



# New Philadelphia Zoning Code Best Practices Report

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1. Introduction ..... 2

2. Approval Procedures ..... 3

    2.1. Framing the issue ..... 3

    2.2. Potential Best Practices ..... 3

3. Sustainability ..... 6

    3.1. Framing the issue ..... 6

    3.2. Potential Best Practices ..... 6

4. Center City Zoning ..... 10

    4.1. Framing the issue ..... 10

    4.2. Potential Best Practices ..... 11

5. Form Controls Outside Center City ..... 14

    5.1. Framing the issue ..... 14

    5.2. Three Sets of Potential Best Practices ..... 15

6. Off-Street Parking Requirements ..... 20

    6.1. Framing the issue ..... 20

    6.2. Potential Best Practices ..... 21

7. Modular Zoning ..... 28

    7.1. Framing the issue ..... 28

    7.2. Potential Best Practices ..... 29

8. Web-Based Zoning ..... 32

    8.1. Framing the issue ..... 32

    8.2. Potential Best Practices ..... 32

9. Conclusion ..... 34



# 1. Introduction

During the first year of Philadelphia’s New Zoning Code process, the Clarion-Duncan consulting team has assisted the Zoning Code Commission (ZCC) to solicit code user input and to refine its goals and expectations for the new Code. This work was organized around three work products: (1) An Assessment of the Existing Code, (2) a Best Practices report, and (3) a Detailed Recommendations report on the structure and content of the New Zoning Code. The Assessment was delivered in March 2009 and this document represents the second work product.

At the outset, the Philadelphia Zoning Code Commission made a decision to support an extensive public involvement program with neighborhood and professional code users and to citizens in general. We support that decision and believe it has paid rich dividends in helping to focus this effort. In order to ensure that the New Zoning Code addresses and resolves specific problems with the current regulations, it was very important that the Assessment go into significant detail, and that resulted in a relatively long document. Likewise, in order to provide the ZCC and the public with a clear picture of exactly what will be changed in the new Code, it is important that the Recommendations document be very detailed.

As a result of these decisions, we devoted a large share of the project effort to public involvement, the Assessment, and the Recommendations, and we focused the best practices research on those areas where the Zoning Code Commission or the public expressed both general interest and some hesitation or skepticism – areas where experience in other cities might help the ZCC make some hard decisions in the future. We also decided to avoid overlaps with topics where other groups are engaged in significant planning or zoning efforts (such as gaming, and the waterfront, and design review in general). The final list of best practices research topics includes these seven issues:

- **Approval Procedures**
- **Sustainability**
- **Downtown Zoning**
- **Form Controls**
- **Parking**
- **Modular Zoning**
- **Web-Based Zoning**

## 2. Approval Procedures

### 2.1. Framing the issue

One of the interesting results of Philadelphia's extensive public involvement efforts on the New Zoning Code is that citizens, developers, and other stakeholder often focus more on the city's broken zoning procedures than on the substantive weaknesses of current zoning rules. This is an unusual result – in most cities stakeholders focus primarily on the substantive development qualities they want the new code to achieve more than the procedures used to review applications.

#### Best practices

- Authorize planning staff to make more decisions on minor permits and approvals based on objective criteria and conditions in the zoning code.
- Ensure that decision criteria reflect the city's planning goals and are specific enough to produce predictable results.
- Provide the public notice of those decisions and an opportunity for input and/or an opportunity to appeal or request review by the ZBA.

The Assessment identified the high volume of (often minor) cases going to the Zoning Board of Adjustment (ZBA) as a major problem and suggested reducing the number of cases going to the ZBA. That preliminary suggestion has generally been welcomed, although some have warned that that approach will only work if the code's substantive standards are strengthened to protect neighborhood character and make administrative approvals more predictable for all parties. Others have suggested that if some types of cases are removed from consideration by the ZBA there should be alternative ways for the public to be informed and comment on those decisions. Finding ways to balance property owners' desires for predictability, transparency, and efficiency with neighborhood residents' desires for stability and opportunities for comment on proposed changes is one of the fundamental challenges for the New Zoning Code.

Decisions that many cities do not send to a planning or zoning board for a public hearing include minor deviations from dimensional, parking, or sign controls, minor modifications to non-conforming uses or structures, minor adjustments to a prior approval, minor conditional or special use permits, and approval of short-term temporary uses.

### 2.2. Potential Best Practices

One key to solving this challenge is to realize that public comment does not always require a formal public hearing to be effective. Most state laws (including Pennsylvania's) require public hearings on some types of approvals – for example, on applications to amend the zoning code or the zoning map. On the other hand, the law generally does not require public hearings on many types of minor or subsidiary decisions. Often the city can adopt whatever procedures it wishes within the bounds of state and federal due process rights.

### 2.2.1. Public comment periods without a hearing

Sacramento County, California's, new code allows some types of subsidiary decisions to be made after the posting of notice signs. Those signs must include the dates of a comment period related to the notice and the address where comments can be sent to the planning department. Staff then reviews those comments and can consider them in making administrative decisions as to whether the proposal meets the requirements of the code. While staff discretion in these types of situations is often limited – the only question is whether the proposal meets the standards written in the code – sometimes public comments can provide new information not disclosed by the applicant that relates to those standards. In this case, hearings are only available if the decision is appealed. In other communities applicants are required to provide mailed notices to property owners within a defined area in addition to posting notices on the property.

In 2001 Oregon amended its land use laws to allow a similar procedure. The language of Oregon Revised Statutes 215.416(11)(a) now reads.

“The hearings officer or such other person as the governing body designates may approve or deny an application for a permit without a hearing if the hearings officer or other designated person gives notice of the decision and provides an opportunity for any person who is adversely affected or aggrieved, or who is entitled to notice . . . to file an appeal.”

### 2.2.2. Neighborhood meeting requirements

An increasing number of cities, including Louisville, Kentucky, Kansas City, Missouri, and Englewood, Colorado, now require that applicants meet with neighborhood residents to discuss a proposed project before filing an application with the city. In some cases the requirement only applies to applications for significant changes in the type or intensity of development (i.e., not renovations or minor permits or variances). Some cities merely note whether the meeting was held in their staff report recommending approval or denial of the application. Others now require that the applicant document the date of the meeting, who attended, the issues raised, and the applicant's efforts (if any) to address those issues in the final design. In some cities, an application that does not contain a summary of the meeting is considered incomplete and cannot be processed. Experience shows that the earlier such meetings are held the more useful they are in defusing controversy, because early meetings allow the applicant to respond to neighborhood concerns in the design of the site or building. If the building has already been designed, the applicant may be reluctant to incur expenses to redesign it or reorient the site in ways necessary to address neighbors concerns.

### 2.2.3. “Call-up” provisions

Some cities allow staff or lower review bodies to make decisions, notify the city council of that decision before it becomes effective, and give the city council the right to “call up” the decision for review. A call-up usually occurs when neighborhood residents have contacted their councilmember to express unhappiness with the decision. Boulder, Colorado, uses

this approach with some types of permits. New York’s well known Uniform Land Use Review Procedures (ULURP) provides that if the City Planning Commission makes a decision on subdivision plats, certain special use permits, or eight other specifically listed types of decisions, the city council has 20 days to decide whether to review the decision. If it does not vote to “accept jurisdiction” within that time, the lower decision becomes final. But if a majority of council vote to accept jurisdiction it then has 30 days to make its own decision on the matter. Although New York uses this procedure after the City Planning Commission has already held its own public hearing, the same general approach could be used with staff decisions on which a hearing has not been held. When call-ups are used it is important to clarify whether the higher body needs to state a particular issue it wants to review and then confine its discussion to that issue, or whether it will conduct a “de novo” hearing on the entire application.

#### 2.2.4. “Bump-up” provisions

Some codes state that certain decisions can be made by staff, but that the planning director may “bump-up” the decision to a higher body (usually the planning commission or city council) if the application raises novel issues, raises questions of conformity with the comprehensive plan, or has potentially significant impacts on the surrounding areas. In practice, directors sometimes bump-up decisions simply because they are politically controversial, but that is consistent with the intent of many ordinances that delegate authority to staff. The decisions delegated are intended to be less controversial matters, so it may be appropriate to provide an escape route back into the public hearing process when that assumption proves wrong.

Still other communities apply the bump-up concept in a different way. They allow staff to make decisions but delay the effective date and provide public notice of the decisions. If no one contacts the city objecting to the decision before the effective date it becomes final, but if someone objects before the effective date it is bumped-up for a decision by the planning commission or city council. This approach is slightly different from the appeal hearing described in section 2.2.1 because the objector need not allege that staff made a mistake – they simply request that a different body make the decision.

Again, New York City provides an example. If one of its community boards recommends denial of an application, and the borough president also recommends denial, but the city planning commission nevertheless approves the application, the borough president has five days to bump-up the decision to city council, which must then make its decision within 50 days.

#### 2.2.5. Hearing officers

A fifth alternative is to allow public hearings to be held, but conduct them in front of a trained hearing officer who is obligated to make decisions based on criteria spelled out in the code. Seattle, Washington, and Fort Collins, Colorado, are just two examples of cities that follow this approach. Although the hearing officer system does not avoid the time and expense of public hearings, it tends to make them faster, more efficient, and more objective, since the entire planning commission or zoning board does not have to devote

time to the matter. In addition, public hearings before hearing officers tend to be less volatile, since there are no political appointees or elected officials present as an audience and because hearing officers tend to be more willing than appointed or elected officials to keep discussion focused on the decision criteria listed in the zoning code.

## 3. Sustainability

### 3.1. Framing the issue

“Sustainability” is currently one of the most popular themes in zoning. Many citizens have concluded that their city’s zoning rules promote unsustainable patterns of development, and they want that changed. Elected officials oblige by asking for more sustainable rules, but all too often neither citizens nor elected officials can clarify what they mean by sustainability or what aspects of sustainable development they would like to promote. Fortunately, heavy interest in this area of regulation has resulted in a rapidly increasing list of completed projects that can help frame the options.

#### Best practices

Change zoning rules to allow developments that:

- Reduce vehicle miles travelled (and related carbon emissions)
- Encourage renewable energy and energy conservation (including reduction of heat island effects)
- Encourage water conservation (including pervious pavers)
- Allow urban food production
- Promote walking and community health

Focus on removing barriers and adding incentives before adding regulations

In addition to its vague definition, sustainability turns out to be a difficult zoning topic for a second reason – many sustainability impacts are hard to measure and related regulations are therefore hard to administer. While noise or vibration emitted by a land use can be measured by staff in the field, the different carbon dioxide emission impacts of a specific development often cannot.

Finally, sustainability remains one of several competing goals of most American cities. Despite heavy interest in the field, most cities are not interested in making sustainability the only criteria for development and redevelopment approval. In practice, cities need to balance sustainability goals with objectives related to reinvestment, job creation, tax revenue generation, and public safety, the limits of the transportation and infrastructure systems, limited capital investment funds, neighborhood demands for stability, and developer demands for a predictable investment climate.

### 3.2. Potential Best Practices

Defining what elements of sustainability to address through zoning is a threshold challenge. The following table summarizes those elements addressed by the draft Sustainable Development Code issued by the Rocky Mountain Land Use Institute, as well as sustainable zoning projects in Salt Lake City, Utah, Washington DC, and the Emirate of Abu Dhabi.

Sustainability Topics Addressed				
Topics	RMLUI Sustainable Development Code	Salt Lake City	Washington DC	Abu Dhabi
Climate change and greenhouse gas reduction (including compact growth and reducing vehicle miles traveled)	●	●	●	●
Air quality		●		
Renewable energy	●	●	●	●
Energy conservation		●	●	●
Alternative transportation modes & mobility		●		●
Water conservation	●	●	●	●
Water quality		●		●
Community health and safety	●	●	●	●
Food production and security	●	●	●	
Urban forestry		●		●
Balanced, livable neighborhoods				●
Building form and orientation				●
Housing affordability and diversity	●	●		
Natural hazards/wildfires	●			
Natural resources/open space	●	●		
Green jobs			●	
Recycling / Integrated waste management		●		●

Climate change and greenhouse gas reduction, renewable energy, water conservation, and community health and safety have been addressed by all four of these programs.

Popular zoning approaches to climate change include: adopting or broadening mixed use development (to reduce potential commuting), adopting transit-oriented development regulations, and adopting transportation demand requirements (generally requiring that larger developments reduce traffic generation below expected values). Techniques for encouraging renewable energy include allowing accessory solar panels and geothermal energy collection equipment (and sometimes wind power generators) in some side and rear setback areas. Solar panels are often explicitly allowed on rooftops (with the exception of historic districts) and are sometimes allowed to exceed building height limits by a small amount (usually 18 inches). Solar, geothermal, and wind power generators can also be allowed as primary uses of land in some commercial and industrial (and sometimes mixed use) zone districts.

Techniques for encouraging water conservation include allowing rain barrels, rain gardens, bioswales, and water harvesting facilities in some side and rear setbacks and explicitly permitting green roofs in some zoning districts. Community health is sometimes promoted in zoning ordinances through requirements for street and walkway connectivity within and between neighborhoods and by encouraging or requiring bicycle parking areas. It also can be addressed by limits on “fast food” operations that tend to offer unhealthy food.

In addition, the table above shows that three of the four programs addressed energy efficiency, and food production and security.. Energy conservation can be promoted through incentives for higher levels of efficiency than those required by the building code. Food security can be addressed by allowing both community gardens and farmers markets in a broader range of zoning districts.

Building upon the growing body of knowledge in this area, the Mayor’s Office of Sustainability has developed *Greenworks Philadelphia* -- an extensive citywide strategy that covers a wide variety of sustainability initiatives. *Greenworks Philadelphia* refines many general sustainability ideas into more specific objectives and recommends that the Zoning Code Commission use the New Zoning Code to address sustainability in the following ways:

- **Energy efficiency:** Adopt density, intensity and/or height bonuses for high performing buildings.
- **Solar energy:** Allow installation of solar energy facilities by right in some districts, and address solar installations in residential areas in ways that balance the rights or homeowners and neighbors. Protect existing solar energy facilities from shading by future development.
- **Heat island:** Cool down parking lot surfaces by requiring planting of trees around the edges and in the interior of all public and private parking lots.
- **Stormwater:** Allow the use of pervious pavers in parking lots.

- **Open space:** Encourage the creation and preservation of publicly-accessible open space in all new residential and commercial projects, particularly large scale projects.
- **Community gardens and commercial scale farms:** Remove zoning barriers to these uses and related irrigation and create a new zoning designation to permit commercial farming.
- **Alternative transportation:** Incorporate recommendations from the city's new bicycle and pedestrian plans.
- **Parking:** Reduce parking requirements when shared car or bicycle parking spaces are provided.

Finally, the downtown zoning firm of Dyett & Bhatia has recommended that downtown building design standards reduce heat island effects through articulation of building shapes to generate cooling air flow, using paving materials that resist heat gain, and using heat-absorbing materials at the ground floor. They also recommend incorporating street trees and non-paved site design features in center city areas.

The above summary shows that there are several provisions that could be incorporated into the New Zoning Code to achieve sustainability goals. When evaluating these potential tools, however, it will be important to keep the following principles in mind:

- Significant improvements in building performance can often be better addressed through the building code than the zoning code. Focus on issues related to zoning – such as building orientation, parking, landscaping, and development incentives – that are not best addressed through the building code.
- Begin by removing zoning barriers that prevent sustainable development from happening. If that will not produce significant improvements, consider development incentives to encourage sustainable designs and features. If neither of those approaches is likely to produce significant results, consider regulating the inclusion of sustainable features. Regulatory mandates should generally not be the first approach considered.
- Where incentives or regulatory requirements are considered, evaluate the costs and benefits of the requirement. Avoid incentives that sound good on paper but do not generate enough additional revenues (or cost savings) to motivate builders to use the incentive. Avoid regulations that require expensive building or site changes but produce only marginal sustainability benefits.

## 4. Center City Zoning

### 4.1. Framing the issue

Downtown areas of large cities present unique and complex challenges for zoning codes. These areas often contain very diverse neighborhoods ranging from the city's largest and tallest buildings to two- and three-story residential areas determined to protect their current scale and character. In addition, downtowns often contain the oldest development – often predating zoning by many decades – where finding a “fit” between zoning rules and the reality of what has been built is particularly difficult. And downtowns often contain those iconic buildings, parks, streets, and parkways that residents and visitors visualize as the image of the city – areas like Philadelphia City Hall, Benjamin Franklin Parkway, Chestnut Street, the Avenue of the Arts, and Independence Hall. Protecting and enhancing the feel of those image-making areas while allowing redevelopment to continue around them is a particularly complex problem.

As the Assessment report has already documented, Philadelphia has responded to these unique challenges by adopting a bewildering array of overlay zones that affect small defined swaths of the C4 and C5 districts. In Center City Philadelphia the question is not whether the City wants to use some form-based controls on development – it already does – but how to make those controls understandable and predictable to residents and investors and how to use those types of tools to increase the quality, vitality, and livability of the downtown areas. The Clarion-Duncan consulting team includes the San Francisco-based firm of Dyett & Bhatia because of their nationwide expertise in analyzing downtown zoning issues and crafting appropriate solutions. This section of the report is based on that

#### Best practices

- Begin by mapping street typologies, and adopt building form and use controls based on that map.
- Map height and density controls separately.
- Consolidate building form controls into as few overlay zones as possible.
- Focus on walkability and pedestrian comfort.



San Diego Street Typology Map

firm’s presentation to the Zoning Code Commission on May 13, 2009, which drew on experience from Portland, San Diego, Chicago, and San Francisco. The full version of that presentation is available at [www.zoningmatters.com](http://www.zoningmatters.com).

## 4.2. Potential Best Practices

Best zoning practice for center city areas is based on tools that address four key issues (plus parking, which is covered in Section 6 below.) Philadelphia should consider which of these approaches it wants to include in the New Zoning Code, and what types of controls would be appropriate.

### 4.2.1. Street Typologies

Understanding how people, cars, transit, and bicycles use different types of streets is one key to a healthy downtown. Good downtown zoning should be based on a planning vision that identifies a framework of different street types and reinforces the intended character of those streets. In large cities, it is helpful to think in terms of (1) pedestrian-oriented streets, (2) transit potential streets, and (3) service streets. Instead of simple street cross-sections the city should map each type of street based on the role it plays in the functioning of downtown – or the role it could play if its function were reinforced by appropriate zoning and public improvements. Not only is it important to think in terms of the framework of each type of street, but it is essential to think through the connectivity of street within each category and between the three categories. San Diego’s downtown zoning is one good example of a street-typology-oriented approach, and one of their maps is shown above.

### 4.2.2. Density/Intensity

The image of downtown areas is determined both by the density of development permitted and the heights of buildings that are built in downtown areas. In older zoning codes there was an assumption that maximum densities and heights varied in the same ways – areas that had higher maximum floor area ratios (FARs) had taller maximum heights. Increasingly, however, major cities are mapping maximum heights and densities through separate maps – which allows for relatively dense lower-scale buildings to create investment potential and street activity in areas where taller buildings would not be appropriate. In addition, major cities are increasingly ignoring the space occupied by underground and above-ground parking structures in the calculation of maximum FARs. Allowing garages to be treated as “free” space increases the chances that parking will be structured rather than relegated to surface lots. While parking in the very dense core of the city will almost always use garages (because land prices make surface lots inefficient), in areas nearer the fringe of the core area this approach to calculating FARs can provide significant benefits in discouraging surface parking.

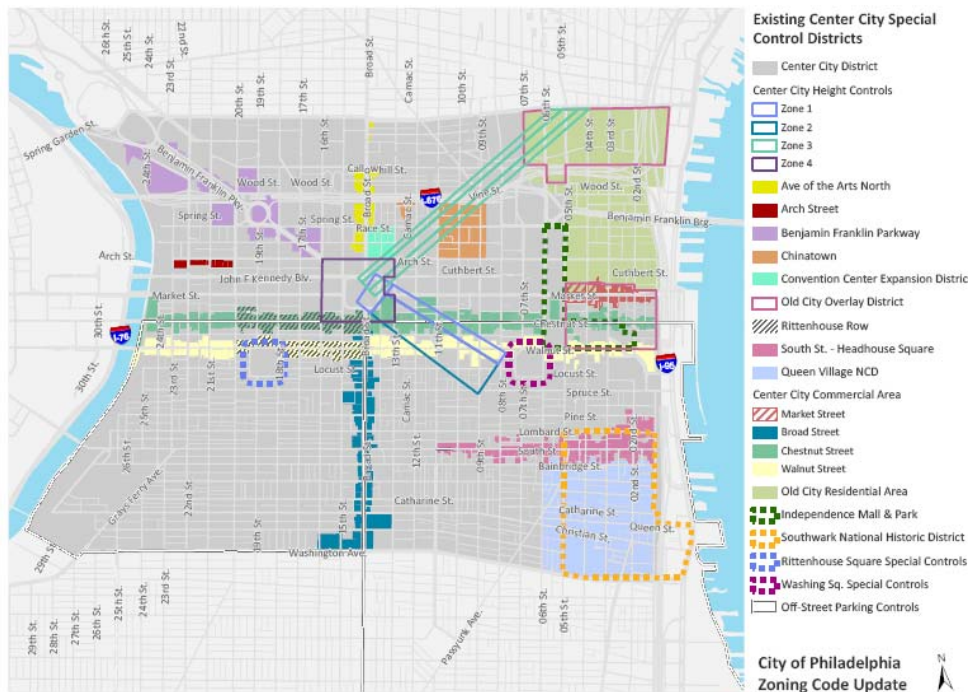
Starting with New York City in 1961, many major American cities have begun offering incentives for developers who incorporate desired features into their buildings. In most cases, the city offers the builder a “bonus” in terms of additional building height or FAR, or reduced parking or fee payments, in order to change the building economics and make the desired features affordable. The range of items that have been encouraged through incentives is long and varied among cities, and includes all of the following (and more):

- Public plazas/pocket parks
- Residential uses
- Affordable housing
- Large housing units
- Moderately priced housing
- Day care facilities
- Sidewalk/riverwalk widening
- Arcades
- Theaters
- Winter gardens/water features
- Green roofs/eco-roofs
- Bicycle parking/showering facilities
- Underground parking/hidden parking
- Streetscape/pedestrian improvement

One clear trend is that various forms of affordable and attainable housing – or housing that meets other unmet needs – occurs on this list much more frequently than it used to. For many cities, the need to encourage affordable housing has begun to overshadow some other benefits and community amenities in value to the city.

Thinking up possible bonus items is not the hard part – the hard part is limiting the list to what will best promote the city’s key priorities and making sure that the bonuses are economically viable. While some cities require an individual hearing before granting any incentive, the better practice is to agree on the bonus conditions ahead of time and then grant the bonus without discretionary (and sometimes time consuming and controversial) review. Investors need the predictability of knowing that if they offer an amenity that meets the city’s standards they can budget on the additional height or space and don’t run the risk of having that denied in a discretionary hearing.

In order for incentives to work, they need to be grounded in local economics – i.e., they need to really encourage developers to build what is wanted. When offering downtown incentives, economic analysis should be used to measure the value of added space to a



Philadelphia Center City zoning

builder against the cost of the amenity they are being encouraged to build. If the incentive is too small it will be ignored; if the value of the additional space far exceeds the cost of the amenity, many builders may choose one very generous bonus and ignore the others.

### 4.2.3. Standards for Building Form and Use

Philadelphia already regulates building forms in an indirect and uncoordinated fashion. The existing C4 and C5 zone districts are overlaid by a myriad of narrowly focused special districts aimed at controlling building height, street enclosure, and a variety of other factors that contribute to urban form. One easy improvement to Center City zoning would be to consolidate those controls into only one or a few overlay districts that convey the city's form intent in a more coherent way. The map above illustrates the first steps in doing that, and the benefit of consolidating these controls into a simpler structure is taken as a given in the analyses that follow.

Comparison with other cities suggests, however, that Philadelphia may not be controlling the right aspects of downtown form to encourage a vibrant pedestrian experience. Increasingly, large U.S. cities are seeing sunlight and shade as important ingredients in public enjoyment of downtown areas. Some major, healthy downtowns focus on locating buildings along the edge of the sidewalk – not only to create a sense of street enclosure for shoppers and walkers but to provide shade that can increase pedestrian activity in summer months. In contrast, in colder climates, heights or shapes of buildings along the south sides of streets are sometimes regulated in order to allow sunlight to reach key pedestrian areas.

Other cities, such as San Francisco, regulate building form to ensure that towers do not cast excessive shadows on public parks during key hours of the day (at least during key times of the year). Because sunlight and views are important not only to street level pedestrians but to office workers, some cities also establish minimum tower separation heights so that views and sunlight access are protected. Cities that take this approach often do the analysis necessary to ensure that they do not prevent new towers on any property, but instead govern the location and shape of those towers.

While a diversity of land uses is one hallmark of downtown areas, the activities taking place on the ground floors of buildings can make a big difference in downtown health. Because ground floor activities can give pedestrians a reason to walk, larger cities are increasingly thinking differently about those uses. Some cities are drafting regulations that do not permit ground floor frontages in key areas to be occupied by uses that do not contribute to walkability. These types of regulations should be closely tied to an evaluation of street typologies, because there are many streets where regulation of ground floor uses is neither necessary nor helpful. And there is usually a limited market for pedestrian-active uses. Cities that require pedestrian-active ground floor uses over too large an area may find that tenants choose the less expensive locations away from the downtown core and that buildings on streets where ground-floor frontages are most needed have trouble attracting tenants. To avoid this problem, prime shopping streets could be distinguished from other streets to ensure a compact viable retail core. As with street typologies, a map of areas where ground floor uses apply often conveys this information much better than lists or text.

#### 4.2.4. Walkability

The walkability of downtown areas is another key aspect of development that zoning can address, and an increasing number of cities are doing so. Enhancing walkability requires consideration of traffic engineering requirements, public safety standards, convenience, comfort, and connectivity. Generally, traffic engineering and public safety requirements are codified in street and sidewalk standards, but often those standards were not developed with much consideration for pedestrian comfort, convenience, or connectivity. As Philadelphia has learned in some neighborhoods, too many curb cuts not only compromise traffic flow but also erode walkability. Regulations that control the location, massing, and entries to parking garages, loading areas, and service functions can be key to enhancing walkability and reducing car/pedestrian conflicts.

As important as turning movements, light, and shade is the degree of connectivity required in the downtown area. Pedestrians are less likely to walk if the street, sidewalk, and pathway network makes it inconvenient or circuitous to get where they want to do. While most downtowns include a relatively rich network of streets and walkways, these can erode over time as streets or alleys are closed or if “superblock” developments require pedestrians to take a long walk to reach a nearby location. Many cities now ensure that walkability does not erode by requiring that new developments incorporate pedestrian passageways when streets or alleys are closed and in areas where the existing framework of streets or alleys do not allow convenient pedestrian movement.

#### 4.2.5. Parking

A fifth area of downtown best practices is parking design and management. In order to avoid repetition, those tools are described in section 6 below.

## 5. Form Controls Outside Center City

### 5.1. Framing the issue

While some cities (such as Miami and Denver) have moved toward applying prescriptive form-based controls throughout the city, most cities have concluded that detailed form-based controls are most appropriate in selected areas of the city. While form controls may be useful and effective in many downtown areas and historic areas, they may be less important in other areas.

#### Best practices

- Focus form controls on three key situations – boundaries between residential neighborhoods and non-residential areas, redeveloping commercial strips, and transit oriented development.
- Focus on the height and massing of buildings and the location of parking areas.
- Tailor transit oriented development controls to the type of transit involved and the scale and character of the surrounding neighborhood.

Prescriptive regulations always run the risk of discouraging reinvestment in older cities, so the level of regulation should reflect the city’s balance of interests in different areas. Three areas in which form-based controls may be useful in both protecting neighborhoods and encouraging reinvestment are: (1) the boundaries between residential and non-residential areas, (2) commercial corridors, and (3) transit-oriented development nodes. This section of the report is based primarily on research preformed by Wallace, Roberts, and Todd, LLC, but the discussion on parking also draws on research performed by Clafien & Associates and Dyett & Bhatia.

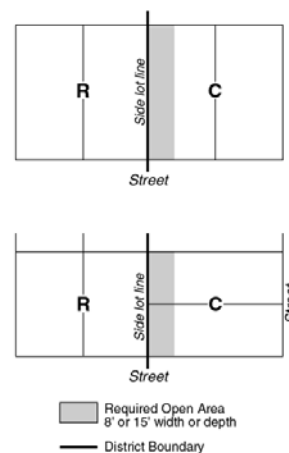
## 5.2. Three Sets of Potential Best Practices

### 5.2.1. Residential-Non Residential Boundaries

Large, dense cities like Philadelphia often have concerns about commercial and mixed use areas adjacent to residential neighborhoods. Several major development proposals in Center City and on the Delaware River waterfront have been hindered by intense opposition from adjacent neighbors who fear the scale of development would overwhelm their neighborhoods. This issue needs to be dealt with proactively through strategic policy direction rather than through heated community meetings that delay the development process. Chicago, Boston, New York, and other cities have created standards to address the transition between larger scale development and adjacent residential districts, primarily through the use of landscaped buffers, screening, and context sensitive design standards.

Chicago’s code requires that the perimeter of all parking and loading areas larger than 1,200 square feet be screened from all abutting residential zones, nursing homes, hospitals, religious assemblies, community centers, schools, colleges, and institutional uses by a masonry or wood fence or wall or a hedge at least five feet tall. Chain link fencing is prohibited. New York uses graphics such as those below to illustrate its “bufferyard” requirements.

Increasingly, cities go beyond screening and buffering requirements to require that the design of higher intensity development along residential-nonresidential boundaries respect the existing character of the lower scale area through “context sensitive design standards.” Chicago requires that site plans and elevations for proposed retail strip centers demonstrate compatibility with the adjacent neighborhood through their building orientation, massing, and scale; building materials; access, circulation and parking; service facilities; utility/mechanical equipment and outdoor storage areas; landscaping; signs; and lighting.



REQUIRED YARD ALONG DISTRICT BOUNDARY  
COINCIDENT WITH SIDE LOT LINES

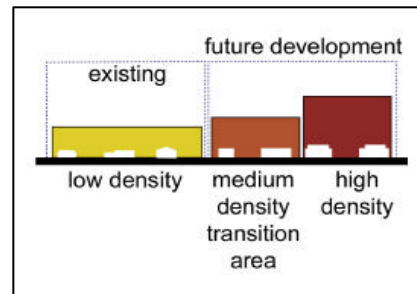
New York bufferyard graphics

Louisville-Jefferson County, Kentucky has adopted “form districts” as overlays to their standard use-oriented zoning districts. The form districts include transition zones and transition standards that are intended to ensure compatibility of adjacent form districts of differing intensities. The transition zone is essentially the buffer or setback between the adjacent form districts, as shown in the following table:

<b>District Transition Zone Standards (in feet)</b>			
<b>Buffers required between this zone</b>	<b>And these zones</b>		
	Village	Neighborhood	Traditional Neighborhood
Traditional Workplace	400	200	100
Suburban Marketplace Corridor	200	200	200
Traditional Marketplace Corridor	400	200	100
Regional Center	200	200	200
Town Center	400	200	200
Campus	200	200	200

Within the Louisville-Jefferson County transition zones additional standards limit building heights to 45 feet, require that commercial properties meet the front and street side setbacks on adjacent properties, require increased bufferyards and planting, apply higher façade treatment standards, and apply residential (rather than commercial) lighting standards to the commercial properties.

Palo Alto, California has developed similar context-based design criteria that address (1) transitions of development intensity, (2) massing and orientation of buildings, including upper story stepbacks and daylight planes that match abutting residential zones, (3) positioning of windows and upper floor balconies so they minimize views into neighboring properties, (4) minimizing sight lines into and from neighboring properties, (5) limiting sun and shade impacts on neighboring properties, and (6) using pedestrian walkways to create separation between boundary uses.



Palo Alto transition graphic

### 5.2.2. Commercial Corridors

Commercial corridors are a second area where major cities often address development forms outside the downtown core. This is in part because the last three decades have seen a variety of inappropriate suburban retail forms inserted into the urban fabric. In some cases post-war commercial corridors disappoint not only the neighborhoods behind them

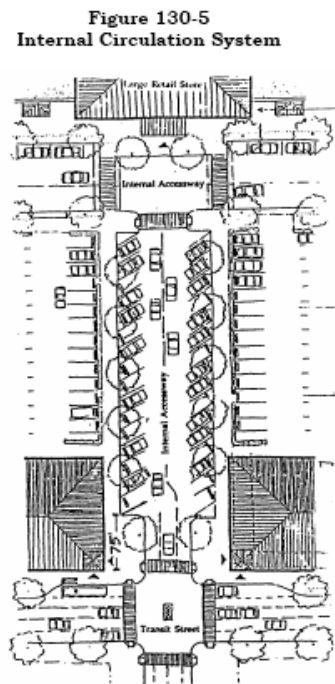
(because they turn their backs on the homes and fail to provide walkable connections to the shops) but the drivers whom they were intended to serve (who find them dated and unattractive) and pedestrians (who have no desire to walk along the parking-dominated street frontages). Because these problems are directly related to the form, scale, and layout of the development, form-oriented tools can address them well.

Chicago recently revised its commercial zone districts to enhance key pedestrian-oriented retail corridors and development at the city's distinctive six-way intersections. The zoning code for these pedestrian-oriented "P Streets" is intended to encourage continuous streetwalls (i.e., streets fronted by buildings rather than parking lots or open spaces), high levels of window transparency, and entrances to shops at sidewalks. On these designated streets, any associated parking must be located behind buildings and auto-oriented uses like drive-throughs are prohibited. Chicago's P Street approach represents a selective tailoring of the downtown "street typology" zoning approach to address a specific non-downtown zoning problem.

Portland, Oregon's commercial district zoning requirements are linked to Transit Streets and Pedestrian Streets designated in their comprehensive plan, and vary based on the local, neighborhood, or regional orientation of their commercial uses. Most commercial districts do not have parking requirements and those that do must prioritize pedestrian access, screened parking, and internal circulation on large lots. On a Transit Street or Pedestrian Street, entrances and other urban design features must be oriented to the street.

The city has created six different commercial zones, and allows development that is not on Transit Streets or Pedestrian Streets to be more auto-oriented. Regulations address not only typical form-dimensional topics (like minimum setbacks and maximum heights and densities) but also: (1) maximum building setbacks, (2) maximum garage entrance setbacks, (3) ground floor window standards, (4) pedestrian requirements, and (5) landscaping adjacent to residential districts.

The Portland ordinance also includes setback options for "big box" retailers to allow deeper street setbacks for large retail stores locating along Transit Streets or in Pedestrian Districts in exchange for main street type street frontages. These large retail sites can still be transit-supportive and pedestrian-friendly by placing smaller commercial buildings close to the street and by creating an internal circulation system that is similar to streets and that separate the parking area into blocks. The intent is to encourage development that will, over time, form a pedestrian-friendly main street along the perimeter of the parking blocks and provide connectivity within the site and to adjacent streets and uses, as illustrated in this diagram.



Portland Big Box graphic

Some cities have adopted form controls stating that commercial parking lots must be screened and located between commercial buildings and residential boundaries (which forces commercial buildings further from the boundary), while others require that commercial parking lots cannot be located along the edges of the site (which forces buildings closer to the boundaries but protects the adjacent neighborhoods from hearing or seeing parking activities). Because the location of parking areas is so fundamental to the form of commercial corridors, it is not surprising that several form-making elements focus on the location and design of parking rather than the buildings themselves. Two of the most common tools used in commercial corridors – restrictions on curb cuts and requirements for parking behind primary buildings, are discussed in Section 6 below.

### 5.2.3. Transit Oriented Development

Large cities cannot thrive without good networks of public transit – and transit systems are much more efficient if they are reinforced by “transit-oriented development” or “TOD”. At its core, TOD is a set of zoning and investment tools designed to require densities that will promote transit ridership, designs that makes it easy to find and use transit, and tools to protect adjacent neighborhoods from the impacts of larger and more intense development at transit nodes.

Recently, the Philadelphia non-profit NeighborhoodsNow commissioned Farr Associates of Chicago to prepare suggestions for TOD zoning tools for areas throughout the city. That study reinforced general U.S. experience that TODs need to take very different forms for different contexts in which they are built. In TODs one size definitely does not fit all. It also identified a set of core form elements that should be a part of any TOD base or overlay zoning district – though those elements will be applied differently in different areas. Those elements include:

- TODs generally apply between 1/4 – 1/2 mile outward from the station – with the larger distance appropriate for busier and higher volume stations.
- The area closest to the station contains a relatively dense central core of development. There is often a minimum building height of two stories and sometimes higher.
- They almost always allow a broad mix of uses, and sometimes require a mix of uses, (generally residential and commercial, but sometimes also civic and entertainment), but the mix of uses required varies by location and scale of the station and surrounding area.
- Where residential uses are required they increasingly specify a variety of housing types and price points in order to help meet workforce housing needs (i.e., housing needs of employed lower and moderate-income for whom the market is not supplying housing that they can afford).
- Auto-oriented uses – such as drive through facilities, vehicle sales/rental, vehicle repair/service, gas stations, and car washes -- are often prohibited or their size and location carefully controlled.

- TODs are designed to facilitate transit interconnections – usually transfers from bus or trolley to train – through short, direct, and visible connecting routes.
- They require clear frameworks for pedestrian circulation within the TOD zone, between trains and parking areas, and for residents in surrounding areas to reach transit facilities. Curb cuts are limited to encourage more pedestrian activity.
- TODs generally incorporate “build-to” zones (instead of setbacks) that require buildings close to the sidewalks and require corner lots to place buildings on those corners (rather than set back behind parking lots).
- They often require primary entrances to buildings to face the sidewalk rather than parking lots, require greater levels of window use (“transparency”) on the ground floor, and limit blank walls.
- Parking is often required to be in parking structures and maximum parking ratios are sometimes used to discourage driving and encourage transit use. Where surface parking is allowed, it is often strictly limited and not permitted in front of buildings.
- Residential parking requirements are usually reduced and sometimes eliminated.
- Bicycle parking is often required.

Washington, DC, is also in the process of considering TOD zoning and has come to the same conclusion regarding the need for a variety of options. The District of Columbia Transit Alternatives Analysis (DCTAA) has identified transit corridors where services will be expanded or converted to a higher-capacity mode (for example, from bus to trolley or bus rapid transit). In this case the city found it helpful to think of ¼ mile wide linear “TOD corridors” along bus or streetcar lines with frequent stops, ¼ mile concentric “TOD nodes” around high capacity bus service stops, and ½ mile concentric “TOD nodes” around major rail stops and transit route intersections.

Washington also found it helpful to think of TOD zoning in terms of a three-step process. First, identify different areas for TODs based on the DCTAA map of services and upgrades. Second, adopt TOD zoning that includes regulations addressing basic framework issues. Third, prepare a detailed site plan that tailors those general regulations to reflect local conditions, such as creeks, bluffs, historic districts, environmentally sensitive areas, or areas where community scale is particularly vulnerable to more intense development. This tailoring step could also include different mixes of required land uses, depending on whether emphasizing commercial or residential uses would help optimize the use of the transit system.

As with commercial corridors, the treatment of parking areas turns out to be a key element in successful TOD design. Four of the most common tools used in TOD areas – restrictions on curb cuts, requirements for parking behind buildings, requirements to “wrap” parking garages with pedestrian-active uses, and incentives for underground parking – are discussed in Section 6 on parking.

## 6. Off-Street Parking Requirements

### 6.1. Framing the issue

Providing adequate parking for automobiles sounds simple, but is in fact one of the more complex elements of big city zoning. In the post World War II period the tendency of most zoning codes was to require large amounts of off-street parking in order to protect transit and traffic flow and residential neighborhood character – but that resulted in an unloved auto-oriented streetscape dominated by parking lots. In many cases it now appears that cities required too much off street parking. That is a problem, because parking economics often drive land economics – the amount of required parking determines how much building can be built, and sometimes the result of high parking requirements is a building too small to be financially feasible.

#### Best practices

- Philadelphia's current minimum parking requirements are relatively low compared to other large cities – but there may be opportunities to reduce requirements in high and medium density residential districts or near transit.
- Adopt shared parking provisions reducing total required parking based on complementary peak hour use.
- Consider parking maximums near transit lines, where roadways are near capacity, or in areas where large surface parking lots are discouraging reinvestment or harming adjacent neighborhoods.
- Consider wrapping or façade treatments to minimize the visual impacts of large parking structures.

Older zoning codes also tied parking to particular land uses in a simplistic way, without taking into account the difference between downtown and suburban areas, or the difference between crowded retail nodes and free-standing retail shops. Parking turns out to be very context sensitive -- what is reasonable and needed in one location would be unreasonable and unused if the same building were built in a different place.

To its credit, Philadelphia avoided some of the parking mistakes of the post-war period by not requiring any parking for non-residential uses in the densest zones, C4 and C5, and through a relatively moderate requirement for commercial parking outside of Center City. The default residential requirement is one space per unit and the default commercial requirement is one space per 1,000 SF of space. These requirements are further adjusted in specific zones, or by geographic district. For example, in the core of Center City residential parking for buildings with more than 25 units is required at .5 spaces per unit. In the greater Center City area, the requirement increases to .7 spaces per unit. For elderly housing in any zone the requirement is .3 spaces per unit, which can be lowered to .2 by certificate.

For all these reasons, big city parking regulations require careful attention and a review of best practices is helpful. This section of the report is based primarily on research by

Philadelphia-based Claflen Associates, with some contributions from other team members. The complete text of that research is available at [www.zoningmatters.com](http://www.zoningmatters.com).

## 6.2. Potential Best Practices

Most literature on parking requirements now accepts the hierarchy of regulatory methods listed below (from least to most restrictive):

- Minimum requirements by use type or building size;
- Minimum requirements with adjustments for density, proximity to transit, mixed uses, and/or allowances for on-street parking as part of the total;
- Elimination of minimum requirements with or without maximum requirements;
- Maximum requirements, often with tailoring and sometimes with efforts to “decouple” parking costs from other building costs (especially for housing); and
- Linking parking requirements to an overall parking and multi-modal transportation management approach.

Other emerging practices in parking regulation and control hinge on the urban design implications of parking lots and garages and include:

- Restrictions on non-accessory parking;
- Restrictions on vehicular access that might interfere with pedestrian use of the streets;
- Incentives for underground parking;
- Incentives or requirements for rear rather than front parking to maintain continuity of street and sidewalk facades;
- Incentives for “wraps” or arrangements that would place permitted uses between the public realm and the bulk of the garage; and
- Customizing parking requirements to neighborhood design.

### 6.2.1. Minimum requirements by use type or building size<sup>1</sup>

Both Denver and Seattle have taken a close look at their parking standards and have conducted their own research to adjust those standards. Seattle used a very detailed methodology and generally found the Institute of Transportation Engineers (ITE) standards to be higher than demonstrated by actual survey. The variation mapped was very large, leading their planners to ask “what is the level that will produce the least harm to the neighborhood and urban form?” These examples show the risk in using national standards derived from automobile based communities uniformly to Philadelphia or other older American cities.

<sup>1</sup> Two popular sources for minimum requirements are the Institute of Transportation Engineers’ *Parking Generation* (3<sup>rd</sup> Edition 2004) and the Urban Land Institute’s *Parking Standards* (2002).

The District of Columbia Planning Department and the consulting firm of Nelson\Nygaard compared existing standards for the District, San Francisco, Portland, and Philadelphia, with the following results<sup>2</sup>:

Minimum Parking Requirements	DC	San Francisco	Portland	Philadelphia
<b>Residential (per unit)</b>				
High Density Districts	.25	.25	No min.	.50
Mid Density Districts	.20	1	.25	.70
Low Density Districts	1	1	1	1
<b>Commercial (per 1,000 sf floor area)</b>				
High Density Districts	.3	No min. / max. cap	No min.	No. min
Mid Density Districts	1.25	2	2.75	1
Low Density Districts	3.25	2	2.75	1
<b>Office (per 1,000 sf of floor area)</b>				
High Density Districts	None	None	None	None
Mid Density Districts	1.25	2	2	1
Low Density Districts	1.75	2	2	1

In most categories, Philadelphia has the lowest, or one of the lowest requirements – with the exception being high and medium density residential areas.

### 6.2.2. Minimum requirements with downward adjustments

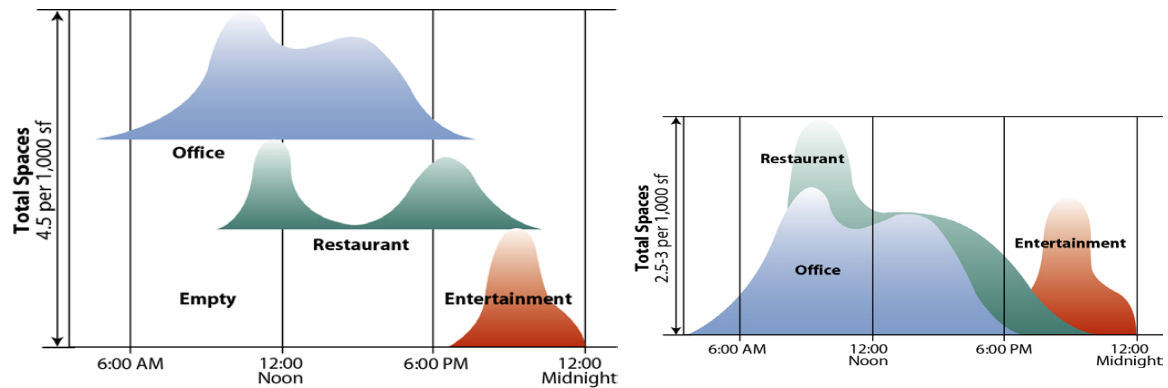
An increasing number of large cities provide formula-based adjustments that lower minimum parking requirements in specific cases such as:

- Proximity to transit lines;
- Mixed uses;
- Institutional campuses;
- Retail corridors;
- Availability of on-street parking; and

<sup>2</sup> District of Columbia Zoning, Requirements for Parking Study 2007, DC Office of Planning and Nelson\Nygaard. Note: DC is currently considering a proposal to remove all parking minimums.

- Shared parking when nearby uses have complementary peak demands.

The shared parking concept is well illustrated in the graphics from La Crosse Wisconsin's Coulee project, which demonstrate that the total amount of parking needed for complementary peak demand facilities is less than the sum of their individual requirements.



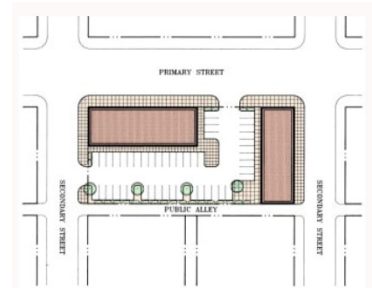
LaCrosse Peak Hour Parking Demand Charts 1

One of the leading sources for actually determining the ratios to be allowed is *Shared Parking* (2<sup>nd</sup> Edition 2005) by the Urban Land Institute, which developed a programmed methodology for calculating shared parking overlaps. Detroit requires a shared parking analysis but does not specify the methodology, while San Diego includes a complex calculation schedule in its code. Nashville permits shared parking based upon a study and approval of the metropolitan traffic engineer, and has several other interesting provisions. Its Urban Development Overlay district eliminates all minimum parking requirements in the Center City district and reduces minimum requirements in other dense zones by 25-50%. Nashville also provides a 10% reduction in parking requirements for all uses within 660 feet of transit, non-residential uses close to residential uses that they serve, and non-residential uses located within 660 feet of major public parking facilities. Finally, Nashville provides 50% credit for every on-street space in some residential districts.

San Diego provides an approximate 15% reduction in minimum required parking within transit areas. Their community-scale commercial corridor CC-1-1 and CC-1-2 districts require minimums of 2.5 spaces per 1,000 square feet of floor area and reduce that to 2.1 spaces when in a transit area. San Diego also employs the concept of "parking impact areas." These are areas near the beach or campus environments where parking requirements are *increased*. For example, San Diego's basic residential requirement of two spaces per dwelling unit can be increased to one space per bedroom for rental units in campus impact areas.

Other cities address the unique parking needs and challenges of campus areas through institutional zoning districts. Those districts generally replace formula minimum parking standards with requirements for a complete development plan that incorporates parking and reduces or manages parking impacts on surrounding neighborhoods.

Finally, it is very common for cities to provide special parking control districts (usually as part of an overlay district). In some cases these “shift” the entire minimum parking requirements for all uses in the area in order to reflect unique needs related to scale and the surrounding context. Chicago distinguishes three types of retail corridors with different minimum parking and form requirements, one of which is illustrated to the right. Burlington, Vermont also establishes three parking districts: neighborhood, shared parking, and downtown.



Good site design can accommodate off-street parking (above) without interrupting the retail continuity of the street. Transparent storefronts (below) make sidewalks safer and more pleasant.



Chicago corridor parking graphic

Clarion-Duncan team member Dyett & Bhatia identified reduced parking requirements for shared parking as a best practice for downtown areas.

### 6.2.3. Elimination of minimum requirements

In addition to reducing parking requirements in designated commercial areas, some cities exempt small properties from parking requirements – generally reflecting the fact that some smaller, older lots cannot accommodate even minimum amounts of on-site parking while preserving existing structures. San Francisco and Seattle exempt the first 4,000 to 5,000 square feet of common retail uses from all off-street parking requirement. Detroit exempts the first 3,000 square feet of many retail uses from parking requirements, and extends that exemption to 4,000 square feet if the use expands into an adjacent structure, but does not allow already-existing off-street parking to be removed.

While some communities are happy to “let the market decide” how little parking to require, they are concerned about allowing the market to provide too much parking. In Chicago, for example, developers gladly accepted a relatively high residential parking requirement, probably in excess of demand, and then rented the excess spaces to the public to earn additional revenue. To avoid this problem, San Francisco has combined the elimination of parking minimums with the imposition of maximum parking limits.

### 6.2.4. Maximum parking caps

The Boston Metropolitan Commission has provided a concise overview of national efforts to use parking maximums to balance transportation demand and to improve city form:

- The City of Boston adopted a freeze on commercial parking open to the public in 1977, but did not limit parking reserved for individuals or company use within office buildings. While the number of commercial parking spaces has not increased, exempt spaces increased 26% between 1984 and 1987.
- In 1975, the City of Portland set an overall cap of approximately 40,000 parking spaces downtown, including existing and new parking facilities. The cap was increased to about 44,000 spaces by the 1980s and increased again in the 1990s. The City believes these policies have helped increase transit use from 20-25% in the

early 1970s to 48% in the mid-1990s. In addition, Portland sets maximum parking limits based on type of use and availability and frequency of transit service, and allows transfer of unused parking entitlements.

- San Francisco limits parking downtown to 7% of the building's floor area. In addition, housing in the downtown area with two or more bedrooms and more than 1,000 square feet of floor area allows parking by-right at the rate of one space per four units. Applicants can get approval for up to one space per unit through a special use process -- but cannot create more than one space per unit through any process.
- Seattle allows a maximum of one parking space per 1,000 square feet of office space downtown and has considering extending this limit to areas outside of downtown.

As an additional tool to discourage provision of more parking, and to slow down increases in the price of housing, San Francisco requires large projects to “decouple” parking and housing at the time of sale or rental of the housing unit. Their regulation reads as follows:

“Sec 167(a). All off-street parking spaces accessory to residential uses in new structures of 10 dwelling units or more, or in new conversions of non-residential buildings to residential use of 10 dwelling units or more, shall be leased or sold separately from the rental or purchase fees for dwelling units for the life of the dwelling units, such that potential renters or buyers have the option of renting or buying a residential unit at a price lower than would be the case if there were a single price for both the residential unit and the parking space . . .”

Dyett & Bhatia also recommend the use of parking maximum caps and the decoupling of parking sales and rental from the sales and rental of commercial and residential space as best practices in downtown parking.

### 6.2.5. Restrictions on non-accessory parking

While most discussions of parking focus on accessory parking (i.e., parking that is required to serve the needs of other primary uses on the same property), most cities also regulate the provision of non-accessory parking (i.e., parking that is built in order to rent or sell the spaces to the public to meet demands from activities on other properties). Chicago has proposed a complete prohibition on non-accessory parking in the loop (downtown) area, and encouragement of non-accessory parking in intercept areas at the edges of downtown. Philadelphia currently has strong limitations on non-accessory parking in the southern part of Center City.

### 6.2.6. Restrictions on curb cuts and vehicular access

Because frequent turning movements across sidewalks can discourage pedestrian activity, many cities restrict curb cuts and vehicle access points along downtown pedestrian streets and in other areas where pedestrian use is encouraged – such as redeveloping commercial strips and TOD nodes. Austin discourages vehicular curb cuts in the downtown area. Boston also restricts curb cuts in some cases through two different design review procedures (one for small and one for large projects).

All major cities regulate new vehicular curb cuts – but the focus of this review is shifting. Historically it was considered a function of the transportation department and its primary purpose was to avoid having so many curb cuts that traffic entering and leaving a major road compromised the ability of that road to carry traffic (i.e., “friction” from turning movements slowed down the pass-by traffic). If there was no impact on traffic flow, then curb cuts were not restricted regardless of the impact on the walking public. Increasingly, however, curb cut policy is viewed as a shared duty of both planning and public works departments in order to manage impacts on both traffic flow and pedestrian activity. Nevertheless, only a minority of large U.S. cities currently regulate curb cuts through zoning.

### 6.2.7. Requirements for rear or side parking locations

In older commercial corridors, extensive front parking areas can act as serious barrier to redevelopment. The large areas of striped parking spaces between buildings and the street that were intended to attract the driving public are often so unattractive that they have the opposite effect, while the distance they put between stores and sidewalks discourages pedestrians to walk along the frontage or cross the parking lot to the front door. At the same time, these retail and commercial uses often cannot survive without convenient parking somewhere on the site. This is also true in some TOD areas and downtowns, but to a lesser extent, since parking-in-front was not the norm when they were built and there is often a substantial core of old buildings near the street to establish a different character.

In response to this dilemma, some cities and neighborhoods (including Chestnut Hill and Manayunk in the Philadelphia area) have adopted requirements that some or all of the on-site parking must be placed behind or beside the main structure. These types of regulations need to be carefully tailored to the character and potential of the commercial area in question, however, because one size does not fit all. In some cases the auto-oriented front-parking character is so universal and/or pass-by traffic volumes are so high that rear parking requirements would result in new “sore thumb” buildings near the street blocking views of their neighbors while not significantly increasing pedestrian activity.

Where that is true, or where rear parking is seen as a safety risk because it is not visible from the street or the store, some cities allow side parking instead. This can help push buildings up toward the street for at least a portion of the lot area, while also preserving visible parking areas. Another common compromise is to allow one parking aisle (with parking spaces on either one or both sides of the aisle) with dense landscaping in front of the building, with the remainder in the side or rear. While pedestrians are still separated from the front door of the building, the distance is often much shorter than if there was a full front parking lot and drivers can easily see that there is “convenience parking” in front even if they wind up parking behind or beside the building.

### 6.2.8. Incentives for underground parking

Because many of the form impacts of parking areas can be reduced by placing parking underground, some cities offer incentives for property owners to do exactly that. Dyett & Bhatia recommended underground parking as a best practice in downtown areas.

The biggest incentive for underground parking is high real estate values and ground rents that make alternative uses more attractive – every square foot of land that is not occupied by surface or above-ground structures is free for higher revenue-producing uses. But often that built-in price incentive is not enough, because the price barriers involved are serious. Underground parking can cost up to ten times as much per space as surface parking, and up to 50% more than above-ground structures, so incentives sometimes need to be very strong in order to be effective. In Philadelphia, San Francisco, and several other major cities, underground parking structure space does not count against the maximum permitted FAR on the site. Denver has offered an FAR bonus for underground parking – in effect giving the property owner additional floor area to rent or sell in order to offset the higher costs of underground structures.

### 6.2.9. Requirements to “wrap” above-ground parking structures

Large garages are generally considered challenging urban elements due to the lack of activity along their edges and their unattractive appearances. While garages are sometimes intended to breathe life into an area by encouraging visitors and shoppers, ugly garages can do the opposite. Many cities (including Philadelphia) require retail use on the ground floors of garages in the densest



Boulder parking wrap buildings

neighborhoods. Others, like Denver, have required that the ground floors of garages be designed with adequate ceiling height and driving aisle/parking layouts so that the street frontage can be converted to pedestrian-active use if the market supports that use, but do not require that the frontage actually be occupied by retail or pedestrian-oriented uses.

A few cities go further to encourage or require that the parking structure be “wrapped” on one or more sides with multi-story retail, residential, or office space, so that the garage becomes less of an intrusion in the pedestrian environment. Again, Dyett & Bhatia identify this as a best practice for downtown areas.

One example of this solution is the 15th & Pearl mixed-Use parking structure in Boulder, Colorado shown above. This structure includes a 700-car parking structure with five levels above grade and two below. Three sides of the structure are wrapped with a total of 7,500 square feet of ground floor retail space and 7,500 square feet of upper level office space in separately-constructed buildings attached to the parking structure. While this is an attractive solution, it is still vulnerable to economic market shifts. While a garage structures surrounded by occupied residential, retail, or office space may be attractive, if the location does not attract customers then wrap spaces may remain vacant, and a garage surrounded by vacant, unrented space may look worse than a well-designed structure without wrap buildings.

### 6.2.10. Customizing parking requirements to neighborhood design

Finally, some major U.S. cities – including Boston, Seattle and Minneapolis – have attempted to customize parking requirements to match varying neighborhood design considerations and preferences:

- In Boston, mini-zoning codes including parking requirements have been written for most neighborhoods. Denser neighborhoods, such as the Fenway, tend to have reduced parking requirements.
- Seattle has developed thirty-nine neighborhood plans and many of its ten overlay districts modify parking requirements based upon the building types and characteristic of those districts.
- Minneapolis uses overlay districts to modify regulations for individual neighborhoods and includes special transit station area overlays that prohibit the expansion or conversion of existing parking lots.

Obviously, this is a time consuming (and potentially expensive) approach – both to develop the customized approaches and to administer them over time. It also adds complexity to the zoning code at a time when most cities would like to simplify them. For that reason, most cities limit their use of customized parking requirements to unique areas.

## 7. Modular Zoning

### 7.1. Framing the issue

One reason that the number of zoning districts in major U.S. cities tends to expand over time is that new development proposals and redevelopment plans seem to need “a zone district that is almost like C-2 (or R-3, or M-1), but a little different.” In other words, new zone districts are sometimes only modest variations of older districts. In some cases, they involve a slightly different list of uses, in others they allow slightly larger (or smaller) buildings, and in yet others they vary only in the amount of parking required or the size of signs permitted. This has led some cities to move toward “modular zoning”.

In concept, modular zoning “breaks-up” the idea of a zone district into its fundamental building blocks – permitted uses, dimensional standards (i.e., height, bulk, and setbacks, or form), and development standards (i.e., parking, signs, landscaping) – and allows those components to be combined in different ways. For example, a theoretical modular zoning district might be R-3-B: The first module (R) indicates a set of uses available to the owner;

#### Best practices

- Carefully evaluate whether modular zoning is worth the complexity it adds to the zoning code – and in user-understandability of the code.
- Consider modular zoning only for areas where it would add flexibility to the code by facilitating changes to key standards (such as height or density) as an alternative to a more dramatic rezoning.
- If modular zoning is used, allow a wide variety of module combinations, rather than limiting them to match the current city fabric.

the second module (3) might indicate the maximum height of buildings in stories; and the third module (B) might indicate a package of parking requirements and design requirements.

Modular zoning's proponents generally come from two groups with different visions of why it is a good idea. The first support this technique as a way to encourage flexibility. A property owner who wants to build a larger building can request a zoning amendment to the second module – for example, from R-3-B to R-4-B. In theory, a modular rezoning request could be simpler and less controversial, since the owner could agree in advance that he or she was not asking for any change in permitted uses or parking requirements. The only debate would be over building size.

The second group of proponents supports modular zoning as a way to more closely tailor zoning regulations to specific neighborhood character. For example, a typical R-3 district might allow one set of residential uses and buildings of a certain size, while the R-4 district allows a few more permitted uses and larger buildings. But if R-3 limits buildings to be smaller than those in the existing neighborhood and R-4 allows uses not currently permitted in the area, the city may face a difficult choice in how to zone the area. Modular zoning seems to offer the opportunity to combine a use module that perfectly matches the character of the area with a size module that matches that same character. In this case, however, the goal is not to insert flexibility to change zoning but to create more predictability for neighbors, and the expectation is that this closely tailored zoning will probably not change much over time.

The major argument against modular zoning is that it adds complexity to the zoning code. It takes time to do the research to determine what dimensions or development standards should be grouped together in different modules. The more module combinations, the more time it takes. While individual zoning modules can be simple, the number of combinations can be very large, which may require more staff training and more explanations to citizens about how the system works. When a wide variety of use and dimensional modules are allowed to be combined, the chances of unintended consequences increase – some combinations that work on paper may be impossible in practice.

## 7.2. Potential Best Practices

San Diego and Chicago offer contrasting approaches to the use of modular zoning. San Diego's zoning code uses a four-part designator for zone districts.

For example, in the **RM-1-1** zone district:

- **The first designator "R"** indicates that this is a residential zone district;
- **The second designator "M"** indicates that this is a multi-family zone district;
- **The third designator "1"** indicates that this is a low-density zone district (if this was a "2" it would indicate a medium-density zone district); and

- **The fourth designator “1”** indicates that the maximum density is one dwelling unit per 3,000 square feet of lot area (if this was a “2” it would indicate maximum density of one dwelling unit per 2,500 square feet).

While the meanings of “R” and “M” are fairly intuitive, the code requires a table to explain the meanings of the numerical designators. The meanings of the numerical designators change with the type of zone involved, and in some cases seem to be placeholders because there is no distinction in that category.

For example, in the **CN-1-2** and **CN-1-3** designations:

- **The first designator “C”** indicates a commercial district;
- **The second designator “N”** indicates a neighborhood-scale district (as opposed to “R” for regional or “C” for community-scale);
- **The third designator “1”** is a placeholder, since there are no CN -2 or CN-3 districts; and
- **The fourth designator “2”** indicates an auto orientation. while a fourth designator “3” indicates a pedestrian orientation

Interviews with San Diego staff clarified that this system is used primarily to tailor zones to carefully match specific neighborhood character or planning goals and not to insert flexibility into the system. Few rezoning requests ask for only one designator to be changed – most of them ask for a complete change of designation from one group of districts (for example, an initial “R” zone to an initial “C” zone, or from a community scale to a regional scale zone).

One indication of this focus on tailoring rather than flexibility in the San Diego system is the number of different zones required to match the urban fabric of the city. San Diego’s modular zoning defines a total of 79 base modular zoning districts – as well as 13 overlay districts – more than the current number of zone districts in Philadelphia.

In contrast, Chicago uses a “dash-zone” modular system that is more focused on flexibility. Chicago’s modular designators are illustrated in the following example.

In the **RT4-A** district:

- **The first designator “R”** indicates a residential district;
- **The second designator “T”** indicates a townhouse-scale district (even though the text clarifies that detached homes, duplexes, townhouses, and low-intensity multi-unit dwelling are available);

- **The third designator “4”** indicates a general intensity of development permitted – in this case a minimum lot area of 1,650 square feet and a minimum lot area per unit of 1,000 square feet for dwelling units or efficiency apartments and 500 feet for single room occupancy hotels, and a maximum FAR of 1.2; and
- **The dash designator “-A”** indicates that special standards apply if accessible dwelling units are built – in this case the maximum FAR is raised to 1.50 if at least 33% of the units are accessible in a building with no more than 19 total units.

As a second example, in the **B1-2** and **B3-5** districts have the following meanings.

- **The first designator “B”** indicates a business zone;
- **The second designator “1”** indicates a neighborhood-scale shopping district, while **“3”** indicates a community-scale shopping district; and
- **The dash-designator “-2”** indicates a package of bulk and density controls – in this case a minimum of 1,000 square feet of lot area per dwelling unit, or 700 square feet per efficiency unit or single room occupancy hotel unit, a maximum FAR of 2.2, and maximum building height of 47-50 feet depending on the width of the lot. The dash-designator **“-5”** indicates a different package of bulk and density controls, including minimum lot areas of 200 square feet per dwelling unit, 135 square feet per efficiency unit, or 100 square feet per SRO unit, a maximum FAR of 5.0, and a maximum building height of 50-80 feet depending on the width of the lot.

The Chicago code is interesting in that the dash designators allow for substantial differences in height and bulk of development even within a single scale category. For example, within the neighborhood scale business zone districts the use of dash-designators can limit development to an FAR as low as 1.2 or as high as 5.0 (a 400% variation) or impose a height limit as low as 38 feet or as high as 80 feet (a 100% variation). Because of these wide ranges, there is substantial overlap between the scale categories – the “lowest” neighborhood scale business district (B-1) with a high dash-designator could allow taller and more intense development than the “highest” commercial, manufacturing, and employment district (C-3) with a low-dash designator. In contrast to San Diego, Chicago indicates that it receives frequent requests to rezone land through changes to the “dash-designators” without changes to the use or scale designators. While Chicago’s list of base districts is much shorter than San Diego’s current list (28 base zone districts), the use of designators multiplies the number of possible combinations to 68. In addition, Chicago identifies 11 possible overlay districts.

## 8. Web-Based Zoning

### 8.1. Framing the issue

The future of zoning is web-based codes, for a variety of reasons. One important advantage is the cost of keeping codes current. When book-based codes are used, amendments need to be printed and manually inserted in the document, and many cities can only afford to consolidate amendments, send them to the publisher, and mail out updates to known code users every three or six or twelve months. As a result, zoning book readers always need to check with zoning staff to ensure that there are no new amendments that modify the text they are reading. In contrast, web-based codes can be updated (often by city staff

without the use of an intermediary codification firm) on an almost real-time basis – often on the same date that the amendment becomes effective. If the planning director makes an interpretation of an ambiguous provision, that can be uploaded as well, so that other property owners can rely on the same interpretation. Residents, property owners, and potential investors save substantial time and energy – and avoid costly mistakes – simply by being able to rely on the accuracy of the web-based code.

In addition, web-based codes can offer several features that promote user-friendliness and understandability to the general public. In addition to standard text, they can include far more illustrations and graphics because uploading them to the web is very inexpensive relative to printing costs. They can also include unofficial commentary and links to comprehensive plan or area plan policies that are helpful to property owners and landowners interested in understanding the objective behind a specific zoning provision. Links between zoning text and defined terms can be instantaneous, and “flipping back and forth” between different provisions of the code can be done by the click of a mouse. Perhaps most importantly, zoning code portals can be programmed to answer common technical questions (“Where can I build a fence? How tall can it be?”) based on a specific property address, while book-based codes often require readers to integrate several sections together to get the same answer.

### 8.2. Potential Best Practices

We are still relatively low on the learning curve of web-based zoning, but there are several emerging models worth watching.

#### Best practices

- Choose a web-based zoning approach that allows for extensive graphics, and for those graphics to be visible when the code text is viewed (not in a separate window)
- Include pop-ups of key definitions as the substantive text is viewed.
- Include the ability to have informal, non-binding guidance and commentaries to help the public understand the intent behind the code text.
- Anticipate future advances in address-based zoning queries, and choose a web-based approach can provide answers to common zoning questions based on the address of the property.

For decades, the dominant zoning codification firm in the U.S. was Municipal Code Corporation (MCC) of Tallahassee, Florida. MCC was preparing updates for zoning codes (and indeed, all other chapters of municipal codes) long before the internet was in common use. When the internet arrived, MCC made digital versions of those codes available with a search engine. Generally, the format was to list each chapter of the code in a pane on the left hand side of the screen. Individual chapters could be expanded into sub-chapters, and then into subsections of chapters. Clicking on a subsection in the left hand pane displayed the text of that section in the right-hand pane. Searching for a word brought up a right-hand pane listing every instance of that term, and clicking on those links showed the relevant text with the key term highlighted. If the MCC approach had a weakness it was that graphics were not displayed near the text that referred to them. The text might refer to a table, chart, or drawing, but you had to scroll to the end of the section to find that illustration. These days, MCC codes insert a “graphic link” beside the text that the graphic refers to, and clicking on the graphic link opens a new web window showing the drawing or illustration. Tables now appear exactly where you want them in MCC codes. MCC sold users not just the initial code codification service but also code updating services; in many cities, staff cannot update the web-based version of the code. MCC does that.

A more recent entry into the web-based zoning field is American Legal Publishing (ALP), based in Cincinnati, Ohio. ALP structures its web codes much like MCC. Tables appear wherever you want them, but graphics can also be inserted into the text so that you do not need to open a new window to view them. In addition, defined terms are hyperlinked to their definitions everywhere they appear, and clicking on the term shows the definition in a pop-up window. Philadelphia’s zoning code (and the rest of the municipal code) has been published by ALP since 2007.

As web-based technology has matured, specialty firms have emerged to focus on zoning and development codes in particular. Instead of creating a web architecture that works for all different types of municipal regulations (which can range from the administration of civil courts to public bidding and contracting rules), these firms focus on web architecture that works for the specific characteristics of zoning codes. Those characteristics include multi-level outlines, a high degree of interrelationship between different sections (hence the need to “flip back and forth” in written codes), heavy reliance on defined terms, a steady stream of administrative interpretations over time, linkages to comprehensive plan policies, and an increasing need to use graphics, charts, diagrams, tables, and three dimensional drawings to organize and clarify the meaning of text.

One example of a specialty web-based zoning firm is the Visual Interactive Code (VIC) developed by the VIC Group. Among other features, VIC codes include extensive hyperlinks between various sections, making it easy to review related sections of the code. Definitions appear in pop-up windows (like ALP codes). A different form of highlighting is used to identify sections where commentary is available. Commentary appears in pop-up boxes that explain the city’s intent (what it wants to see, or what it does not want to see), but the code makes clear that commentary is not the same as code language and that commentary language cannot be used to override code language. Perhaps most importantly, the VIC

product allows complex graphics, animations, or video clips to be inserted near the text to which they relate.

## 9. Conclusion

This Best Practices report has reviewed important options available to the City of Philadelphia on seven key topics affecting the New Zoning Ordinance. We encourage members of the Zoning Code Commission to review the potential best practices discussed above and to evaluate which ones would best meet Philadelphia’s needs. As in all cities, the best zoning ordinance is the one that balances competing interests – such as sustainability, reinvestment, and neighborhood protection -- in a way that is both efficient to administer and easy for the public to understand. We look forward to receiving guidance from the Zoning Code Commission and the public on these issues.