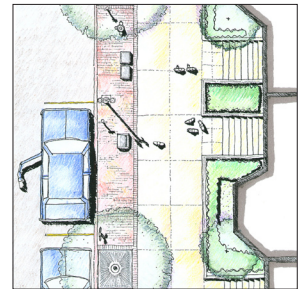
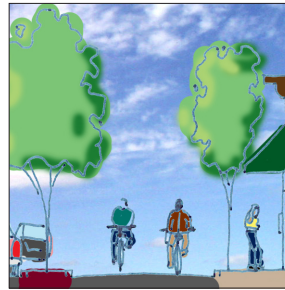
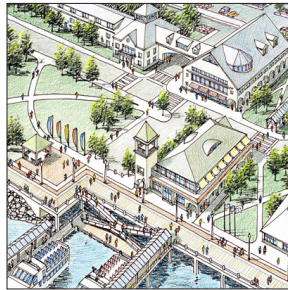




GUIDEBOOK: CREATING DESIGN STANDARDS FOR 40R DISTRICTS

Massachusetts Department of Housing & Community Development



Prepared jointly by:
DHCD and The Cecil Group

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a. Purpose of the Guidebook

This Guidebook has been created as a resource for communities and citizens in Massachusetts working to establish special design standards in conjunction with Smart Growth Zoning Districts enabled by MGL Chapter 40R. It provides practical information and references for crafting workable standards that will apply to the land uses and development within Smart Growth Zoning Districts. In this document, we will use the terms 40R Zoning and 40R Districts interchangeably with Smart Growth Zoning and Smart Growth Zoning Districts respectively. We will also use the terms DHCD or “the Department” in reference to the Massachusetts Department of Housing and Community Development. Capitalized words and phrases are terms used in the statute and regulation.

Many communities already employ an array of design guidelines and criteria to shape development. However, Smart Growth Design Standards are a new and distinctive tool that must be created and implemented differently than other types of standards or guidelines.

The Guidebook will help all of the participants who draft, review and approve Smart Growth Standards by:

- Explaining the key relationships between design standards, local zoning and the Commonwealth’s Smart Growth framework.
- Providing practical advice for the process of drafting design standards.
- Offering observations on effective standards.
- Providing resources and references.

It is important to note that this Guidebook is not a substitute for the express language of the statute and accompanying regulations, and that the statute and the regulations are the primary sources for interpreting the meaning of Chapter 40R.

b. Navigating the Guidebook

This Guidebook consists of four sections:

1. Introduction: Design Standards and Smart Growth Zoning Districts
2. Step-by-Step Approach: A How-To Guide
3. Crafting Standards: The Elements
4. A Reference Guide to Smart Growth Design Guidelines

Section 1 provides an overview of the legislation and regulatory framework for Smart Growth Zoning Districts and specific purposes that a municipality may meet by choosing to create Design Standards.

Section 2 summarizes the preparation, review, approval and implementation of Design Standards. It also addresses the interrelationships with municipal goals, adjacent districts, and other local design review mechanisms or procedures. The section furthermore discusses basic approaches to providing a clear and useful set of standards.

Section 3 contains a detailed discussion of each specific element of Design Standards that are enabled by regulation. The specific elements are contained in 760 CMR 59.04 (3)(f) and introduced in Section 2.

1. Introduction: Design Standards and Smart Growth Zoning Districts





Section 4 is an annotated reference guide of design standards and guidelines based on Smart Growth principles, including examples of innovative regulations from around the country and available on line.

c. Matching Design Standards, the State Framework and Municipal Goals

MGL Chapter 40R enables municipalities to create special zoning overlay districts, called Smart Growth Zoning Districts, that allow for dense residential or mixed-use development. The zoning must require that at least 20% of the homes developed in the district be affordable to low-income households and may allow for projects that combine residential with commercial, civic, institutional or other complementary uses. There are three types of eligible locations: in areas of concentrated development such as town centers or downtowns, within ½ mile of transit stations including commuter rail and bus terminals, and in other “highly suitable” locations deemed appropriate for higher density housing. In return for adopting a Smart Growth Zoning District, cities and towns receive an incentive payment as well as a bonus payment for every new home built.

An important basis in the implementation of 40R Districts is an understanding of the definition of Smart Growth. According to the statute and regulation, Smart Growth is a principle of land development that creates a range of housing opportunities, emphasizes mixing land uses, concentrates development into distinctive communities, supports existing communities, provides for transportation choices, streamlines the permitting process, involves stakeholder collaboration, and supports the preservation of open spaces and other natural resource areas. To this end, the Commonwealth expects that municipalities will utilize Chapter 40R to foster high-quality, compact development on appropriate infrastructure.

Developers have the option to follow the Smart Growth Zoning as a matter of right or use the original zoning, which remains valid. In cases where the municipality chooses Plan Review as the mechanism for approval of 40R Projects, the Projects are reviewed by an Approving Authority that is designated in the zoning. Municipalities may choose to incorporate Design Standards into the Plan Review to ensure that the physical character of a Project is consistent with local plans, is complementary to adjacent buildings and structures, and is consistent with the character of other densely settled areas of the community. Design Standards, once adopted, become mandatory for 40R Projects that are subject to Plan Review.

It is important to understand that 40R Design Standards should be based on public interest purposes. Unlike other types of standards that may respond to particular or stylistic design preferences, 40R Standards must have a legitimate standing consistent with the purpose and intent of the proposed 40R Zoning. In order to successfully accomplish this, Design Standards need to establish a balance between public interests, local preferences and community needs.

A fundamental premise of Chapter 40R is that Design Standards should function within the framework of the public interest, which means they must not add unreasonable costs to residential or mixed-use developments or otherwise impair the economic feasibility of proposed projects. To this effect, municipalities must be able to demonstrate that the proposed Design Standards will not Unduly Restrict the development of Projects in the District as a requisite for obtaining Smart Growth Zoning approval.

There are several topics that may be addressed by Design Standards:

- buildings
- streets and sidewalks
- infrastructure
- entrances to buildings and garages
- off-street parking
- natural site features
- on-site open spaces
- landscaping
- exterior signage
- buffering relative to adjacent properties

Within these topics, municipalities have plenty of room to establish what it means to them to have a well-designed, cohesive Smart Growth Zoning District. Design Standards are meant to convey to developers what a city or town's vision is for the area. A discussion on how to identify this vision is covered in the next chapter. Municipalities may already know what their goals are for the district or they may need to spend some time creating them. Either way, Design Standards can be a good mechanism for establishing expectations.

Design Standards can be constructed in a way that does not contradict or override other local or state values, such as historic preservation, protection of wetlands, or conservation of natural resources, among others. A further discussion of this point is covered in Chapter 2. Any existing design guidelines or standards that apply to the same area can be consulted during the creation of the 40R Design Standards. In this way, municipalities can tailor their 40R Standards to foster development that is workable and livable, while also meeting the intent of many complementary goals.

d. The Elements of Design Standards

For discussion purposes, the several topics for Design Standards are grouped into seven elements:

- **Architectural Element:** Scale, proportions, and exterior appearance of buildings. These are the standards which typically deal with windows, finishes, heights, widths, roofs and rooflines in an attempt to describe local and regional building traditions in dense areas. To define historic traditions, photos of historic buildings, historic downtown images, and examples from adjacent communities may be used to determine what those local traditions are that will help draft the Standards. Remember that, as with zoning, the interior of the building would not be subject to the Standards. However, there is a wealth of architectural details related to the exterior appearance of the buildings that can be considered to help improve the quality of any Project.
- **Streets Element:** Placement, alignment, width, and grade of streets and sidewalks. The road and sidewalk standards should encourage the use of multiple forms of transportation: motor vehicle, bicycle, handicapped, and walking. The standards for street design should also complement and support the design and use of the adjacent buildings and open spaces. Although they provide a reasonable starting



point, typical town subdivision road standards may be too auto-centric for encouraging walkable and transit-oriented developments.

- Infrastructure Element: Type and location of infrastructure. In addition to the roads and sidewalks, the water, sewer, drainage, and public utility infrastructure are important supporting elements of any Project. The Design Standards can guide the visibility and engineering to complement the level of quality put into the building design. As an example, current engineering for drainage systems has led to designs with minimal impacts on landscape and water quality.
- Entrance Element: Location of building and garage entrances. These may also be architectural standards and can complement the Architectural Element, but they apply principally to points of access and so define the safety, visibility, and relief of congestion on the streets. An important consideration is to use the design of the entrances to help guide the pedestrian and driver. Wayfinding signage can also complement

the designs and make it safer and easier to distinguish entrances (see Landscape Element).

- Parking Element: Off-street parking. The number of parking spaces would typically be defined in the zoning bylaw, but this element could be used as a means to balance on-street and off-street parking in the total count to encourage the level of activity desired on the street. This Element could also be used to describe the ways to mute the visibility and visual impact of parking lots and garages.
- Natural Features Element: Protection of significant natural site features. Locally special protected natural resources may be the subject of these standards. As examples, natural topography and significant stands of trees may be appropriate to preserve where the District provides open space relief or when these features can be sensitively incorporated into the design. As an example, the means to protect significant trees during construction may be included.
- Landscape Element: Location and design of on-site open spaces, landscaping, exterior signs, and buffering. The open space and landscape elements are as important as the building appearance in defining the quality of the Project. Examples of traditional treatments in town squares can be used to inform the design of formal spaces and local natural areas can be used to set standards for the less formal spaces. The signage on the buildings will presumably be included in the Architectural Element, but standards for separate, freestanding signs are appropriately included in this element. Traffic signage may fall under existing state and local highway standards, but wayfinding signs within the Project might be included.



There may be other elements not included in this list that a community wishes to consider while drafting the Design Standards. It is recommended that these additional criteria be identified as 'Guidelines' and listed separately. This distinction is important because only the Design Standards will be mandatory for 40R Projects. Other elements not allowed by the regulation cannot be required and therefore may only serve as optional 'guidelines'. Making the distinction will speed up the state's review process and ensure that the criteria for approval of a Project can be reasonably interpreted during the Plan Review process.

e. Distinctions: Understanding What Standards Can (and Cannot) Accomplish

The purpose for the Design Standards is to define how a Project should complement the neighborhood and achieve quality of design. The Approving Authority will use the Design Standards during the Plan Review process to determine if the Project will be approved, approved with conditions, or denied; therefore, the best option for Design Standards is to provide clear guidance for local preferences but allow the designers to do their work.

Design Standards that are thoughtfully drafted can be powerful, effective tools. They can enable all of the participants in the land planning and development process to match proposed projects to a community's reasonable expectations. The results can include simplifying the cycles of discussion, review, revision and approvals in which they are engaged. However, there are limits to what Design Standards can accomplish; as with any tool, it is important to consider these limits as well.

Effective Design Standards can:

- Establish clear and consistent criteria that can be applied in the review and approval process – Effective

design standards will be useful if they can be consistently and unambiguously used to guide design and judge compliance.

- Establish a common vocabulary of terms and concepts – The terms and images used to describe the quality and character of development can vary widely. Effective design standards can establish a common vocabulary so that all participants can consistently understand what each other are saying, portraying and meaning.
- Provide practical guidance to the design and engineering teams that will create the form of new districts – The professional teams responsible for shaping open space, infrastructure, circulation networks, sites, and buildings can benefit from clear directions and standards if they are available early in the complex work process that they must accomplish.
- Provide useful guidance to developers as they formulate the development concepts – Design standards can provide a helpful basis for development entities as they allocate their prospective investment. The location and character of the open space, circulation and development patterns are essential to the practical business of creating improvements.
- Convey to the community the expectations regarding the character of new development and relationships to its surroundings – Design standards can serve as a concise summary that demonstrates the specific local interests that will be protected and enhanced during the review and approval processes administered by Municipalities in Smart Growth districts.

Design standards cannot:

- Create unreasonable requirements that would reduce the ability to create "as-of-right" Smart Growth de-

velopment – One specific requirement of the regulations is that the standards cannot “unduly restrict” or impose unreasonable conditions on projects that will result in a detriment of their economic or construction feasibility.

- Create specific design solutions
 - Design standards are intended to shape rather than define the potential for achieving sound and innovative design solutions in Smart Growth districts. Standards are only one of many factors that contribute to the outcome of a complex design and review process that involves multiple requirements and sets of conditions.
- Contradict the Smart Growth zoning regulation with which it is associated
 - Standards should be consistent with the intent and contents of the 40R regulations. Even if it may appear from a particular perspective that standards may provide for negotiation “trade-offs” during the review process, in reality they are not and cannot be a negotiating tool.

- Establish standards that are in conflict with other applicable laws and regulations – Standards, by definition, must “be consistent with the Comprehensive Housing Plan, an applicable master plan, an area specific plan, or any other plan document adopted by the Municipality” (760CMR 59.04(3)(f)(ii)).

f. More Information: Contacts and Resources

For information on Chapter 40R, contact DHCD at 617-573-1355 or 617-573-1363. Information can also be found online at <http://www.mass.gov/dhcd>.

For examples of design standards or guidelines from other sources, see Section 4 of this Guidebook for an annotated reference list. Most examples are available online.



a. Purpose of This Section

Smart Growth Design Standards will play a fundamental role in defining the appearance, character and functionality of the new environment created in the 40R District. Consequently, the process of creating and locally approving Design Standards that are clear, fair and truly representative of the goals, needs and aspirations of a community is very important and influential. The outcome will determine the “look and feel” of the community for years to come, and will also have a significant impact in the overall quality of living in the new Smart Growth District.

Under Smart Growth Zoning, Design Standards are made applicable to Projects that are subject to Plan Review, not necessarily to all projects (see 760 CMR 59.04(1)(f)). If Plan Review of Projects within a District is required, the Smart Growth Zoning should indicate the Approving Authority, categories of projects that will be subject to Plan Review, and the Design Standards to which the Project will be subject for approval.

An overview of steps, requirements, and practical considerations for the preparation, approval, and administration of Smart Growth Design Standards is presented below.

b. Creating Design Standards: The State and Local Process

Design Standards and any amendments to them are created through a local process and must be reviewed and approved

by DHCD prior to their municipal adoption and before they can take effect. Therefore, the process for establishing 40R Design Standards contains three basic actions: preparation and submission to the state, state approval, and local adoption.

Preparation and Submission to the State

The initial steps in preparing Design Standards involve a few decisions and actions. The first action is to elicit broad stakeholder participation in the development of the Standards. Next, the municipality needs to decide what local board, mixture of representatives from multiple boards, or other individuals will serve as the Approving Authority. This decision is extremely important to the effectiveness of the Design Standards because the Approving Authority administers and enforces the Standards. Considerations regarding the identification of stakeholders and members of the Approving Authority, as well as individuals that are best qualified to oversee the application of the Standards, are discussed in sections 2c and 2f.

The next step is to decide where the Design Standards will reside. Design Standards can be contained within the bylaw itself, in the appendix to the bylaw or in an outside set of regulations that is referenced within the bylaw. Regardless of where they reside, they are subject to approval by the state.

2. Step-by-Step Approach: A How-To Guide



The final step in preparing Design Standards is to create the Standards themselves and compile them into the Smart Growth Zoning application to the Department.

State Approvals of Municipal Design Standards

Design Standards must be submitted to DHCD as part of a complete application. Municipalities may submit an incomplete application for preliminary review, while Design Standards are being finalized, but the Department will not issue its determination of eligibility until the Design Standards have been submitted and reviewed.

The Department has two primary considerations when reviewing proposed 40R Design Standards. First, DHCD must ensure that such Design Standards fall within and are consistent with the stated purposes of the Plan Review procedure outlined in 760 CMR 59.04(1)(f). Second, the Department must ensure that the Design Standards will not “Unduly Restrict the development of Projects within the District”.

With respect to determining consistency with the authorized purposes of Design Standards, DHCD will determine whether the Standards follow the list of allowable design considerations detailed under subsections i, ii and iii in 760 CMR 59.04(f). Other types of Standards are allowable under certain conditions, explained in Section 2g. These additional Standards will be subject to the same review and approval process as those allowed by the regulation.

In evaluating whether or not a particular Design Standard will be unduly restrictive, the Department will focus on the impact that such a Standard is expected to have on the overall economic feasibility of the anticipated Projects within the proposed District. For guidance in analyzing the potential impacts on project feasibility, DHCD may consider the presence of similarly conditioned projects, internal/external input from those with appropri-

ate development expertise, and/or input from any identified Project sponsors at the time of application.

In the case of both of these findings, DHCD will evaluate proposed Design Standards based upon the degree to which they contain objective yet flexible measures allowing them to be applied in a manner that is consistent with the intent of the statute.

Local Approval of Design Standards

Once the proposed Design Standards are approved by DHCD, they must be locally adopted to take effect. The local adoption process is the same as for the adoption of zoning. If the standards are not contained within the bylaw or ordinance itself, they must still be locally adopted in the same manner and in conjunction with the bylaw/ordinance.

c. Administering Standards: Responsibility Assignments

Local administration of the Design Standards is performed by the Approving Authority, which is a unit of municipal government designated by the city or town to review Projects and issue approvals within the 40R District. The Approving Authority can approve, conditionally approve, or deny a proposed Project. Details on how the decisions can be made are contained in 760 CMR 59.04(1)(f). Additionally, the regulation allows the Approving Authority to waive a specific dimensional requirement or other Standard if the waiver will help to achieve the density, affordability, mix of uses, and/or physical character supported by the Smart Growth Zoning and consistent with the intent of the Design Standards.

If possible, the municipality should identify the Approving Authority early on in the 40R process so that the Approving Authority can be involved in the creation of the Design Standards. This would benefit everyone involved with the Dis-

tract since the Approving Authority ultimately decides if a proposed Project is consistent with the adopted Design Standards. If no one from the Approving Authority is involved in the creation of the Design Standards, other arrangements should be made to educate them about the Standards before they need to review a Project. It is worth noting here that there is nothing in the statute or regulations that prohibits the establishment of an advisory committee to offer non-binding design recommendations to the Approving Authority.

The statute is silent on the composition of the Approving Authority. The Approving Authority should not be too small to burden its members or too large to make the review process complex. A municipality should carefully decide on the number of members for the Approving Authority. An appropriate number of members for the Approving Authority to work together effectively is between five and seven; however, this number may vary depending upon the size of the municipality, the size of the District, or the complexity of the Smart Growth zoning and the expected projects. The Approving Authority should contain some members who are familiar with Design Standards such as an architect, urban designer, or planner. The members should be from the local or regional community and be familiar with the local review process for development.

Since the Approving Authority has limited parameters to condition or deny an application based on Design Standards, it is important for a municipality to carefully create Design Standards that will result in Projects that will meet the municipality's goals for the District.

d. Preparing Design Standards: Municipal Goals

In order for a municipality to create a Smart Growth District that results in overall good design, it should undertake

a discussion among many stakeholders to determine what design features are appropriate within the District. This discussion can take many forms, from a community-wide visioning charrette to a meeting of a select group of stakeholders who have an interest in the process. One good approach is to look at examples of building, fencing, roadway, lighting, and landscaping types that people like and dislike within or outside of the community and use that information to create standards that will replicate the desired features. While the community knows best what design features will meet its goals, the resulting Design Standards must also be compatible with all other applicable local and state regulations.

The 40R regulation (760 CMR 59.04(1)(f)) states that a municipality may adopt Design Standards such that the Project:

- will ensure that the physical character of development within the Smart Growth Zoning District is complementary to nearby buildings and structures.
- will be consistent with the Comprehensive Housing Plan and any applicable master plan or plans for the city or town.
- will provide for high-density quality development consistent with the character of building types, streetscapes and other city or town features traditionally found in densely settled areas of the neighborhood, city, or town.

Carefully crafted Design Standards will result in Projects that enhance the overall visual appearance of the District as well as its livability. For this reason, a municipality may determine that goals other than those listed above are appropriate for the District. For example, the existing building type, street design, or other features of the area surrounding a District may not be suitable for the 40R District and therefore the Design Standards will not be written to complement such features. Also, if a municipality's existing plans are outdated and do not reflect the community's

vision for the District, the Design Standards should be defined in a manner that reflects the community's new vision and not the vision of the outdated plan. However, a municipality should make sure that the Design Standards are consistent with applicable plans. If the Design Standards are inconsistent with applicable plans, the plans should be amended or updated to be consistent with the Design Standards.

A municipality may decide to have a variety of Design Standards within a District depending upon the type of use within a building, the function of the roadway, or the location within the District. For example, a commercial building may have a different look and feel than a residential building, a major roadway may have different street furniture (benches, lighting etc) or dimension than a smaller neighborhood roadway, or a building at the front of the District may flow with the rest of the street while the building in the interior of the District may represent another type of design. However, it is important that the Design Standards for a mixed use Project allow for an integral system to help foster vibrant, workable and livable neighborhoods.

A municipality may decide to have minimum Design Standards that all projects in the District must conform to, and then additional Design Standards for the different types of residential and commercial buildings, roadways, fencing, landscaping, and other elements. De-

sign Standards could also be especially tailored and applied to specific areas or sub-districts within the overall 40R District boundaries.

e. Tackling the Problem of Time: Phasing and Amendments

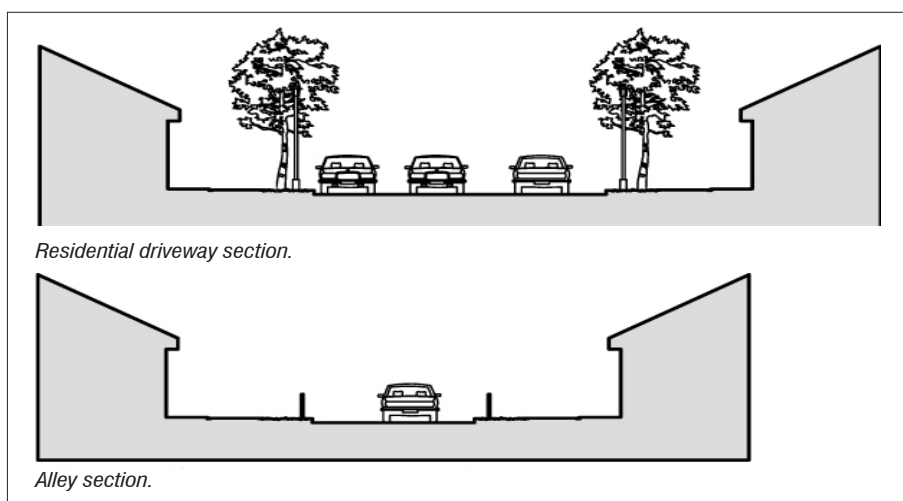
Timing is essential for the success of most endeavors, including the preparation and adoption of zoning. As municipalities craft their Smart Growth Zoning and Design Standards, it is important that they directly consider issues related to the phasing of development and possible future amendments to their Standards or zoning.

Dealing with Phased Development

Section 59.04(1)(h) of the regulations allows Plan Review approvals of Projects to be phased for the purpose of coordinating development with the construction of infrastructure upgrades or of mitigating extraordinary adverse Project impacts on neighboring properties. The section further requires that affordable units and market-rate units be developed proportionately across all phases of development. Staggering development in this manner could have impacts on how the Standards are applied, if for instance the Projects are phased across sub-districts or types of uses and certain Standards apply only to certain sub-districts or uses. Therefore, treat the possibility of phasing as a factor in the implementation of the Standards by writing them to be consistent across all phases.

Amending the Design Standards in the Future

Provisions for amendment or repeal of Smart Growth Zoning and Design Standards are included in 760 CMR 59.05(5). According to this section, any proposed amendment or repeal requires written approval by DHCD. If the Department determines the change constitutes an amendment, it will be treated as a new



source: Cordage Park Smart Growth District

application. If change is deemed non-substantial or involves just a boundary modification, the review period is shortened to 30 days and 60 days respectively. Bear these timeframes in mind. Instantaneous amendments to the Design Standards are not possible.

f. Confirming the Relationship to Other Standards, Guidelines or Regulations

There are two primary points to remember when working with multiple district designations or with multiple review processes: 40R Design Standards apply to 40R Projects and may apply to other projects in the District. The standards are intended only to accomplish 40R goals, and consistency up front will prevent headaches later.

There are many possible designations that a given district may have in addition to 40R: urban renewal, historic, commercial area revitalization, economic target, District Improvement Financing, urban center housing tax increment financing, or any other locally created identity. The 40R designation is not intended to override these other classifications (unless the municipality chooses to do so), therefore it is essential to assess them up front and ensure there is a workable connection between them. If the goal is to achieve consistency between sets of Design Standards, then base the 40R Design Standards on any existing Design Standards or guidelines. Another way to achieve consistency is to involve all relevant individuals or organizations in the development of the standards. It is important, however, to maintain clarity on the distinction between the Approving Authority and any advisory groups or individuals.

We briefly discuss here the most obvious district overlaps: urban renewal, local historic districts, District Improvement Financing (DIF), and urban center housing (UCH-TIF) zones. We also discuss other local reviews that may apply to the 40R District.

Urban Renewal Areas

Under MGL c. 121B, redevelopment in an urban renewal area is governed by the Urban Renewal Plan, which must conform to zoning and which may contain design and rehabilitation standards. As with Chapter 40R, design standards adopted for an urban renewal area become mandatory for the district. Also like 40R, urban renewal districts must be consistent with a municipality-wide plan; in the case of Urban Renewal, the district must conform to a comprehensive plan for the locality as a whole.

When overlapping a 40R District on an urban renewal area, at a minimum, an amendment to the Urban Renewal Plan will be necessary so that the plan will continue to conform to all relevant zoning in the district. DHCD advises municipalities to add the 40R Overlay Zoning to the Urban Renewal Plan in order to offer developers the choice of whether to use the underlying urban renewal zoning or the Smart Growth Overlay Zoning, as intended in Chapter 40R. This way, developers and municipalities will avoid finding themselves in an awkward legal situation over conflicting zoning.

If design standards for the urban renewal area are in effect, the municipality should use those standards as a starting point for the 40R Design Standards. This process may work both ways; the objectives created for the 40R District may inspire a modified set of design standards for the urban renewal area. Possible outcomes include a separate but consistent set of standards for each purpose or a single set of standards for both purposes.

If the community anticipates a need to amend any overlapping plans, particularly those involving state or federal oversight and approvals, it will be important to identify and plan for the time necessary to do so.

Local Historic Districts

Section 6(d) of Chapter 40R allows Smart Growth Overlay Districts to encompass historic districts and specifies that provisions of the historic district may apply to new and existing buildings as long as the provisions are in compliance with the 40R statute. The application of a design standard or guidelines to a local historic district is very different than it is to a 40R District. Local historic districts are established by ordinance or bylaw, which typically designates the boundary of the district and establishes the authority of the local historic commission to review development occurring in the district. The bylaw typically does not include design guidelines or standards, and in fact most municipalities in Massachusetts have not adopted design guidelines for their historic districts. In cases where design guidelines do exist, they are usually applied as a matter of policy by the local historic commission and are frequently subject to interpretation.

When a municipality is considering overlaying a 40R District on a historic district, wholly or partially, it is important to consider what policies the local historic commission has in place for the review of projects. The 40R Design Standards should not be written to supersede these policies. If there are historical design guidelines, they should be integrated into the 40R Design Standards. In cases where the historical design standard has been codified in the municipal ordinance or bylaw, just as with urban renewal districts, the 40R Design Standards must incorporate the historical standards. It may also be necessary to revisit the historical standards and review process to determine whether they are consistent with the process under Chapter 40R.

Urban Center Housing-Tax Increment Financing (UCH-TIF) and District Improvement Financing (DIF) Zones

Section 3 of Chapter 40R specifically allows Smart Growth Overlay Districts to coincide with both UCH-TIF and DIF zones. Neither of these types of zones poses a problem for the adoption of 40R Design Standards.

Other Local Reviews

There are several possible review boards or individuals who have a normal role in how development occurs in the community. These boards and individuals should be invited to weigh in on the 40R Design Standards, if they are not already involved in their creation. Consistency with what the DPW expects in terms of roads or water and sewer infrastructure and with what the Board of Health expects in terms of public health and the environment is desirable. If the municipality has an environmental overlay district for control of stormwater, protection of an aquifer, or any other natural resource related purpose, the administering body (probably the Conservation Commission or Water and Sewer Commission) for that overlay district should be consulted. The building inspector should also be consulted, as should the community's arborist or tree warden.

It might happen that conflictive views and opinions could arise between some of these review boards and the Approving Authority identified for the 40R District. Creating a consensus in such a case could prove challenging and, in order to prevent this, efforts to achieve up front consistency with other applicable statutory review requirements should be made as early as possible in the process of crafting the 40R Standards.

There may be other boards or persons involved in permit reviews or maintenance of public infrastructure (including parks, street furniture, street lights, etc.) that should be given the opportunity to provide

input. Even if these individuals do not make a contribution to the Design Standards themselves, they will need to know how and when the Standards apply.

It may also be necessary to consult with entities or individuals outside the community. For example, if the Design Standards address utilities, particularly electrical and telecommunications lines, it is a good idea to consult with the appropriate utility companies. In the case of standards or even optional guidelines that address topics not listed in the 40R regulation, particularly those involving green buildings or energy efficiency, it is advisable to consult with a certified design professional or with an entity that provides technical services related to energy or resource conservation.

g. Additional Standards and Guidelines

Especially when facing multiple designations or interests in a District, a municipality may wish to promote certain design features not authorized under the regulation. It is possible to do so, and DHCD has identified three distinct approaches. First, additional subjects may be covered as optional guidelines, meaning they are advisory in nature and not part of the zoning requirements. If this approach is followed, the guidelines must be contained in a separate document from the Standards and the distinction should be clear to everyone. The Approving Authority may use them as a point of negotiation but cannot deny or condition a Project based on them.

The second option is simply to create additional categories of Standards, which is acceptable as long as the additional Standards meet all the requirements of those authorized by regulation. The Department will evaluate them on the same criteria, including whether they are measurable, whether they do not Unduly Restrict development, and whether they are consistent with the intent of the statute.

The third option, which is available to those municipalities that have a development partner involved in the creation of the 40R District, is to create the Standards with the developer's input and approval. In these cases, the Department will expect the developer to provide his or her consent to the Standards in writing. This option would be available for Districts that include land owned or controlled by a single developer. In districts containing land parcels designated as "developable", where control is not confined to a single owner or developer, this option may be limited to a subdistrict corresponding to land controlled by the consenting developer.

It is important to note here that the Design Standards created for a 40R District may not be compatible with what is allowed by the underlying zoning. In all likelihood, the Design Standards will be more robust than the underlying zoning. The Department recommends that municipalities compare the base zoning to the Design Standards to see if there is an issue. If there is incompatibility and it is expected that a mix of projects will occur based on the use of both the Smart Growth Zoning and the underlying zoning, then the Department recommends that the underlying zoning be amended to include the Design Standards or some appropriate portion of them. In this way, development in the District will not result in a mish-mash of styles or amenities.

h. Establishing Applicability: Geographic Area and Project Types

It is important to remember that the Design Standards will be applicable to all 40R Projects that are subject to Plan Review by the approving authority. Design Standards may specify that some Standards apply only to special Project types or particular geographic sub-areas.

Whether Standards apply to certain land uses, Project types, or geographic areas

within the District should be made very clear in the way the Design Standards are presented and organized. Generally speaking, it is useful to include a section early on in the document that explains how the standards are organized and divided in categories as well as the rationale used for the designation of these categories.

Depending on the size and location of a Smart Growth District and the type of uses and development patterns envisioned by the municipality, the district could be subdivided in multiple sub-districts or areas with their own particular character and requirements. If there are multiple sub-districts, a map must be included as part of the zoning that clearly identifies the sub-districts. It is also important to differentiate between the Standards that apply to specific areas and those of general application within the District.

If some Standards are to be applied based on specific land uses or project types, independently of where they are located within the District, then this should also be explained at the beginning of the document. The types of uses, buildings or development patterns to which the Standards apply should also be listed and identified before proceeding to describe the applicable Standards. Some interesting examples of Design Standards and regulations that contain both geographical and project type considerations are presented in Section 3 and Section 4.

i. Setting the Format: Tips on Appearance and Organization

The concept of Smart Growth is innovative to the extent that it promotes a different approach to development from the ways that have been supported by most zoning codes for many years. Similarly, the way that Smart Growth Zoning is presented may require some innovation. Smart Growth Standards will become part of local zoning regulations and, as such, may rely on the use of text and number-

Community Participation in the Creation of 40R Standards

There is not one single model that could be recommended as a blueprint to incorporate community input in the preparation of 40R Standards. Each particular municipality should consider its own needs and available resources in order to structure the public participation process. In general, it should be assumed that the same public review requirements that apply to the review and approval of new zoning will apply to the creation of 40R Districts. MGL Chapter 40A requires that a public hearing be held prior to the adoption of new zoning ordinances or bylaws. In the case of 40R Districts, the proposed Smart Growth zoning shall first be submitted to the Department of Housing and Community Development for its preliminary approval, after which the proposed 40R Zoning may be adopted by the municipality.

ing in ways consistent with most zoning ordinances. However, a few well-thought graphics will convey certain design requirements better than many words.

Form-based codes, in which dimensional requirements are assigned by use and building types, are good examples of techniques that combine written specifications with graphics in order to facilitate the understanding of zoning requirements. Typical roadway sections that illustrate the different travel lanes and dimensions applicable to certain road types are useful to visually represent how the adopted standards will affect the street character. The use of graphics to illustrate and complement written standards is one of the compositional tools that can help in making regulations more clear and understandable. Many of the references in Section 4 employ high quality graphics and organization.

A well-organized and coherent document will generally help the user to comprehend all the aspects of design and requirements that are included in the Standards. If graphics are used, it is advisable to cluster them next to the specific Standards or requirements that they portray. Photographs of existing conditions are effective in conveying examples of what should and should not be done. It is sometimes more powerful to show negative examples over positive ones, as long as it is made clear that the portrayed image is what you do not want to happen.

The effective use of headings of different hierarchy and appearance is useful to help the reader navigate through the Standards. Headings of similar rank are generally more effective when placed in a similar location within the page. Smart captions, notes and footers can also help in understanding the contents of each page and its exact location within the document.

Another important tip is to be succinct, clear, and precise. When presenting a series of Standards that are related, itemize

them with bullet points or numbers. Similarly, breaking long sentences into sequential bullet points also helps the reader to understand complex ideas and requirements.

It is important to achieve a good balance between graphics, information, and “blank” spaces within one page. Expressing multiple ideas together in the same page may help to grasp difficult related concepts; however, it is important to make sure that there is not so much information that the page structure and design start to seem confusing. Clarity of purpose and expression should be an important goal and criteria guiding the overall organization of the standards.

j. Compliance: Thinking Ahead

The Design Standards that communities create will be applied to project proposals and become the basis for approval. Normally, the municipal approval of a project includes written conditions that explain how compliance will be confirmed, and if necessary, monitored.

It is important to keep in mind how compliance will be measured, monitored, and enforced for all of the Design Standards that may be drafted for a 40R District. Many standards could be confirmed as part of the submitted plans and drawings, or confirmed through inspection prior to occupancy permits being issued. However, standards should not require impractical compliance measures that could not be reasonably met by the municipality or the owners of properties within an approved 40R Project. For example, the demise of a special natural feature such as a cluster of trees due to normal causes may not be preventable by the owner, and the standards should not require conditions that an owner cannot guarantee could be accomplished indefinitely.

a. Architectural Element: Scale, Proportions, and Exterior Appearance of Buildings

Buildings are likely to be the most visible and dominant elements that compose Smart Growth Zoning Districts, also generally known as 40R Districts. In part, the Commonwealth's Smart Growth policies and regulations recognize the many advantages associated with well-planned districts that will have higher densities of use than would otherwise occur. As a consequence, the buildings permitted as-of-right within Smart Growth districts may be relatively large and more densely arranged than the context of the existing and nearby development patterns.

Design Standards in qualifying Smart Growth Zoning Districts can help achieve a community's interest by providing for compatible buildings that are complementary to nearby buildings and structures. In addition, they can provide for high-density quality development consistent with the character of building types traditionally found in densely settled areas of the municipality or its region.

It is important to note, however, that consistency in design should not be implied as homogeneity or the indiscriminate use of repetitive details. Sometimes the character of adjacent buildings is not one that should necessarily be replicated. In this context, consistency should be understood as a correspondence of massing, scale and proximity between buildings rather than a repetition of exterior design elements.

In view of these considerations, it may be helpful for many communities to provide specific standards to define the key characteristics of building massing that extend beyond the typical bulk and dimensional standards that are frequently used in ordinances and bylaws in Massachusetts communities. "Building massing" can generally be described as

the exterior configuration of a building. Most zoning codes establish aspects of massing by focusing on the allowable height of buildings, and limits on the extent of buildings through setback standards. There are several additional aspects of massing that can be further guided through standards adopted by the Town that are acknowledged by the Commonwealth's Smart Growth Zoning District regulations: building scale, proportions and exterior appearance.

While the following discussion provides a more detailed look at each of these characteristics, some general points should be kept in mind:

- Regulatory perspective – The purpose of zoning-related Design Standards is to express the public interest in building design; as a result, the public point of view and interest needs to be clearly understood. As a general rule, public interest in building design is normally related to views that can be obtained from public ways or public vantage points. These perspectives can extend into private developments when streets, sidewalks, paths, parks or open spaces are intended for public use and access through dedications or grants of easement. Perspectives to buildings from private properties, buildings or districts are not considered as a public interest, except as addressed through setback and buffering Standards.
- Useful flexibility – Compositions of building scale, proportions and exterior appearance are accomplished through design techniques that include an enormous array of styles and preferences. In crafting Design Standards, care should be taken to focus on those topics that can be suitably directed through standards, while relying on other processes - design guidelines, site plan, historic district reviews, or other mecha-

3. Crafting Standards: The Elements

nisms – to find solutions that cannot be captured through measurable or verifiable standards. Only those topics that can be captured through measurable or verifiable standards should be addressed through Smart Growth Zoning.

Understanding Building Scale

The “scale” of a building refers to its relationship to other buildings or basis for reference. Scale in this context is a perceived relationship established by the apparent bulk of a building as seen from a public vantage point or abutting property. In most cases, the scale can be considered to be a product of a building’s apparent height and width.

The relative nature of this term is important to consider in establishing Smart Growth Standards. So, for example, a four-story building in a small village center composed of two-story frame houses and shops might be considered a “large scale” building; in the context of a more urbanized setting with several twelve-story buildings, a four-story building would be a “moderate scale” or even “small scale” building.

In drafting Standards for scale, the following considerations may be helpful:

- Focusing on height and width – The most measurable standards that determine ‘scale” are height and width of buildings as seen from public vantage points. Height can be determined in feet or stories; width can most easily be defined in feet.
- Defining “height” – There are many techniques that modify the apparent scale of a building’s height that need to be taken into account. For example, sloped roofs or setbacks for upper stories can significantly diminish (or even remove) the visual impact of the tops of buildings. In some cases, pitched roofs may be considered to

be a desirable element in regards to the appearance of buildings relative to flat-roofed structures that would comply with a simple height maximum. There are many accepted methods to define height that can be drawn from a municipality’s existing standards or those of other communities. Common approaches include: measuring from average grade around a building, measuring to mid-points of sloped roofs, allowing uses within a sloped roof as a percentage of the building footprint, or allowing buildings to have step backs at upper floors according to established dimensions.

- Using “floors” or “feet” – It is convenient and often appropriate to consider building heights in terms of “floors”. Most people can readily understand and use the number of floors to gauge the height of buildings. If floors are used, it is prudent to make sure that the term is well defined so that there is minimal chance for confusion. If dimensions are employed, consideration should be placed on varying needs of different uses. Typically, for example, retail and office uses have and need higher ceilings and greater floor-to-floor heights than residential uses. Dimensional standards should be checked to make sure that they do not inadvertently conflict with the needs of the uses provided in a municipality’s Smart Growth Zoning District.
- Defining width – Width of buildings can generally be considered to consist of visible distances along a facade that contribute to the apparent scale of a building. There are many significant difficulties in setting quantitative or clear standards because the visibility and effect of building width is highly dependent upon variable and inter-related factors - the orientation of a building relative to the vantage point of the viewer, the shape of a

building's floor layouts and design expression. If the definition of width dimensions is important to the public benefit of a particular community because of its implications in terms of massing, for example, a range of acceptable proportional ratios of height to width could be established as a 40R Standard. Otherwise, this aspect of building scale should rather be considered through general design guidelines or provisions other than 40R Standards.

- Varying scale within a district – Design Standards can be used to create variations in the scale of buildings within a zoning district to achieve preferred relationships. Some portions of a district might be appropriate for taller and/or wider buildings than others. The basis for establishing these variations needs to be tailored to each district and community. Such variations often reflect preferred relationship to surrounding areas, distinguishing among “neighborhoods” or “sub-districts” within a zone, or to establish desired relationships to public open spaces or activity areas.
- Avoiding subjective or value-laden standards of scale – The term “building scale” is often used to ascribe characteristics to buildings that are reflective of subjective vantage point and values of participants in the process of shaping our communities and can have entirely different connotations for different people. Terms like “traditionally scaled”, “over scaled”, “well scaled”, and “appropriately scaled” should be avoided, as they require clear definition and references in order to be understood and agreed upon by those participating in the process.

Establishing Building Proportions

The concept of “building proportions” generally refers to the compositional relationships of height and widths of the major massing components of a building. In simple terms, a building element may appear “thin” or “fat”, regardless of its dimensions (actual height and width). The public interest in controlling building proportions may be linked to the recognizable patterns of building types and designs that result in typical proportions. For example, large footprint, single story retail stores typically exhibit a very low proportion of height to width from public vantage points, creating the recognizable “commercial strip” appearance of some buildings. Traditional detached single-family housing often exhibits a fairly balanced relationship of height and width, as another example.

Difficulties can arise in attempting to confine buildings within fixed proportions, however, in view of the many architectural and siting options, and construction requirements that may restrict the proportions of building elements. Multiple elevations with different design treatments can be created to convert the appearance of one building into the appearance of several attached structures, for example. In this regard, 40R Standards could be written to provide a flexible, qualitative approach to influencing building proportions by setting ranges of acceptable dimensions rather than fixed requirements.

If Design Standards are used, the following considerations may be helpful:

- Defining applicable building elements
 - Many buildings are composed of a variety of forms, shapes, façades and roof forms; in order to provide direction regarding proportions, the aspect of the building applicable to the standards should be defined. This might be accomplished, for example, by establishing a definition of a “principal façade” or “façade” as

seen from an identifiable and unambiguous vantage point or edge.

- Specifying acceptable ratios - Once the definition of an applicable building element is accomplished, then an overall proportion of height to width might be employed to set a standard (for example, a maximum ratio of height to width of 3:1, or a minimum ratio of 1:4).

Exterior Building Appearance

“Exterior building appearance” is created through all of the attributes that determine the visible character and quality of buildings. The public interests in the exterior building appearance are generally related to economic value and relationships to historic or civic purposes significant for the community or for districts within it.

Exterior appearance of buildings is determined by a very large list of attributes. A list might include building types, color, materials, and reflectivity. The appearance could apply to elements – windows, doors, bays, projections, parapets, roof forms, lighting, signage composition and location, mechanical equipment, service areas and the like.

Many of these attributes can be effectively and usefully controlled through Design Standards; others are far more difficult to control, and are best left to more flexible tools such as guidelines. The following ideas may be useful in addressing exterior building appearance.

- Defining the public interest and goals – Distinguishing between valid public interests and individual tastes and preferences is a particular challenge in establishing Design Standards for building exteriors. It would be very useful to provide a clear statement of those aspects of the exterior appearance that a community intends to control, and how the Standards will

help achieve established municipal purposes, prior to crafting the standards themselves.

- Limiting architectural styles – Design Standards could be used to direct building exterior appearance to incorporate basic design principles from a desired architectural style or styles. This would be especially relevant to 40R Districts that overlay historic districts or include historic buildings within their boundaries. While there are many variations and special cases in the expression of architectural style, there is nevertheless an extensive literature that includes applicable working definitions of commonly recognized styles. If a community elects to limit allowable architectural styles based on historic precedent, reference should be made to a recognized published resource that can be referred to in the likely circumstance that debate emerges regarding the authenticity or appropriateness of building design elements within a proposed project.
- Choosing among building types - There are professionally recognized distinctions among building types that is different from architectural styles. This aspect of building appearance is called “typology”. So, for example, a “shed” may be composed of a shed-roof building with a simple massing; a “commercial block” may be constructed of a flat-roof frame structure. While meaningful, distinctions in building type can be difficult to standardize; if a community wishes to direct this aspect of building appearance, it is best to create clear and unambiguous definitions using graphic diagrams and professional accepted language to minimize confusion.
- Creating Standards for building elements – Buildings can be consid-

ered to be composed of certain design elements whose appearance can be effectively controlled through standards. Examples of design elements subject to quantifiable or objectively applied standards include roof forms, mechanical or service areas and enclosures, type and proportions of windows and glazing areas, bay windows, awnings, marquees, canopies, materials, colors and reflectivity.

- Avoiding standards that are difficult to measure or verify – Some aspects of architectural appearance are important in composing buildings, but are not readily captured in measurable or verifiable standards. These

aspects should not be addressed through Smart Growth Zoning. Among these characteristics are: rhythm, variety, and other compositional qualities.

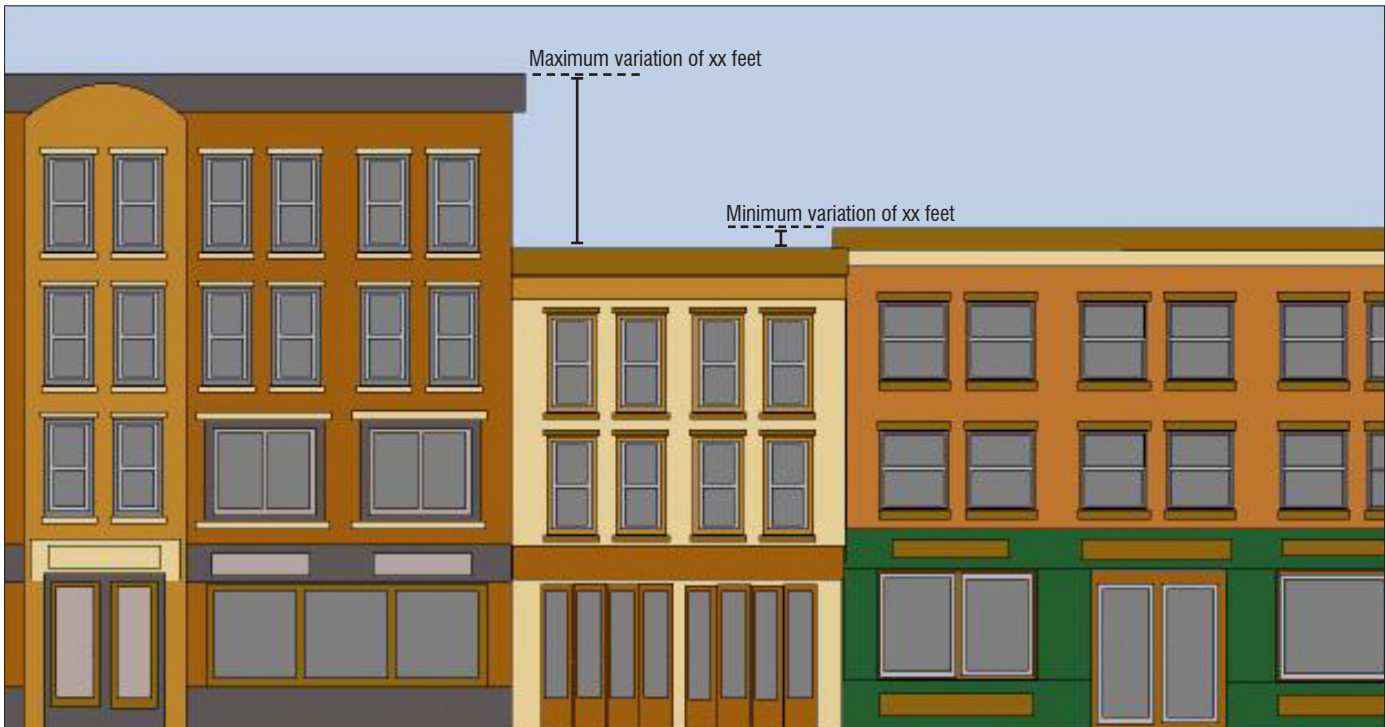
- Creating specific language and diagrams – Clarity is required for the successful composition of Design Standards. This can be achieved by ensuring that key terms are well defined, and consistent with other applicable regulations or guidelines that a municipality may apply to a project in a Smart Growth Zoning District. In many cases, a simple diagram can be employed, and may include dimensions or descriptions to facilitate understanding.



This graphic illustrates the meaning of architectural design terms.

Examples of Building Standards

Graphic Standards Examples



This is an example of how a graphic can describe the intentions regarding standards for relative facade heights along a street.

Architectural Elements: Scale, Proportions and Exterior Appearance

Quantifiable Standards: Examples

- *Scale: Building heights as measured along the Main Street are intended to vary, rather than being uniform along the length of the street. The height of any building must be at least ___ feet greater or less than building directly adjacent to it.*
- *Proportions: The length of buildings along all streets should have moderate proportions relative to the length of the blocks in which they are located. As a result, no individual facade may be more than ___ % of the total length of any block, measured as the total length of the composite parcels.*
- *Exterior Appearance: The new transit-oriented village should be clearly related to the architectural materials that predominate in the nearby historic district. As a result, at least ___ % of the exterior wall materials visible from public ways should be of _____ or _____ materials.*
- *Bay windows, oriels and balconies are traditional elements of nearby districts in our community. As a result, all buildings with principal facades along ___ Street or ___ Street that are greater in width than ___ feet should provide no less than ___ percent of the facade as bays, oriels or balconies that project at least ___ feet from the principal plane of the facade.*

Verifiable Standards: Examples

- *Scale: The community seeks to ensure that the City Hall remains the most prominent building and standard for building scale as measured by height. As a result, no building shall be so tall as to exceed the height of the statue of Benjamin Franklin on top of City Hall.*
- *Proportions: The proportion of buildings should be related to the scale and importance of the streets on which they are located. Smaller streets should be lined with smaller buildings, wider streets with taller buildings. As a result, the height of any building shall not be greater than twice the width of the public right-of-way that provides the frontage for the lot on which it is located.*
- *Exterior Appearance: The variety of building appearances is important in creating the varied texture and character sought by the community. As a result, the predominant building material used on the exterior of new buildings must be different from the material used on adjacent and abutting structures.*
- *The Town seeks contemporary architectural expressions and materials, as well as traditional architectural appearances. Highly reflective materials that create glare or glass that removes the transparent appearance of windows are not desirable. Therefore, these materials will not be acceptable in any location: _____, _____, or _____.*
- *In the Town of _____, _____-type roofs are predominating for our residential and civic buildings, and this pattern is desirable to extend into this new district. All roofs in the district should be _____-type roofs, except for buildings principally used for retail or commercial purposes.*

Contrast: Typical Guideline Language

Building elements shall be articulated to create a sense of scale and proportion through variations in architectural expression, roof forms, ornament or materials.

The scale and proportion of windows and doors shall be compatible and harmonious with the scale and proportions of the entire building.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

b. Streets Element: Placement, Alignment, Width, and Grade of Streets and Sidewalks

Within a Smart Growth zoning district, streets and sidewalks represent the skeleton and circulation system that will support the allowed uses and provide access for the public. Many factors are taken into account in establishing and improving a network of streets and sidewalks within a district. Most municipal entities have land development and subdivision regulations that address the character and dimensions of new streets and sidewalks. Substantial sets of engineering, legal and regulatory standards are already established to provide for public safety and ensure handicapped accessibility, for example. In addition, street and sidewalk networks form part of larger systems; local, state and federal policies and practices are used to help shape the street and sidewalk networks within and among communities.

In the context of Smart Growth Zoning, a community may adopt Design Standards to complement or extend the existing framework of requirements for streets and networks. The regulations associated with 40R Districts provide communities with options to establish Standards for placement, alignment, width, and grade of streets and sidewalks. Several initial considerations should be employed to determine how 40R Design Standards might best be advanced for any of these categories:

- Tailoring Standards to the character and purposes of the Smart Growth District – Design Standards should be tailored to the specific circumstances of the land use and development patterns that are framed in a municipality's Smart Growth Zoning District.
- Considering the relationship with surrounding areas – The systems of streets and sidewalks within a Smart Growth District will be con-

nected to the larger networks that serve adjacent and nearby areas. The standards that are crafted for a district should be informed by the conditions and potential impacts on surrounding areas.

- Establishing connections – A basic premise of Smart Growth principles is to provide access to a variety of transportation choices. 40R Design Standards for the street and sidewalk network should support this goal to the extent possible within the District's proposed infrastructure. The circulation network or system needs to provide efficient access to and from the new development, and to other streets and destinations in the surroundings, as well as convenient access among the uses within the district. A key consideration for the layout of streets and walkways is pedestrian and vehicular access to other modes of transportation. Placement of buildings and walkways should take into account comfortable walking distances. Both the length and time of travel should be considered so that the use of transit or bicycles is facilitated by the design of the street and sidewalk system. Standards could be drafted to define elements that should be connected, and the types of connections that should be established.
- Matching streets, sidewalks to development feasibility – The location, alignment and width of streets and sidewalks also determine the land that will be available for buildings and open space. In most cases, the size and proportions of sites allocated to buildings have critically important implications for the value and development feasibility of the uses that will occur. If site areas are too large for their intended use and density, then there will be significant waste of land resources and unne-

essarily high infrastructure costs. If the sites become too small or oddly shaped for their intended use, then feasible development and value can be dramatically lowered. Before any placement Standards are finalized, the compatibility of the standards with the land development patterns that the 40R District intends to create should be confirmed through technical studies and analyses.

MassHighway has issued a new highway design manual that contains useful and context-sensitive design guidelines, some of which could serve as examples for the preparation of Standards associated with street placement and dimensions (an annotated reference to the manual is included in Section 4 of this document).

Placement: Locating Streets and Sidewalks

It is important to differentiate between the purposes and use of different types of streets. Each community or new development is going to have 'main roads' that provide access to and from the surrounding communities or neighborhoods, and local streets that may serve just a handful of properties. The reasons and conditions that determine the location of different types of streets also influence their type, dimensions and capacity, and may be as diverse as the types of land uses and building densities that line the street.

In general, the location of 'main roads' or connecting streets tends to be determined by the location of the main points of access and destination that the new streets need to connect. Their alignment may be conditioned by topographical, economic or design restrictions dictated by the existing site and context characteristics.

The location of secondary roads, local streets and alleys is more dependent on the land use and design approach of

the overall 40R Project. The adoption of a street grid network pattern or the provision of long, meandering roads is as much a design decision as a result of the layout and density of individual land plots and buildings.

Sidewalks are an important component of the streetscape and a key safety element. Ideally, sidewalks should be provided where they will be needed and utilized as a result of the adjacent land uses, or along segments of roads where there are good reasons to anticipate or encourage pedestrian traffic. Each set of 40R Standards should establish its own requirements as to where sidewalks should be provided or anticipated, based on its own needs, conditions, cost and safety considerations. Similar considerations should be applied to the provision of bicycle-specific facilities and accommodations. In setting standards for placement of streets and sidewalks, it will be helpful to consider these points:

- Providing flexibility - Standards must leave reasonable flexibility to allow for the technically complex process employed to finalize locations and layouts. So, for example, it would not be appropriate to establish a standard that requires a road to be constructed at a specific, dimensioned location.
- Establishing conformance – The Design Standards should nevertheless be framed in a manner that readily allows all of the participants in the design and review process to establish whether the location of streets and sidewalks conform to the standard. So, for example, a standard might require that "a street be established that connects the existing Main Street at the northern boundary of the district to the MBTA commuter rail station access road along the southern edge of the district; the street should be laid out in a location such that the centerline of the street

is at least 500 feet from the existing residentially zoned land outside of the boundaries of the Smart Growth Zoning District”.

Implications of Alignment

The “alignment” of streets and sidewalks considers the specific geometry that sets the edges of pavement. In engineering practice, various geometric terms and methods are used to design street and sidewalk layouts, so that they can be accurately transferred in the field into completed improvements. When speaking about alignments, it is always a good idea to specify which geometries are being used. Engineers often use the centerline of streets and sidewalks as the reference for alignments, for example. Radiused curves, dimensions to curblines and dimensions to edge of pavement are also important design methods used to document and communicate alignments.

Street and sidewalk alignment patterns shape the perceptions of the character of a district, with important implications for the cost and value of Smart Growth development and its relationship with nearby patterns of development. In effect, there are different “styles” of street and sidewalk patterns. Gridded street patterns with large blocks have often been used as efficient ways to support commercial or mixed-use “urban development”. Picturesque patterns of wandering streets and sidewalks have been employed to create “garden communities” with a suburban character. Formal and geometric alignments have been employed to create special planned communities, with patterns of avenues, streets, alleys, blocks and parcels deliberately arranged to match desired building types, architectural and landscape design treatments.

The implications of street and sidewalk alignment that should be taken into account:

- Matching the alignment character to the purposes of the district – Standards can be explicit regarding the desired “style” characteristics of alignments in order to establish the intended relationships with surrounding areas and support the land use goals contained in the Smart Growth Zoning District. If, for example, a community wishes to confirm that the pattern be similar to that of an adjacent or nearby area, this can be accomplished. If a specific new or different character is more consistent with local planning goals, this could also be directed through Design Standards.
- Establishing conformance – The Standards should nevertheless be framed in a manner that defines terms and then readily allows all of the participants in the design and review process to establish whether the alignment of streets and sidewalks conform to the standard. So, for example, a standard might define the intended alignment to result in a “village character”, accompanied with a definition that lists how this will be interpreted - perhaps no streets are to have a straight alignment for more than 800 feet. Such a requirement establishes the vocabulary for a flexible design standard that can be readily applied and confirmed.

Width of Streets and Sidewalks

While there are ranges of minimum and maximum standards associated with various aspects of street and sidewalk design and engineering, reasonable flexibility exists to allow communities to adjust some dimensions to meet community goals. For example, roadway lane widths in low-speed areas can be reduced from typical widths to match the character of older, existing streets or help slow traffic speeds. Sidewalks can

be enlarged substantially from required minimum widths if it is more appropriate – this is typical of shopping and commercial areas, for example.

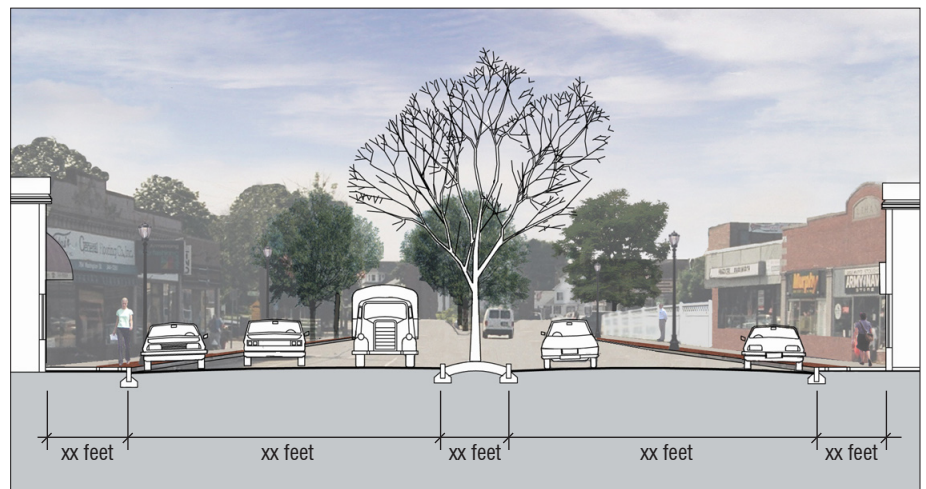
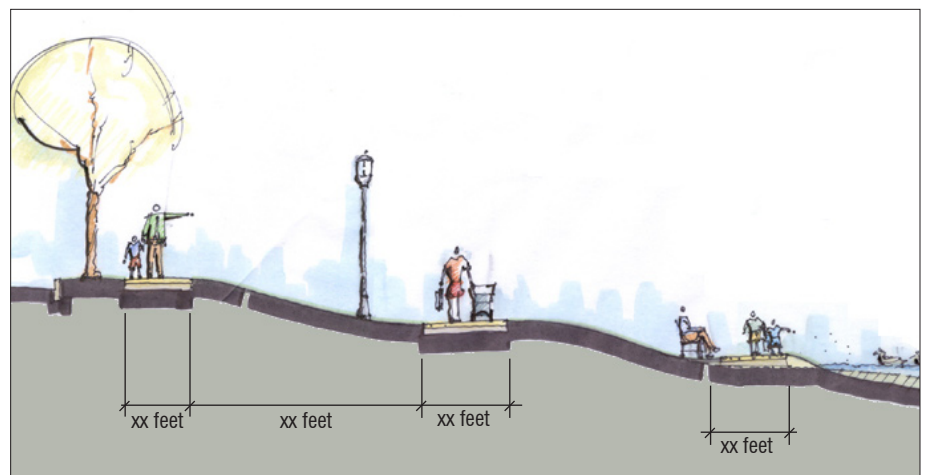
- Traffic engineering and standards - Standards for the width and number of lanes for each segment of a street network need to be fully reviewed and evaluated by a professional traffic engineer prior to establishing special 40R Standards. These factors are basic ingredients in accomplishing appropriate flows of traffic and providing for safe operations for all users and modes.
- Preserving opportunities for expansion – If applicable to the character of the District, it may be useful to provide opportunities to expand roadway widths in the future, depending upon the pace of development and the influence of other traffic patterns. Design Standards can specify where and how preserving future capacity can be accomplished (for example, building setbacks could be established that would facilitate roadway widening if needed).
- Creating clear standards – For street and roadway widths, 40R Standards should be clear and concise; minimum and maximum dimensions should be listed in feet and inches.

including maximums, minimums and the rate of transition in slopes both along an alignment, and across an alignment.

In general, once the location, alignment, widths and land development patterns are set, grades are calculated and designed to provide the most cost-efficient manner of grading that meets these many parameters. Any additional Design Standards provided by a municipality for a Smart Growth District should take this into account, and avoid creating requirements that would interfere with this process unless there are clear public interests that need to be protected.

Examples of Street Standards

Graphic Standards Examples



These graphic examples illustrate different types of street and sidewalk sections.

Grades and Grading

New streets and sidewalks must either accommodate or change the topography through which they pass. There are significant technical and cost issues associated with the manner in which this is accomplished. In general, designs that are cost efficient minimized the amount of grade changes in the topography, and attempt to provide a balance of the “cut and fill” – excavation and addition of land. In addition, there are numerous regulatory, engineering and other practice standards that control grades,

Examples of Street Standards

Streets Element: Placement, Alignment, Width and Grade

Quantifiable Standards: Examples

- *Placement: A new commercial street shall connect the hotel development site with the transit station running through the proposed commercial district. The total length of travel (measured in feet) shall not exceed ___ times the actual distance between the two destinations.*
- *Alignment: The new parkway shall run parallel to Pleasant Brook, and it should be located within a minimum distance of ___ feet from the brook to allow for the provision of a grass buffer strip, but not farther away than ___ feet in order to allow for views of the stream.*
- *Width: The street running through the commercial center shall be wide enough to accommodate parking lanes and ample sidewalks along storefronts. The public right-of-way may vary to accommodate wider sidewalks in areas of higher shopping activity, ranging from a minimum width of ___ feet to a maximum of ___ feet.*
- *Grade: Grade slopes in commercial sidewalks shall not exceed a maximum of ___ degrees in order to create a relatively flat and comfortable walking experience.*

Verifiable Standards: Examples

- *Placement: A new street shall connect the hotel development site with the transit station running through the proposed commercial district.*
- *Alignment: Streets shall connect to other streets within the development or to the existing roadway network in ways that allow for multiple routes of travel. Cul-de-sac roads that connect to one street only shall be avoided.*
- *Width: The main street running through the commercial district shall accommodate parking on both sides, and ample sidewalks to allow for pedestrian activity along storefronts.*
- *Grade: The parkway shall be designed to minimize cut and fill along its length. Finished grades along the parkway shall match and blend with the natural contours of the terrain.*

Contrast: Typical Guideline Language

Street layout shall provide for connectivity with the adjacent roadway network.

Wider sidewalks shall be located in areas that receive winter sun exposure for longer periods of time.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

c. Infrastructure Element: Type and Location of Infrastructure

The term “infrastructure” generally refers to the networks of utilities that serve a district. On occasion, the term is extended to include transportation networks although it is often best to keep these categories separated, because of the particular circumstances surrounding traffic and circulation that are best addressed separately. However, for the purposes of the requirements of 40R Districts, the term infrastructure also applies to the physical elements of the transportation network.

Types of Infrastructure

The utility infrastructure that serves a district is often composed of both public and private sector utilities. One of the primary requirements in drafting standards for infrastructure is to understand the type, extent, and responsibilities for the utility networks. The typical utilities can include sanitary sewer, water, electricity, gas, telecommunications, telephone, and cable.

In all cases, there are many technical and regulatory standards that already apply to utility networks. The emphasis for additional regulation should be focused on those areas that are distinctly related to the land use patterns defined within a Smart Growth Zoning District.

Location of Infrastructure

The standards for infrastructure should provide guidance regarding those aspects of infrastructure networks that could reasonably affect clear public interest and that would not otherwise be addressed in the provision of utilities according to standard practices and other regulations.

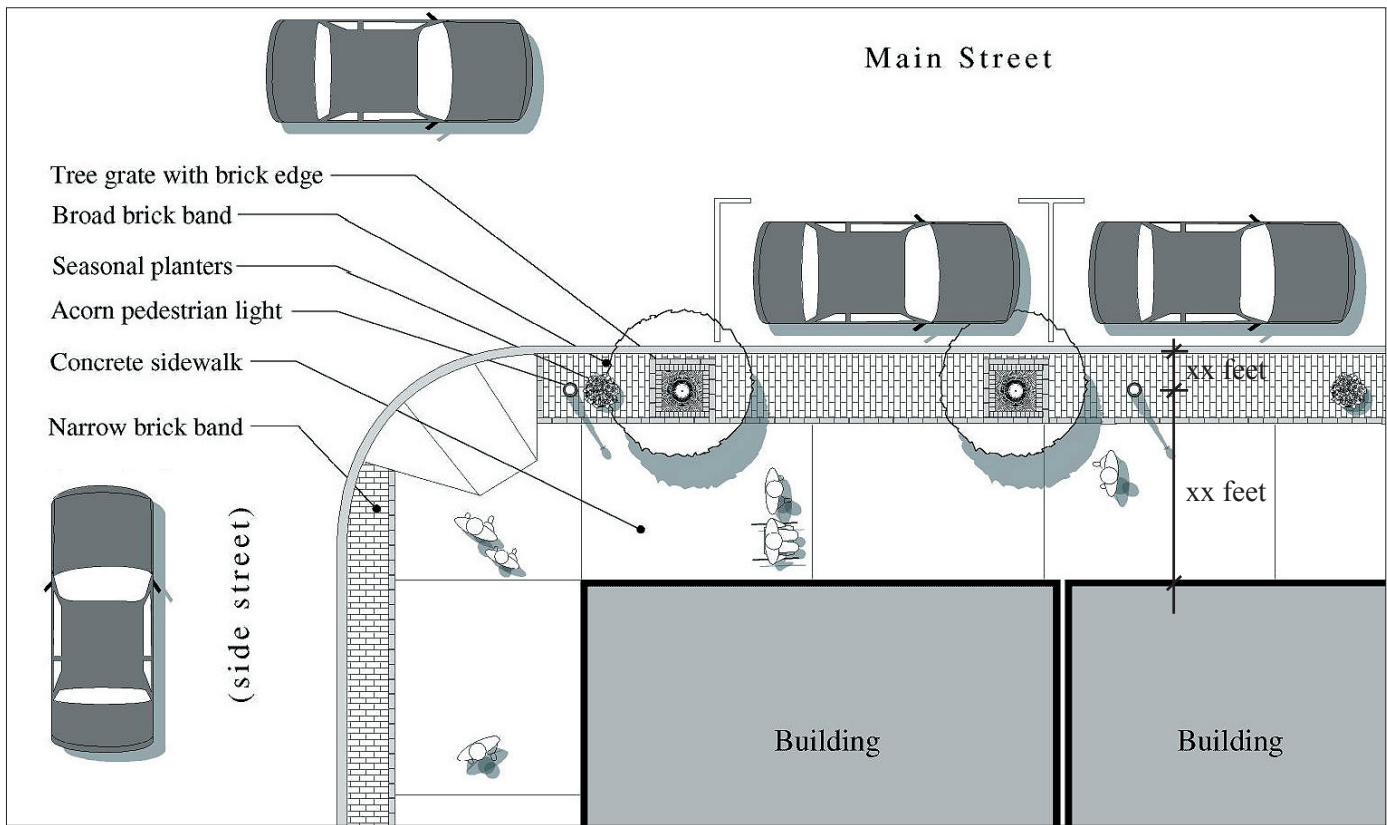
Importantly, these interests may be related to the connectivity between the new development patterns and the utility networks

associated with adjacent areas. The following considerations may be helpful in drafting utility Design Standards:

- **Connections** – It is very important in Smart Growth Districts that the utility networks efficiently connect to both existing and probable future utilities in the surrounding areas. So, for example, the location, utility loads, and connection points for many utility systems can become key factors that may affect the future ability of a Smart Growth district to properly develop. Similarly, a new Smart Growth District could impose burdens on adjacent utility networks that would be detrimental to the overall system balance.
- **Understanding impacts and opportunities** – A technical evaluation will be required as part of normal project approval and review processes. Smart Growth Standards, if created, should anticipate this process and include preliminary technical evaluations of probable impacts on surrounding utility systems and capacities. Such a technical analysis must be performed with qualified engineering assistance, and include appropriate coordination with each utility being considered. In this way, opportunities may be found to help set conditions that will provide efficient, cost effective solutions and simplify the subsequent engineering design and approval process.
- **Providing clear standards** – If Standards are created, the language and meaning should be unambiguous. For example, a helpful design standard might say, “the main water supply lines should be extended to provide for future connections to the industrial park directly north of the district”. This language would compare favorably with the following: “Ensure adequate capacity for future nearby development in the sizing of water mains”.

Examples of Infrastructure Standards

Graphic Standards Example



This graphic example represents standards for the location of street furniture on a sidewalk

Infrastructure Element: Type and Location of Infrastructure

Quantifiable Standards: Examples

- *Type of Infrastructure: All parking lots in the subdistrict are intended for shared daytime and nighttime use. As a result, parking areas shall be lit with fixtures that provide the following illumination standard: _____ average footcandles with a maximum variation of _____.*
- *Location of Infrastructure: The commercial street frontage is intended for active use. So, all blocks in the commercial subdistrict shall have continuous rear alleyways connected to approved streets, with the alleys no less than _____ feet wide to provide for deliveries, loading and unloading.*

The Town wishes to limit noise and visual intrusion into the historic gardens in the center of the district. As a result, no new roadway shall be constructed within _____ feet of the property limits of this public park.

Verifiable Standards: Examples

- *Type of Infrastructure: Bicycles need special accommodation on certain streets that are expected to have high traffic counts. The following roadways require on-street bicycle accommodation: _____, _____, _____.*
Angled parking in the commercial district along Main Street is _____ (permitted) (required) (prohibited).
- *Runoff from impervious surfaces shall be recharged on the site by means of stormwater infiltration basins, open swale systems, filter/buffer strips or similar systems covered with natural vegetation.*
- *Location of Infrastructure: The uses in the new district are intended to connect to the existing neighborhoods on both sides, but not the _____ neighborhood. As a result, the internal roadway system must be directly connected to _____ Street and _____ Avenue, but must not connect with _____ Boulevard.*

Utilities shall be located to the rear of the buildings or underground.

Contrast: Typical Guideline Language

Site lighting shall incorporate pedestrian-scale light fixtures in all projects including outdoor public areas.

The width of all sidewalks in the commercial area will be generous and provide adequate space for walking, shopping and informal spots for sitting, viewing or gathering.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

d. Entrance Element: Location of Building and Garage Entrances

The location of building and parking entrances shape the dominant activity patterns for many pedestrian and vehicular movements in a district. In addition, they establish the primary and secondary orientation of buildings. The simple terms “front door”, “side door”, and “back door”, immediately describe how a building is normally approached, for example. In planning entrance locations in Smart Growth Districts, the concentration and orientation of the entrances in buildings may be important in achieving public goals. In these cases, Design Standards may be very useful.

All buildings and parking garages will require entrances, regardless of whether design standards call for them or not.

The key to drafting useful Design Standards is the identification of how the locations are related to the public goals developed within a Smart Growth District. Should a community determine that its interests could be strengthened through 40R Standards, the following thoughts may be useful:

- Concentrations of public activity and pedestrians – A hallmark of active public areas such as shopping districts is the concentration and orientation of building entrances. Primary entrance locations along or within public activity areas are a typical method to activate such areas.
- Parking entrances and potential conflicts – Parking entrances could create potential conflicts with vehicular or pedestrian circulation. Standard traffic engineering practice will provide typical minimum acceptable distances in many cases. However, specific circumstances in a 40R District could lead to the desirability of additional Design Standards. For example, the intensive pedestrian circulation near a transit station could increase the potential for vehicle conflicts crossing a pathway at the entrance to a garage. Such circumstances might be avoided through clear language that prohibits parking garage entrances along high traffic sidewalks, for example.

Examples of Entrance Element Standards

Graphic Standards Example



This graphic example represents a standard for the location of garage entrances and access.

Entrance Element: Location of Building and Garage Entrances

Quantifiable Standards: Examples

- *Location of Building Entrances: Commercial building entrances shall open directly onto the sidewalk. If the building recedes or is setback from the sidewalk at the point of entrance, a walkway and canopy shall clearly identify the point of access. The maximum walking distance between the sidewalk and the building entrance shall not exceed ____ feet.*
- *Location of Garage Entrances: Access to the Merchant's Garage shall be located at least ____ feet away from the mid-block pedestrian crossing in order to minimize interference between pedestrian and vehicular traffic.*

Verifiable Standards: Examples

- *Location of Building Entrances: All primary entrances to commercial buildings shall be visible from the street. Buildings facing more than one street shall have access from the corner or separate entrances on each street frontage.*
- *Location of Garage Entrances: Vehicular access to garages shall not be located in places where it would interfere with pedestrian travel. In commercial areas, garage entrances shall be from service alleys or side streets other than the main commercial spine.*

Contrast: Typical Guideline Language

Building entrances shall be clearly recognizable.

Adequate space and clearance shall be provided for the maneuvering of trucks and service vehicles.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

e. Parking Element: Off-Street Parking

One of the basic principles promoted by Smart Growth regulations is the concept of compact design. Compact design is represented by the development of districts where development is concentrated in relatively dense areas, ideally within walking distance of transportation and other public amenities, with the ultimate purpose of preserving the natural environment and setting limits to suburban sprawl.

It is not easy to establish an appropriate balance between relatively high densities of development, such as the ones

promoted by Smart Growth, and parking standards that would be conducive to the achievement of “compact” design. Commonly accepted parking ratios tend to be based on financial requirements set by banks and other lending entities. These are generally aimed at ensuring that ample space for parking is provided to meet the perceived needs and market-based expectations of high-end users.

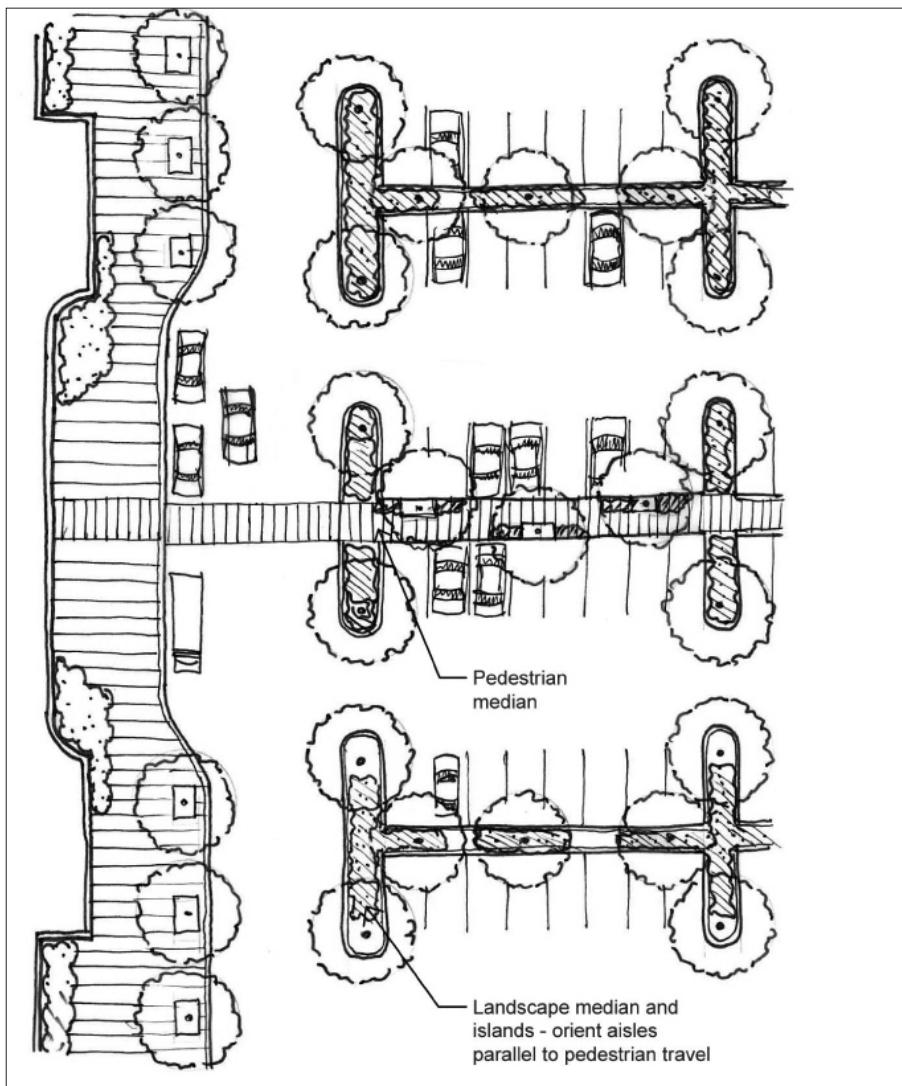
The creation of Smart Growth Design Standards provides an opportunity for the review and adoption of off-street parking policies that would support the basic needs of new development while promoting the principle of compact design.

Though land-use based parking ratios are often the primary tool used to dictate off-street parking requirements, it is important to note that communities are increasingly looking at this issue more broadly, often employing a range of techniques, policies and programs to minimize the need for off-street parking. Such measures fall generally within what is known as Transportation Demand Management (TDM). Examples of TDM techniques include localized shuttles, employer-subsidized transit passes, parking cash-out programs, car sharing, participation in an area Transportation Management Association (TMA), and bicycle parking and facilities. Depending upon the development context, communities may want to explore the use of TDM measures as either a supplement or alternative to the traditional parking ratio approach.

Parking requirements should be analyzed at an area-wide level and incorporated into a comprehensive planning process for the overall Smart Growth District. Shared parking ratios should be considered for mixed-use and commercial areas, taking into account the timing of parking demand variations during the day and the week in order to avoid the provision of excess parking.

Examples of Off-street Parking Standards

Graphic Standards Example



This graphic example describes the use of landscape and pedestrian medians.

source: SWNIAS Landscape Plan

Design Standards for off-street parking could be used to address the following elements:

- **Parking Ratios** – Off-street parking ratios could be adjusted to encourage shared parking and the use of public transportation by setting “maximum” instead of “minimum” parking limits. This would contribute to support the concept of concentrated development and discourage the provision of excessive parking capacity.
- **Access to Public Transportation** – Wherever possible, parking standards should take into account the proximity to transit and access to alternative modes of transportation that may be appropriate to the character and location of the Smart Growth District. Standards could dictate the type and location of ways and connections, for example.
- **Low-Impact Development** – Design Standards for parking construction and materials could address the provision of porous pavements, such as grass pavers, porous asphalt and pervious concrete, and other landscaping amenities that would mitigate environmental impacts and increase the quality of design of parking areas.
- **Screening and Vegetation** – Design Standards may address the type and quality of landscaping materials used to screen parking lots and loading areas from public vantage points, in ways compatible with other prescribed standards for site and building materials.
- **Landscaped Islands** – The provision of landscaped islands and trees could be required as part of Design Standards for off-street parking lots, based on a given ratio or proportion of landscaped areas to paved areas and circulation, in order to break down large expanses of parking and avoid panoramic views of asphalt and cars.

Examples of Off-street Parking Standards

Parking Element: Off-street Parking

Quantifiable Standards: Examples

- *Off-street Parking: The zoning encourages parking that may be shared or remote from approved uses, but the Town intends such circumstances to be connected with pedestrian-friendly infrastructure. Parking areas serving any use must be connected with a sidewalk, so that the total walking distance is no greater than ___ feet from the main entrance.*
- *Parking lots containing more than ___ parking spaces shall be broken down into smaller parking areas separated by landscaped islands and vegetation.*

Verifiable Standards: Examples

- *Off-street Parking: The parking area serving the transit station must be located south of the existing rail platforms currently in use at the date of approval of this standard.*
- *Parking and loading areas shall be located behind buildings.*

Contrast: Typical Guideline Language

Parking areas shall be landscaped and graded to create broken vistas, so there is no panoramic view of asphalt and cars.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

f. Natural Features Element: Protection of Significant Natural Site Features

Massachusetts's communities are situated within a wide variety of settings that include valued natural features, such as views and view sheds, mature trees, hillsides, groves, rock formations, and others. Through Design Standards, communities may extend protection to significant natural site features that may exist within the boundaries of Smart Growth Zoning Districts that they establish.

Defining Significant Features

Three essential steps should be taken, however, prior to advancing Design Standards to protect such features.

- Determining features that are already protected – Many significant natural features are already protected by an extensive framework of local, state and federal environmental regulations. In these instances, additional standards could conflict with or needlessly complicate the review and approval processes already in place. So, for example, there are significant frameworks and procedures established to protect qualifying wetland resources and endangered species habitats. Other standards apply to waterways through the Commonwealth's Chapter 91 regulations, as another example. New standards should be considered only where protection regulations are not already in place for the natural features within a district.
- Defining "significant natural site features" – A community should clearly define the characteristics of natural site features that may be considered so significant that they should be afforded special protection. The definitions of such features should be measurable and directly related to approved municipal plans or policies.
- For many municipalities, Open Space Plans, Comprehensive Plans or similar sources may prove to be useful and appropriate references. In determining the significance of natural features, a community should focus on enduring characteristics that can be protected by the placement and design of buildings and improvements, or through reasonable restrictions that are not unduly burdensome. Examples of such features might include exposed rock outcroppings, or naturally occurring viewpoints accessible to the public. Other features may be significant, but cannot be reasonably protected through the Smart Growth Zoning mechanism because of their characteristics. For example, a community might consider a patch of naturally occurring wildflowers that are neither scarce nor endangered to be a special feature. However, the horticultural requirements to maintain such plantings perpetually may not be fully understood or reasonably enforceable as an extension of a zoning regulation.
- Confirming conformance with the Smart Growth Zoning – The designation and protection of natural resources cannot preclude the accomplishment of other purposes and provisions of the Smart Growth Zoning. So, for example, setting aside land to be protected cannot unduly restrict the reasonable ability to fulfill the as-of-right development density and use provisions on the remaining portions of a district or within a parcel that may be created within it. Using the definitions of "significant natural site features", a technical evaluation should be undertaken to examine the development implications of protecting these resources. To the extent that the resulting restrictions unduly impact the investment value associated with providing the uses and improvements permitted within the zone, then the

related natural resources cannot be protected through Smart Growth Design Standards.

Crafting Protection Standards

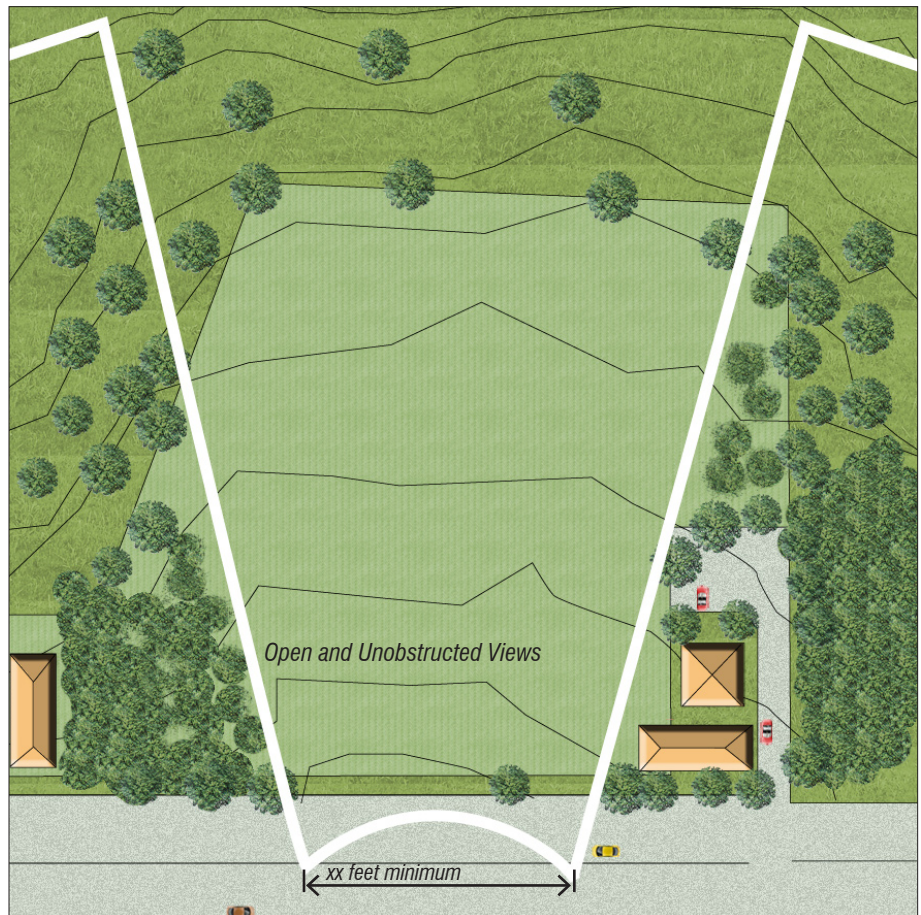
Once the three steps have been completed, then 40R Standards may be drafted to extend protection to the remaining natural features that may be covered through the Smart Growth Zoning and approval processes. To that effect, areas and natural features that are already protected should be removed from the calculations of areas to which 40R Standards would apply, or they should be kept outside of the 40R District boundaries. In preparing 40R Standards, several considerations may prove helpful:

- Establishing boundaries – Protection of some significant features may be accomplished by limiting development or improvements to identifiable, measurable boundaries. These boundaries should be reasonably simple to consistently identify using the definition established by the municipality. The boundaries can then be readily identified and mapped on surveys that can then be employed in design reviews and approvals for improvements within Smart Growth Districts.
- Using dimensional standards – Dimensional standards may be employed to create measurable and verifiable standards relative to some natural features, such as setbacks from identifiable boundaries that can be expressed in feet.
- Protecting scenic views – Scenic vistas and view sheds should be identified during the early stages of preparation of Design Standards for a Smart Growth District. The protection of scenic views may not rely solely upon standards, geographic considerations such as the allocation of land uses, buildings and roads

need to be laid out and planned in ways that will allow for protection and preservation of scenic views from the public vantage point. The creation of subdistricts within the Smart Growth District and the allocation of vegetated buffers and open space also need to be planned accordingly. If design standards are found to be an appropriate tool to protect views and vistas in specific circumstances, then they should be drafted in ways that allow for measurement and supervision (for example, a standard may indicate that a certain percentage of street length along certain location be left open to the view, with no buildings or trees taller than a given height, etc.)

Examples of Natural Features Standards

Graphic Standards Example



*This graphic is an example of a standard to protect scenic views.
source: Aquidneck Island West Side Master Plan*

- Preserving significant trees – Trees of significant value (trees measuring more than a certain amount of inches at a given height, rare tree species, mature trees, and clusters of trees that convey a particular character to a site or scenic view) may be identified and catalogued as part of the initial planning steps for a new Smart Growth District. Design Standards for tree preservation need to take into consideration the fact that trees do grow, and become old or sick through the years. How this is addressed by the Standards, as well as provisions for replacement if necessary, could be an important subject of discussion as part of visioning and goal-setting sessions.
- Preserving topography – The natural shape and vertical profile of site elevations can be incorporated into site and district planning in ways that respect the existing topography and enhance the special character of a Smart Growth District. There are environmental as well as economic advantages of adapting the roadway and parcel layout for a new district to the existing natural conditions of the area where it will be located. Less site excavation and grading may likely result in more natural and distinctive district environments. Design Standards may address any of these categories by setting quantifiable limits to the extent of site excavation, grading, fill and other alterations of the existing topography that may be allowed.

Examples of Natural Features Standards

Natural Features Element: Protection of Significant Natural Features

Quantifiable Standards: Examples

- *Protection of Natural Features: Trees larger than _____ inches in diameter (measured at a height of ____ feet) shall be preserved or relocated within the site.*
- *Scenic views from _____ shall remain open to public view and unobstructed for a continuous length of _____ feet.*

Verifiable Standards: Examples

- *Protection of Natural Features: Building sites shall be directed away from rock outcrops and the crest of the hill.*
- *Vegetation to be retained on the site shall be surrounded by protective fencing during construction.*

Contrast: Typical Guideline Language

Scenic views from the hills shall remain open to public view and unobstructed.

Open space shall be located in areas that will contribute to protect unique or fragile ecological environments.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

g. Landscape Element: Location and Design of On-Site Open Spaces, Landscaping, Exterior Signs, and Buffering

Location and Design of On-Site Open Spaces

Standards for on-site open space in a Smart Growth Zoning District can be used to accomplish relevant public purposes that may not be provided through other regulations or measures. Open space often includes public spaces within a community, in addition to the environmental values that may be associated with unbuilt land. Planning standards for new development can also take into account the social and cultural meaning of “open space” as well as its intended use and environmental attributes.

There are many public interests in open space, and it is very important that the standards reflect them. There are also many different connotations to the term “open space”. For some, the term brings public parks to mind. For others, it may mean preserved natural environments. For others, the term may trigger thoughts of plazas and promenades in an urban setting. Still others will focus on unbuilt land on private parcels – the backyards behind a cluster of homes, for example.

As first steps in framing on-site open space Design Standards, a community may benefit from a process that begins as follows:

- Defining the aspects of open space subject to the Standards – Because open space takes so many forms and has different meanings, it is important that clear definitions be assembled of those aspects of open space that are to be subject to the Standards that a municipality may assemble. In drafting a set of definitions, it will be important to make sure that the definitions are aligned with terms and definitions that may

already be applied to the district. The definitions should be consistent with the related Smart Growth Zoning District zone, for starters. In drafting the definitions, participants should also be aware that some open space definitions will be mutually exclusive, and others not. So, for example, “public open space” could apply to any space that is open to the general public. “Active recreation open space” could be a portion of a “public open space”, but would be different from “passive recreation open space” that could apply to another portion of such a “public open space”

- Linking community interests to each aspect of the open space– With the open spaces well defined, those framing the design Standards can then link them to a list of public interests that the Standards will advance. So, for example, the interests in “passive recreation space” could be linked to a town’s environmental standards, the preservation of water quality, and the provision of passive recreation opportunities like walking and hiking. As the Standards are



Source: South Weymouth N.A.S. Master Plan

drafted, this checklist can then be used to ensure alignment of definitions, interests and the requirements that are created.

- Confirming conformance with the Smart Growth zoning – The designation and protection of municipal open space goals cannot preclude the accomplishment of other purposes and provisions of the Smart Growth Zoning District zoning. So, for example, a technical evaluation should be undertaken to examine the development implications of protecting these resources. To the extent that the resulting restrictions unduly impact the investment value associated with providing the uses and improvements permitted within the zone, then the related natural resources cannot be protected through Smart Growth Design Standards.

In setting Standards for the location of on-site open space, it is important to consider that open space can play different roles within the organization of a Project:

- Core: Open space can be located at the center of a cluster of active land uses, such as commercial, civic/cultural or residential uses. In this type of arrangements, open space becomes a focal point and amenity, contained and physically defined by other uses and activities. These spaces become highly visible and accessible from the surrounding buildings and may acquire local symbolic value as centers of public activity and interaction.
- Edge: Open space can be located along the edges of a new development. Depending on the location of the new development, open space can act either as a transition between developed and undeveloped areas, or as a buffer separating distinctive and possibly incompatible land uses.

- Spine: Open space is conceived as a unifying element that can be used to animate and characterize a certain road, walkway or bikeway connecting a series of uses or activities. In this role, open space can be used to differentiate a particular road or connection from others, or to provide a natural setting for walking or biking separate from motor vehicles.

In most cases, it is environmentally and economically sensible to plan for open space in areas where topography and vegetation offer special or unique characteristics, in addition to areas already protected by waterways and wetlands regulations. Standards could be used, for example, to address the protection of valued ecosystems and wildlife habitats other than those already protected as part of endangered species legislation.

Well-designed open spaces provide aesthetic qualities and public amenities that enhance the value of communities and contribute to the creation of a sense of place. Open space also provides opportunities for recreation, cultural activities, social interaction and conservation. Ideally, Design Standards for open space should be based on established Project goals for recreation, amenities and conservation. Standards could define the use of materials, plantings, site furniture, seasonal elements, exterior lighting, and the design character of specific open space areas.

Landscaping

Landscaping plays a key role in defining the image and design character of public spaces. The quantity and quality of landscaping are especially relevant in dense environments and areas that are built or modified as a result of large scale projects.

In crafting 40R Standards for landscaping, emphasis should be placed on the design and character of public areas.

Standards could address the use of materials and plantings along sidewalks, walkways and trails, as well as the proposed streetscape and design treatment of edges. Particular attention could be paid to the design character of outdoor sitting areas, “village greens” and pocket parks.

To the extent that accommodations for pedestrians and bicycles need to be incorporated within the scale and goals of each 40R Project, these would require the definition of standards addressing location, dimensions, and the use of materials. For example, Standards could define elements such as the minimum width of walkways and sidewalks, provision of benches, lighting fixtures, bike racks, and other street furniture elements.

Design Standards for landscaping may include provisions for plantings of different types and sizes, and a list of recommended planting species. They may also include specifications such as the size and details of tree wells and crates in public areas, and recommended

clustering and separation of trees. Standards could also identify the types of plants and materials that should not be employed in a specific 40R Project or District (for example, a list of “inappropriate” plant species could be included to discourage the use of invasive species or plants otherwise detrimental to the local environment).

Exterior Signs

Signs are an integral component of the visual landscape of our communities. A problem with signs is that they can lead to clutter and confusion if they are randomly placed or improperly designed. Clear signage standards are critical to the achievement of organization, hierarchy and good design quality, which represent important conditions for the creation of an effective and compelling signage system.

The public interest in the creation of good signage can be summarized in a few key attributes or qualities, which should be safeguarded or promoted through the provision of adequate Standards:



- Safety: Signs are to be posted in public places, either hanging from the wall or freestanding in areas frequented by people. 40R Standards can be used to establish the basic location and clearance limits in order to ensure that signs are safely placed in relation to pedestrian and vehicular traffic, and that they do not obstruct or distract views of the street and its surroundings.
- Visibility: Signs are intended to be visible from public ways and spaces. However, standards need to en-

sure that some signs don't get on the way of others, and that limits are set to the number and location of signs that individual businesses or properties can post.

- Appeal: Signage standards can set parameters for the use of color, lighting and materials, so that signs are compatible with the image and design quality desired for the community.
- Durability: Standards can prescribe the use of good quality and durable materials, with examples of preferred materials to employ. This will ensure the good quality of the signs and facilitate their maintenance in the long-term.



Directional Signage

Buffering: Relationship to Adjacent Properties

Issues of adjacency between properties may arise in areas where two different land uses or densities are located next to each other. These adjacency issues may be more detrimental in places where uses that are basically incompatible share a property line without the presence of an intermediate 'zone' of protection or 'buffer' in between.

40R Standards and plans in general should avoid this kind of situations. However, there are instances when it is impossible to avoid the presence of an existing use that may be incompatible with the needs and character of a new development. Standards could be devised to mitigate the impacts of one use over the other by means of distance and the landscaping design treatment of the area separating both uses.

Edges or areas that separate different properties and land uses can be defined by the following elements:

- Streets: Sometimes land use distribution in a plan is such that streets



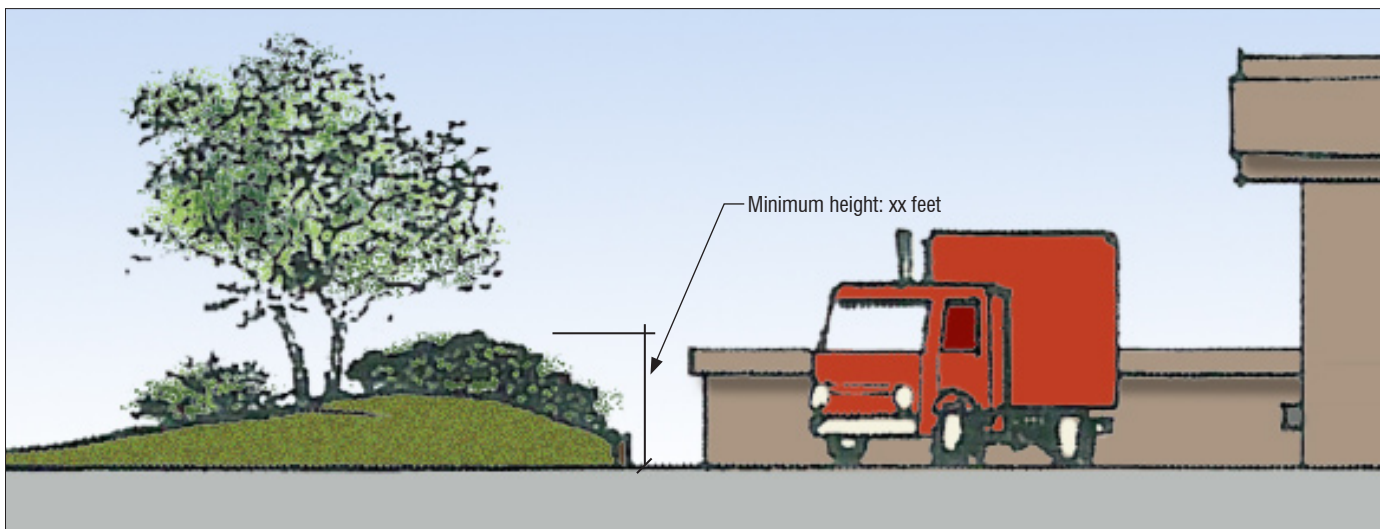
Identification Signage

act as edges or separating elements between two different types of land use. This is a common circumstance; however, it is not an ideal situation for streetscape design and identity. For example, shopping streets work and feel better when there are shops on both sides of the street; the same can be said for residential streets. In cases when there are different types of use on each side of the street, it is important to ensure that both are relatively compatible in terms of scale and access requirements in order to avoid situations in which quality and safety may be jeopardized.

- Open space: Open space may become the edge defining the limits of a property, land use district or community. In these cases, it is important to provide standards that prevent encroaching of other land uses into areas that should be protected or preserved.
- Boundaries: Property boundaries generally represent a rather 'thin' edge between different types of uses or activities unless reinforced by fencing, screening or landscap-

ing. These conditions should be anticipated and addressed by standards setting requirements for the provision of screening and vegetation in places where privacy and safety should be protected.

- Buffers: Buffers are areas that establish a visual and physical separation between properties by means of distance and landscaping treatment. Buffers could include naturally vegetated areas or be especially landscaped to minimize visual interference. Landscaping elements may include the use of berms, fencing, screening or the use of noise barriers depending the particular needs of each case.



This graphic example illustrates the use of landscaped berms to screen service areas.

Examples of Landscape Standards

Landscape: Location and Design of On-site Open Spaces, Landscaping, Exterior Signs and Buffering

Quantifiable Standards: Examples

- *Location and Design of On-site Open Spaces: Open space set aside for recreational purposes shall be located within a maximum walking distance of ___ feet.*
- *Large projects including multiple buildings shall be focused on a common open space or “village green” comprising at least ___ acres in area.*
- *Landscaping: A minimum ___-inch caliper shall be required for all new trees.*
- *Exterior Signs: In order to avoid visual cluttering, only one freestanding sign will be allowed to exceed a height of ___ feet for each single project.*
- *Buffering: Non-residential uses shall provide a ___-foot deep densely vegetated buffer along any lot line abutting a residential use.*

Verifiable Standards: Examples

- *Location and Design of On-site Open Spaces: On-site open space may be distributed in more than one area, but it shall be interconnected.*
- *Common open spaces and “village greens” shall be equipped with benches, trash receptacles, bike racks, and shade trees protecting sitting areas.*
- *Landscaping: Fences facing the street shall be setback from the sidewalk and the setback area shall be planted with a mix of annuals and perennials.*
- *Exterior Signs: Only one freestanding sign shall be allowed on each street frontage of a project facing more than one street.*
- *Buffering: Loading and dumpster areas visible from the street shall be screened by means of walls, fences or landscape buffers.*

Contrast: Typical Guideline Language

Locally adapted, pest resistant and native plant species shall be selected whenever possible.

Signage shall conform to a set of consistent design principles especially assembled for the project

Landscaped buffers shall include a mix of evergreen and deciduous trees densely planted in ways that form an impervious visual screen.

(Note: while meaningful and helpful in the context of typical design guidelines, such language is difficult to verify and can be the basis of significant disagreement and debate; it could become difficult to objectively apply this type of language as a standard)

This section contains a list of resources and existing guiding documents that can be used as examples of existing design standards and guidelines, or as a reference to inform the drafting of community-specific standards according to the general principles outlined in this guidebook. Each reference on the list provides the name of the document, its authorship, and how it might be obtained from the Web or any other public document source. Annotations have been added to guide the users in regards to strengths and weakness of the document for the purpose of drafting Chapter 40R standards.

Cordage Park in Plymouth stands out as a good example that addresses the majority of the Elements discussed in Section 3 of this guidebook, and is annotated below.

We have compiled the following list of resources to include references to existing sets of standards and guidelines from around the country that incorporate Smart Growth principles, and are available online.

(Please note: The information contained in this section is current as of the date of preparation of this guidebook, but may change with time; further information could most likely be obtained directly from each source or publishing entity.)

Cordage Park, Smart Growth Design Standards, Town of Plymouth, Massachusetts

Adopted by the Town of Plymouth as Section 205-74 of its Zoning Bylaw (Cordage Park Smart Growth District, CPSGD) on May 20, 2006.

To obtain a copy, the complete document can be found at: <http://www.plymouthma.gov>

This is one of the first Smart Growth Zoning Districts adopted in Massachusetts pursuant to M.G.L. c.40R Smart Growth Zoning and accompanying Regulations at 760 CMR 59.00. As such, it represents a pioneer work effort and example. The District Bylaw allows both existing uses of office and retail, new commercial and waterfront related uses, and residential development

4. A Reference Guide to Smart Growth Standards and Guidelines



Source: South Weymouth N.A.S. Master Plan



in several forms including mixed-use and multi-family buildings. The District Bylaw encourages a mix of uses with architectural and site design features consistent with the accompanying Design Standards.

Development Design Handbook, City of Salem, Oregon

Originally prepared in 1999 and subsequently amended several times, this document describes the Design Review Process and its requirements as defined by Chapter 120 of the Salem Revised Code.

Copy of the complete document and the latest proposed amendment are available at: <http://www.cityofsalem.net>

Illustrates the concept and application of design standards and guidelines as well as their similarities and differences in terms of meaning and application. Each page addresses a particular design feature (building massing, open space, landscaping, etc.) in written and graphic expression. Text and graphics are arranged in two columns, one of which lists the applicable design standards and the other, the applicable guidelines. Multi-family development, compact development and core area development are the main focus of the document.

South End Landmark District Standards and Criteria, Boston Landmarks Commission, Massachusetts

The statute creating the Boston Landmarks Commission (chapter 772 of the Acts of I of the Commonwealth of Massachusetts) requires Standards and Criteria for each district designated by the commission.

To obtain a copy, contact the Boston Landmarks Commission at City Hall, Room 805, Boston, MA 02201, (617) 635-3850. Additional information can be obtained at <http://www.cityofboston.gov/environment/landmarks.asp>

These Standards and Criteria serve two purposes: one, to guide property owners in planning the rehabilitation of buildings; and two, to assist the district commission in determining those architectural changes that are appropriate to the district. They are highly detailed and include specific technical recommendations for the repair and replacement of historic features and materials.

Guidelines for Work in Historic Districts, Town of Hingham, Massachusetts

Adopted by the Hingham Historic District Commission and currently in use (as of September, 2006).

The complete document is available at http://www.hingham-ma.com/towngov_documents.html

These are detailed guidelines for historic districts within a traditional town setting. The guidelines are detailed, clear and serve to provide practical guidance to designers, proponents, as well as providing benchmark criteria for the determinations of the local Historic District Commission. However, readers should be alert to the fact that these are guidelines, and not standards (see the discussion on guidelines and standards on page 3 of this Guidebook.

Design Regulations (Section 9.0) and Streets and Greenways (Section 11.0), Planning Ordinance, City of Davidson, North Carolina

These regulations apply to all construction under the jurisdiction of the City of Davidson. The Planning Ordinance is aimed at restoring traditional development patterns, and promoting an environment built to human scale that accommodates pedestrians as a first priority.

The entire Planning Ordinance is available at: <http://www.ci.davidson.nc.us/units/planning/ordinance/default.asp>

This Planning Ordinance contains user-friendly codes and regulations based on Smart Growth principles. Each chapter is designed to include a clear array of graphics and illustrations that help to convey provisions, guidelines and standards. The text is fluid and simple, avoiding complex legal terminology in all cases when it is not strictly necessary. As a result, this is one of the most elegant and comprehensive presentations of design standards and guidelines available online.

Open Space Residential Development Model Bylaw, Smart Growth Tool Kit, Massachusetts

This model bylaw was adapted from existing bylaws in two Massachusetts towns. It is intended as a model example to assist in the drafting of similar regulations by other towns.

The complete document, together with other Smart Growth tools is available at: http://www.mass.gov/envir/smart_growth_toolkit/index.html

This model bylaw is highly informative on Smart Growth concepts associated with compact development and “green neighborhoods”. In particular, the model addresses open space design standards and requirements, the administrative powers of the Special Permit Granting Authority, and density bonuses that may be permitted in the process, in ways that are both instructive and innovative.

Landscape Plan and Street Design Requirements, N.A.S. South Weymouth, South Shore Tri-Town Development Corporation, Massachusetts

This document is part of a comprehensive master plan for the reuse of a former naval air base and the creation of a new mixed-use community. Information on the N.A.S. South Weymouth Master Plan, and associated standards, bylaws

and regulations can be found on line at: http://www.ssttdc.com/bd_zoning_land_use.htm

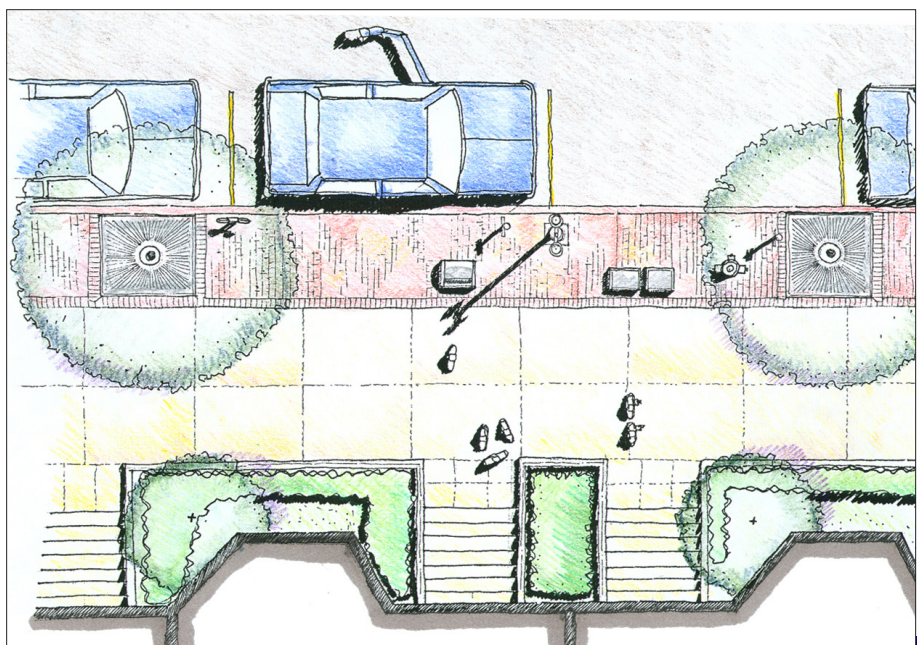
This document advances the Tri-Town design vision and aspirations for the future of the new community through the provision of sensible and carefully crafted design guidelines. Although the approach is based on the use of guidelines rather than standards, the combined effect of all the guidelines and recommendations is clearly a promotion of high quality of design and the creation of a unique and distinctive sense of place.

Project Development and Design Guide, Massachusetts Highway Department

Guidebook published by the Massachusetts Executive Office of Transportation to promote context-sensitive design and sustainable development practices.

This document can be found, together with the other chapters that form the complete document at: http://www.vhb.com/mhdGuide/mhd_GuideBook.asp

Chapter 13, in particular, addresses landscape planning and design as an integral part of transportation project development. However, its approach and recom-



mendations are applicable to many other landscape design circumstances. This document includes valuable teachings and observations on landscape objectives, corridor considerations, design, plant material selection, and protection/preservation techniques, all of which are relevant to the preparation of landscape design guidelines and standards.

Guidelines for Community Design, Town of Simsbury, Connecticut.

Prepared by the Design Review Board with the Planning and Zoning Commission in 1994, these design standards and guidelines constitute the basis for Design Review and Approval.

The entire document is available at: http://simsburyct.virtualtownhall.net/Public_Documents/Departments/SimsburyCT_Planning/index

These guidelines stand out by their clarity of purpose and appreciation of the local character and identity. Guidelines and standards are based in design principles that stress the relationship between man-made communities and the natural environment, recognizing the value of natural features (such as mature trees, rock outcroppings, vistas, etc.) and promoting their preservation. The document's presentation and graphic design is simple, attractive and easy to navigate. Each page is devoted to a single design element or criteria, including a brief list of associated guidelines and organizational principles. This is a good example of a publication designed for reproduction in black and white.

Section 16.7. PUD Design Guidelines, Somerville Zoning Ordinance, City of Somerville, Massachusetts.

This section of the zoning ordinance contains design guidelines for Planned Unit Development (PUD) projects.

The entire ordinance is available online at: <http://www.ci.somerville.ma.us/section.cfm?org=clerk&page=197>

These guidelines address significant issues of building and site design within a high-density urban setting. They are intended to be complementary to other Design Standards outlined in the Article. However, they are written with such clarity and precision that some of them could be considered as standards in their own right.

Design Guidelines, Coolidge Corner Interim Planning Overlay District, Town of Brookline, Massachusetts.

These are interim design guidelines set in place to guide applications for special permits in the area, meanwhile the Coolidge Corner District Plan is completed.

The guidelines are available at: <http://www.town.brookline.ma.us/Planning/PDFs/CCIPODDistrictGuidelinesFinal.pdf>

These guidelines are presented in an interesting format that dedicates one page to each guideline, and includes purpose (the particular goal or objective for the guideline), photographs of good and bad examples, and simple pencil diagrams that illustrate the intention and content of each statement. The result is easy to read and understand, and conveys a clear picture of the design elements that identify the district.

A Model Ordinance for a Traditional Neighborhood Development, Wisconsin.

Prepared by Brian W. Ohm, James A. LaGro, Jr. and Chuck Strawser, April 2001. Approved by the Wisconsin Legislature, July 28, 2001.

This ordinance can be found at: <http://www.wisc.edu/urpl/people/ohm/projects/tndord.pdf>

Though a broader ordinance, the second half of the document (beginning on Page 13) consists of design standards for Traditional Neighborhood Development. The design standards cover neighborhood uses, development units, open space, stormwater management, lot and block standards, circulation standards, architecture standards, landscaping and screening standards.

Rome Main Streets Program Design Guidelines, City of Rome, New York.

This document is available online at: <http://www.romenewyork.com/document/1919.pdf>

This is a concise document geared toward established districts/historic rehabilitation. However, it contains a number of clear and useful graphics explaining architectural elements and themes. These guidelines also make effective use of a graphic-based “do” and “do not” approach to various elements. The guidelines cover form, massing, orientation, façades, symmetry, entrances, roofs, windows, storefronts, trim, ornamentation, building elevations, signs, awnings, outdoor lighting, mechanical and electrical equipment, open storage areas and handicapped accessibility.

Kentucky Streetscape Design Guidelines for Historic Commercial Districts.

Sponsored by the Kentucky Heritage Council and the Kentucky Transportation Cabinet.

These guidelines are available at: http://environment.transportation.org/documents/Design_Guidelin.pdf

Though geared toward commercial districts, much of the content seems more broadly applicable to mixed-use districts. The publication covers the following elements: pedestrian paths, lighting, trees, parking, street furniture, signs and infor-

mation. Organized around underlying “Principles” and corresponding “Detailed Guidelines”, each section/element includes graphics that reinforce or illustrate the accompanying discussion.

Pedestrian and Transit-Friendly Design: A Primer for Smart Growth.

Prepared by Reid Ewing and published by the Smart Growth Network, this guide is based on a manual prepared for the Florida Department of Transportation.

This document can be found at: http://www.epa.gov/smartgrowth/pdf/ptfd_primer.pdf#search='Primer%20on%20Street%20Design%20Guidelines

This publication is a general guide to and discussion of design concepts that support pedestrian activity and transit use. The concepts are not delivered in the format of design standards but they do provide some of the underlying rationale and strategies around which a community might develop measurable standards. The sections various elements are broken into three categories: “Essential Features”, “Highly Desirable Features”, and “Nice Additional Features”.

Other Resources

Additional websites containing information on Smart Growth, guidelines and relevant design topics include the following:

<http://www.ci.austin.tx.us>

<http://www.metrocouncil.org>

<http://www.ci.sparks.nv.us>

<http://www.aspenpitkin.com>

<http://www.coeurdaleneidaho.org>

<http://www.designadvisor.org>

<http://www.usgbc.org>

<http://www.smartgrowth.state.md.us>

<http://www.nantucketpreservation.org>

<http://www.lowimpactdevelopment.org>

<http://www.mass.gov>

<http://www.completethestreets.org>

<http://www.bikewalk.org>

<http://www.formbasedcodes.org>

<http://www.cnu.org>

<http://www.tndtownpaper.com>

<http://www.adaptenv.org>

<http://www.ap.buffalo.edu>

<http://www.masscommute.com>

<http://www.massbike.org>

<http://www.cambridgema.gov>

<http://www.bouldercolorado.gov>