higher intensity uses locate in single-family neighborhoods.

Another issue raised by the public was the ability to create live/work dwellings, where low-impact commercial uses such as offices, arts studios and similar uses are run from the home. One option is to create a specialty residential-office district for small offices and personal service uses (yoga studio, beauty salon, etc.) in residential areas of the City where limited business activity with low traffic volume can be promoted and the residential character of the area retained. The intent is to encourage the retention and renovation of sound existing residential structures, ensure that commercial uses remain compatible with residential uses, and permit the area to maintain a distinctive residential character. While the current Ordinance allows for home occupations, a district such as this one would allow for slightly more intensive commercial use than that allowed for a home occupation (the key distinction is that live/work dwellings have more significant visitor traffic than a home occupation).

[2] Solar farms and wind farms are distinguished from solar panels on structures and private wind turbines in that the power generated from such facilities serves multiple users.

PARKING STANDARDS

The City's parking requirements should be updated to become more sustainable. Parking regulations should address the following:

- Parking lot design including surfacing, exterior lighting, landscaping, driveways, etc.
- Appropriate numbers of off-street spaces per use, including parking maximums
- Parking alternatives and flexibilities, such as shared parking, cross-access easements, land-banked parking, car-sharing facilities, etc.
- Accommodating additional modes of transportation in the parking standards, including pedestrians and bicyclists

Parking Lot and Parking Area Design

The biggest impact a parking lot has on the environment is the amount of paved surface. One of the most important techniques to reduce the negative effects of paving, particularly the heat island effect and water run-off, is proper landscape. Enhanced landscape requirements would go a long way to minimizing these negative impacts. (Landscape requirements are addressed in the next section of this report.) However, another regulation that can reduce these negative impacts is the type of paving material permitted or required within a parking lot. Semi-pervious materials should be allowed by the Ordinance, including permeable pavers, porous asphalts, grass-crete and gravel-crete. The City can take this a step further and require parking lots over a certain size to use semi-pervious materials for a certain percentage of the parking lot. For example, parking lots over 20,000 square feet in gross area could be required to cover 25% of the lot with semi-pervious materials. If such a requirement is implemented, the design of areas paved with semi-pervious materials and curbs with specifically designed inlets should be linked to the landscape requirements to maximize water re-use on site.

Similarly, because the City is comprised primarily of residential dwellings, driveways to private parking areas also have a significant impact. Residential driveways should be permitted to use a variety of semi-pervious materials and driveway designs like residential parking strips (french drains). Materials like gravel and wood chips used for driveway cover do have a level of permeability, but should not be allowed as maintenance becomes an issue and these materials are often washed into sewers, clogging the sewer lines. (This is not meant to include new technologies like gravel-crete.) When tied to impervious surface limitations, the use of semi-pervious materials works as a bonus. These materials are calculated by their coefficient of permeability rather than a 100% calculation. Water dispersion techniques can also be recommended or required for slowly releasing rainfall into the local watershed. Examples include dry-wells, infiltration trenches, filter strips/bioretention and dispersion trenches.

In commercial areas, driveway design also has an impact on the pedestrian environment, disrupting local commercial areas and actually increasing the need for more parking lots as driveway curb cuts remove on-street spaces. Cross-access easements for shared driveways should be encouraged for commercial uses. While the Ordinance cannot require businesses to use shared driveways,

including regulations on this type of design both encourages property owners to use this option and ensures proper design when used. A reduction in the amount of parking required when a cross-access easement is in place could be added to work as an incentive to encourage this type of design.

In residential areas, shared driveways should be encouraged. While the Ordinance cannot require residents to use shared driveways, including regulations on this type of design both encourages property owners to use this option and ensures proper design when used. The shared driveway can also include a bonus in building square footage due to a significant reduction in the lots' overall impervious surface.

Required Parking Spaces

Another way to reduce the amount of paving in parking lots is to examine the required minimum amount of parking. As part of the Zoning Ordinance revisions, adjustments to parking demand formulas to reflect local and national standards will be made. For example, it appears that all senior housing requires one space per dwelling unit, but understanding the different types of senior housing that exist, that standard is generally considered too high. For an independent living facility one space per dwelling unit may be reasonable, but that same standard for an assisted living facility or nursing home would result in an excessive amount of parking as many of the residents do not or cannot drive.

As important as creating the right minimum number of spaces required, many developments should be limited by a maximum number of parking spaces allowed on-site. This is particularly important for large developments that typically have no issue with meeting the minimum number of spaces and often want to provide excess spaces. Maximums should be applied to commercial developments over a certain square footage, such as 25,000 square feet of gross floor area, as well as multi-family dwellings who often supply additional spaces over the amount required by the Ordinance. Another element that can be added to the Ordinance, when minimums and maximums are in place, is to require all parking areas that exceed the minimum (and meet the maximum) to pave the excess area with semi-pervious materials.

If parking maximums are included, the City can require current parking lots to come into conformance with those maximums. The amortization of additional parking spaces should be tied to a specific timeframe, such as five years, though earlier triggers can be incorporated as well. For example, compliance would be required in five years or when significant reconstruction of the parking lot is undertaken, whichever occurs sooner.

The Ordinance should also allow for land banking for developments that require a large amount of parking, such as a shopping center. With land banking, only a certain percentage of the parking area is required to be constructed during initial development. The remainder of the parking area is kept as green space, reducing the amount of impervious surface on the site and improving the appearance of the area with additional landscape. Only if the demand increases such that the City sees a need to expand parking facilities is that land area (or a portion of it) called in and paved for parking spaces. The City may also want to allow the owner to subdivide and sell off the land banked area if the land has not

been called in for parking three years after development. This encourages large developments to take advantage of the land banking provision.

Another component of parking requirements is to allow for certain flexibilities in how much required parking needs to be provided on-site. These include the following:

- Shared parking. The current Ordinance allows for shared parking but this provision works on an alternating schedule agreement between uses (i.e., uses do not operate at the same time). A more flexible shared parking arrangement can be included in the Ordinance for uses that do operate during similar hours. The Ordinance would include a formula that calculates how much parking is actually needed by the uses when developed collectively based on their intensity of use during the hours of the day. The following table provides an example of this. The minimum required number of spaces for each use is calculated according to Ordinance requirements. The required number of spaces for each use is then applied to the percentages for each time, according to the appropriate land use category, to determine the number of required spaces. This is done for each time category. Finally, the numbers are summed for all land uses within each timeframe and the highest sum total in a timeframe is the required number of spaces, which, due to the percentages, is a less than would be required by simply summing the requirements at 100%.

SHARED PARKING CALCULATION						
LAND USE	Weekday			Weekend		
	Mid-7am	7am-6pm	6pm-Mid	Mid-7am	7am-6pm	6pm-Mid
Residential	100%	55%	85%	100%	65%	75%
Commercial	0%	100%	80%	0%	100%	60%
Restaurant	50%	70%	100%	45%	70%	100%
Hotel/Motel	100%	65%	90%	100%	65%	80%
Movie Theater	0%	70%	100%	5%	70%	100%
Office	5%	100%	5%	0%	60%	10%
Industrial	5%	100%	5%	0%	60%	10%

- Car-sharing bonus ("City Wheels"). The Ordinance should allow a reduction in the amount of parking required if the parking area shares spaces with a car-sharing program, such as "City Wheels" (i.e., the intent is not to require additional spaces for car sharing above that required by ordinance). This is especially relevant for multi-family developments. At a minimum, car sharing programs should be permitted in parking lots and parking structures.

- Car-charging station. The Ordinance should encourage stations/spaces for the charging of electric vehicles (120-volt lines or 240-volt lines) by designating specific spaces for these vehicles that are more compact than a standard space and allowing them to count toward required vehicle parking.

Bicycle Parking

The Ordinance should require bike parking as part of new parking lots. Similar to vehicular parking requirements, certain uses would be required to provide bike parking. Generally the uses required to provide bike spaces include multi-family dwellings, retail, office, schools, churches, parks and entertainment uses.

In addition to the number of bike spaces required, the provisions need to be supplemented with design and siting requirements:

- Bike parking facilities should provide racks or lockable enclosed lockers where the bicycle may be safely locked by the user. Structures that require a user-supplied locking device should be designed to accommodate U-shaped locking devices. All lockers and racks must be securely anchored to the ground or the building structure to prevent the racks and lockers from being removed from the location. The City could provide a list of preferred bike parking structures that meet the security, functionality and aesthetic needs.

- On smaller sites, accommodating the bike parking spaces on site may be difficult. The Ordinance should provide flexibility by allowing the developer to place racks in the public right-of-way where space is available. The property owner would need to make suitable arrangements with the City to allow bike racks in the public right-of-way.

- For residential uses, required bicycle parking should allow a variety of options for placement, such as in garages, storage rooms and other resident-accessible secure areas, and exclude space within dwelling units or on balconies.

- The City may want to consider requiring large office or institutional developments to incorporate facilities for bicyclists, such as showers and locker rooms. Where these facilities are provided, a reduction in the number of required parking spaces should be offered.

- For parking lots over a certain size, a reduction in the number of parking spaces should be permitted when a certain number of bike spaces are provided.

LANDSCAPE AND WATER CONSERVATION

Landscape Design

There are limited landscape requirements in the current Ordinance. The contribution of landscape to the visual quality of the built environment cannot be overemphasized. In addition to its aesthetic benefits, landscape provides numerous environmental benefits, such as water conservation, absorption of surface pollutants to prevent groundwater contamination, and reduction of the heat island effect.

Comprehensive landscape design standards should be part of the Ordinance. The Ordinance currently includes some regulations on plantings, but they are limited to definitions of standard plants, trees and shrubs. These can be enhanced with a number of provisions to ensure both the proper appearance of landscape areas and their health. These provisions include:

- Minimum planting sizes for all types of plantings.
- Regulations that allow for natural lawns, native landscapes and gardens and prevent use of invasive exotics.
- Regulations for the ongoing maintenance of required landscaping.
- A species diversity requirement (a mathematical formula that limits how many plants of one species can be planted in an area). This encourages biodiversity and ensures that a certain level of landscape is in place if one species were to get sick.
- Plant unit options/substitution tables.
- A requirement for native landscaping with a list of recommended and prohibited plantings for canopy trees, understory trees, hedges, shrubs, grasses, groundcovers and turf. This is important to keep invasive species out of the community. We would work with Ohio State University and other local experts to draft the planting lists.
- Less green waste. Reducing watering means less green waste. Many plants that are over-watered react with growth spurts, which, in turn, leads to more pruning. Limiting the watering to a reasonable amount saves green waste and manual labor.
- A drought-tolerant landscape requirement. For example, this can be required for all projects that include landscaped area between 1,000 and 2,500 square feet, where at least 50% of all landscaped areas would be drought tolerant plants. This provision can include an alternative that the same area could include plants that are not necessarily drought-tolerant but are maintained by a rainwater irrigation system.
- Restrictions on the use of pesticides, herbicides and fertilizers. During the public input process, many voiced concern over "nutrient loading" which is a result of pesticides, herbicides and fertilizers contaminating

water runoff and making their way into other properties, groundwater, tributaries, streams, rivers and the lake.

- Encourage alternative products in weed management that are environmentally friendly.

- Reduce the use of broad-spectrum herbicides (herbicides that have negative effects on nearly every plant with which it comes in contact). When herbicides reach rivers and streams, they can be very toxic to aquatic life (algae, frogs, shrimp, and fish). Herbicides can travel to waterways directly through the soil, if they fall on asphalt or are redirected by the wind. Acetic acid, fatty acids, and essential oils can all act as herbicides and have been proven to work effectively. A similar concern was raised about "bacterial loading" which is a result of domestic animal or livestock waste making its way into the groundwater, tributaries, streams, rivers and the lake. Both of these "loadings" result in increased algae in rivers and lakes and greatly decrease water quality. Standards should speak to prevention of such situations.

- Reduce water consumption by providing minimum standards for the development, installation, maintenance, and preservation of water-efficient landscaping and irrigation systems in residential lots.

- Explore alternatives in minimizing the negative impacts of mature tree roots up-heaving existing concrete sidewalks. Use of rubber as a sidewalk material is currently being tested for use on the East Coast and in the Midwest.

Required Landscape

The current Ordinance requires basic landscape for buffer zones adjacent to residential districts, parking lots and parking structures, front yard landscaping, and screening requirements for "objectionable features." We recommend that these be further refined to ensure the proper level of landscape is achieved. More specific provisions would be crafted for the following areas of site development:

- Interior of parking lots
- Perimeter of parking lots
- Buffer yards between incompatible zoning districts and incompatible uses
- Foundation landscape for multi-family and non-residential uses
- Screening requirements (refuse containers, building utilities, loading areas and drive-thru facilities)
- Requirements for street trees and median landscape

In addition, because Cleveland Heights is primarily a single-family residential community, the yards of residential properties should also be considered. The Ordinance currently states "(Yards), together with all other portions of the zoning lot not covered by permitted structures, shall be landscaped with grass, trees, shrubbery and/or other appropriate groundcover or landscaping material, which shall be adequately maintained, so as to assure absorption of rainfall, and prevent erosion from rapid runoff of surface water." This standard is directly in line with sustainable development principles, however it may not be specific

enough to accomplish the goals of rainfall absorption and erosion prevention. The Ordinance allows for grass, which often has the opposite effect of the intent of this standard. Trees, native vegetation, live groundcover and other plants are more effective in achieving this and the Ordinance can be revised to encourage these types of plantings, in particular citing which types of plantings would be best suited to absorb rainfall and prevent erosion. First, gardens should be allowed in the front and corner side yards and second, the Ordinance should encourage native landscaping. What becomes more difficult is the ability to require residences to replace grass with these types of plantings. As a requirement, there are difficulties that arise in the creation of nonconformities, enforcement and cost. While it is desirable to incentivize the conversion of a portion of the yard landscape from grass to a rain garden or an edible garden, we understand the challenge of enforcing a non-permanent feature (i.e., a rain garden or an edible garden can easily be converted back to grass) and will continue to explore potential options.

Another challenge for all ordinances that implement landscape requirements is how to bring existing developed sites into compliance. The Ordinance should include triggers for installation of landscape requirements. (This should also be tied to any semi-pervious coverage requirements in the parking regulations.) It should be required when modification of parking lots and significant building expansions are requested. When building additions or expansions are undertaken, the percentage of landscape required can be proportionally linked to the proposed additional building area. Existing parking lots can be required to comply with landscape requirements when a certain number of parking spaces are added to the lot or if the lot is reconstructed. A simpler but less flexible alternative would be to establish a time period over which all sites must be brought into compliance with the landscape standards. For example, all property owners must install the required landscaping within a five year time period.

Special Landscape Regulations

During public input, two special types of landscape regulations were recommended – a tree preservation regulation and protection of riparian corridors.

- Tree Preservation, Tree Protection, and Tree Replacement. In order to preserve the City's existing trees and the tree canopy, the City may want to consider a tree removal limitation. Such regulations only allow the removal of trees if: 1) the tree poses a hazard verified by a tree hazard assessment performed by a qualified arborist; 2) the tree is planted too close to an existing structure so that it is damaging the structure; 3) the roots of the tree are causing damage to paved areas or sewer and plumbing lines; 4) the tree has an incurable disease or pest infestation verified by a qualified arborist; or 5) the tree has been damaged to the point that it cannot recover and grow properly. If a tree is removed, the regulations would require replacement. If trees are lost during construction, they must be required to be replaced with a species of equal value. This would be handled in the Ordinance by a reference table that quantifies the values of tree species. (This provision would be enforced by a Tree Removal Permit.)

- Riparian corridor overlay district. As stated on the City's website, "The City of Cleveland Heights is rich in natural streams and waterways, as parts of Doan Brook, Dugway Brook and Nine-Mile Creek all lie within our city limits. These streams and creeks are on both private and public property." In order to protect these waterways, a riparian corridor overlay district could be created that strictly limits development within a buffer area measured from the streambank (more specifically, because streambanks tend to be ever changing, the setback should be based off the centerline or similar set point). Typically, permanent structures and paving are not permitted in the overlay. Because the Cleveland Heights is essentially built out, if the City wanted to pursue such an overlay, an analysis of the location of these waterways would be conducted and a reasonable standard for the dimension would be calculated based on existing conditions. It should be cautioned that, because the City is built out, this analysis may show that a riparian corridor overlay district would not be feasible because of potential nonconformities and the creation of unbuildable lots. It should be noted that the landscaping recommendations of this report, even without an overlay district, will contribute to protecting the City's streams and waterways.

On-Site Water Management

A performance-based standard could be added to the Ordinance to greatly enhance on-site water management requirements. Updated landscape requirements and paving limitations will go a long way toward preventing run-off, but an additional performance standard for significant developments can increase the sustainability of sites. One option is to add a requirement that the post-development runoff rate cannot exceed 50% of the pre-development runoff rate if the site was previously developed, and no greater than the pre-development runoff rate if the site has never been developed. This could be applied to new construction on lots greater than 10,000 square feet in area. Another alternative is to require all new construction to capture the first inch of rainwater on-site. To implement any of these options, the landscape plan submitted for new development would be required to show the current runoff rate and the proposed runoff rate. (The Ordinance would also need to provide direction on how runoff rates are calculated.)

Similar to the proposal for community-based alternative energy systems, the Ordinance should also allow for community-based water management systems. Neighors on adjacent properties could construct an on-site water management system to be shared between their properties, again requiring an agreement between neighbors as to access, operation and maintenance of the system, which should be filed with the City.

LARGE-SCALE DEVELOPMENT PROCESSES

Where the City has ability to negotiate during development approval, sustainable design techniques should be used as an incentive. Zoning can use the leverage provided by development approval to encourage incorporation of sustainability into new developments. We propose that the planned development provisions be expanded so that a sustainable benefit is provided to the City in exchange for zoning and design flexibilities. This would allow the ordinance to encourage such development techniques as:

- Energy efficient buildings (LEED or LEED-equivalent)
- Greywater reuse systems
- Conservation easements to preserve existing natural areas
- Innovative stormwater management techniques above those required by Ordinance
- Recycling of building materials from any demolished structure on-site
- Public infrastructure improvements to implement concepts like complete streets
- Connectivity standards for development (adopt pedestrian/street connectivity standards that must be met for larger, new developments)
- Access to public open space, gathering space and public art
- The provision of additional accessible units (ADA compliant)
- Safe routes to school
- Allow density bonuses for implementation of green infrastructure
- Solar orientation of new lots and structures and require new, larger residential subdivisions to have a minimum number of solar-oriented lots and buildings)

Further, the planned residential development encourages cluster development. Sections 1155.01 (Purpose) and 1155.02 (Approval Criteria) list several general review standards for proposals. However, cluster development is a specific type of site design and the Ordinance should include several objective criteria that a development must meet in order to qualify as a cluster development, including requirements on how buildings are sited, preservation of open space, connections between clusters of buildings and similar standards. We would recommend that these specific development standards be required of any cluster development.

APPENDIX

The following appendix summarizes the recommended revisions to the Ordinance.

RESIDENTIAL DISTRICT

Lot Coverage and Impervious Surface in Residential Districts

- Add an overall lot coverage control (30-35% coverage limit)
- Add an overall impervious surface control (60-65% coverage limit)
- Allow rear yard additions for smaller lots in the A and B Districts with requirements for offsetting the additional impervious surface

Required Parking for Single-Family Dwellings

- Include design requirements for parking pads and driveways in terms of overall size and location on the lot
- Require parking pads to be constructed of semi-pervious materials (permeable pavers, grass-crete, gravel-crete, etc.)
- Require smaller lots in the A and B Districts to provide only one space on site (subject to staff review and verification that the site cannot accommodate two spaces)

COMMERCIAL AND MIXED-USE DISTRICTS

Add commercial, mixed-use and conditional use design standards that include requirements for:

- Transparency along street frontages in all commercial districts to create a safe and welcoming pedestrian environment
- The location and articulation of public entrances
- Pedestrian-safe and attractive entry to larger-scale developments both from parking areas, from the right-of-way and within the development itself (this would also include bicycle access and storage)
- Connections between the larger scale development and the surrounding areas.
- High quality, sustainable building materials (can also be controlled by prohibitions on low quality, unsustainable building materials)
- Parking structures in commercial areas to reinforce a pedestrian environment, whether through design or a requirement that structures be faced with commercial uses
- Minimize the disruption of public sidewalks by limiting the number and width of driveways
- Proper integration of residential uses
- Proper landscaping to reduce the heat island effect, create public spaces and conserve water
- Allow for a "woonerf" or "shared street" district that is not car-centric but instead is a combination of automobile, public transit, pedestrian/bike friendly zones.

ACCESSORY STRUCTURES

Add the following accessory structures and uses to the Ordinance:

- Solar panels
- Private wind turbines
- Geothermal heating
- Community-based alternative energy systems (solar, wind, geothermal)
- Rain barrels and cisterns
- Chicken coops
- Apiaries/bee-keeping
- Exterior lighting restrictions
- Deer net fences
- Greenhouse
- Gardens
- Farmer's markets and farmstands
- Compost piles (individual and community-based)
- Laundry clotheslines
- Public electric automobile charging stations, including solar charging models
- Sub-surface or underground water tanks
- Coldframe, unheated outdoor structure used for protecting seedlings and plants from the cold
- Agriculture related accessory structures

USES

Add the following principal uses to the Ordinance:

- Community gardens
- Urban agriculture
- Green industry research and development
- Solar farms and wind farms

Allow following adaptive reuse:

- Adaptive reuse of existing non-residential buildings in residential districts
- Allow live/work dwellings
- Create a specialty residential-office district

PARKING STANDARDS

Enhance the parking requirements with the following regulations:

- Allow semi-pervious materials for parking lot and driveway paving, such as permeable pavers, grass-crete and gravel-crete
- Require parking lots over a certain size to use semi-pervious materials for a certain percentage of the parking lot
- Allow shared driveways in commercial and residential districts
- Encourage cross-access easements for shared driveways and allow a reduction in the amount of parking required when a cross-access easement is in place

- Adjust parking demand formulas to reflect local and national standards
- Include a maximum number of parking spaces allowed on-site for certain developments and requirements for existing sites to come into compliance with parking maximums
- Require parking areas with spaces above the minimum number and below (or up to) the maximum to pave the additional area with semi-pervious materials
- Allow for land banked parking
- Update the shared parking flexibility
- Allow a reduction in the amount of parking required if the parking area shares spaces with a car-sharing program, such as "City Wheels" and at a minimum, permit car sharing programs in all parking lots and parking structures
- Allow compact spaces for the parking areas that provide stations/spaces for the charging of electric vehicles (120-volt lines or 240-volt lines) and for compact, fuel efficient vehicles

Require bike parking as part of new parking lots:

- Require bike spaces for multi-family dwellings, retail, office, schools, churches, parks and entertainment uses
- Include design and siting requirements for bike parking areas
- Include flexibility by allowing the developer to place racks in the public right-of-way where space is available
- Consider requiring large office or institutional developments to incorporate facilities for bicyclists, such as showers and locker rooms, and allow a parking reduction when provided

LANDSCAPE AND WATER CONSERVATION

Enhance landscape design requirements to include:

- Minimum planting sizes for all types of plantings
- Regulations that allow for natural lawns, native landscapes and gardens and prevent use of invasive exotics.
- Regulations for the ongoing maintenance of required landscaping
- A species diversity requirement
- Plant unit options
- A requirement for native landscaping with a list of recommended and prohibited plantings
- Limiting watering to a reasonable amount
- A drought-tolerant landscape requirement
- Restrictions on the use of pesticides, herbicides and fertilizers
- Regulations related to the reduction in runoff of pet waste which leads to "bacterial loading"
- Alternatives in minimizing the negative impacts of mature tree roots up-heaving existing concrete sidewalks
- Reduce water consumption by providing minimum standards for the development, installation, maintenance and preservation of water-efficient landscaping and irrigation systems in residential lots
- Tree preservation, protection and replacement regulations
- Riparian corridor protections

Craft specific landscape provisions for the following areas of site development:

- Interior of parking lots
- Perimeter of parking lots
- Buffer yards between incompatible zoning districts and between incompatible uses
- Foundation landscape requirements for higher intensity uses (multi-family and non-residential)
- Screening requirements for refuse containers, loading areas and drive-thru facilities
- Requirements for street trees and medians

Address residential yard areas:

- Allow gardens in the front and corner side yards
- Encourage native landscaping
- Incentivize the conversion of yard landscape from grass to native landscape and gardens

Bring existing developed sites into compliance with triggers for installation of landscape requirements (also tied to any semi-pervious coverage requirements in the parking regulations)

Include two special landscape regulations:

- A tree preservation regulation
- Protection of riparian corridors through an overlay district

Include a performance-based standard to enhance on-site water management requirements - examples:

- Add a requirement that the post-development runoff rate cannot exceed 50% of the pre-development runoff rate if the site was previously developed, and no greater than the pre-development runoff rate if the site has never been developed (for lots greater than 10,000 square feet in area)
- Require all new construction to capture the first inch of rainwater on-site
- Allow community-based on-site water management

LARGE-SCALE DEVELOPMENT PROCESSES

Expand planned development provisions so that a sustainable benefit is provided to the City in exchange for zoning and design flexibilities:

- Energy efficient buildings (LEED or LEED-equivalent)
- Greywater reuse systems
- Conservation easements to preserve existing natural areas
- Innovative stormwater management techniques above those required by Ordinance
- Recycling of building materials from any demolished structure on-site
- Public infrastructure improvements to implement concepts like complete streets, including bike lanes

- Connectivity standards for development
- Access to public public open space, gathering space and public art
- Public gathering space and public art
- The provision of additional accessible units (ADA compliant)
- Proper solar orientation of new lots and structures
- Safe routes to school
- Allow density bonuses for implementation of green infrastructure

Include specific design criteria for cluster development:

- How buildings are sited
- Preservation of open space
- Connections between clusters of buildings