Healthy Community Design Toolkit – Leveraging Positive Change

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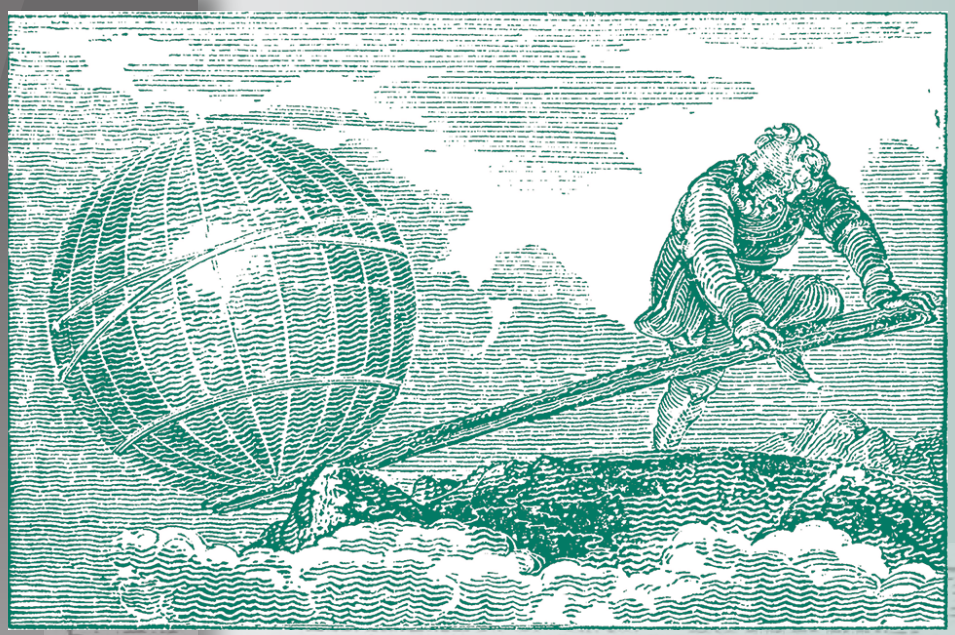

Pioneer Valley Planning Commission
Massachusetts Partnership for Health Promotion and Chronic Disease Prevention

Healthy Community Design Toolkit—
Leveraging Positive Change

"We ought to plan the ideal of our city with an eye to four considerations.
The first, as being the most indispensible, is health."

Plato, *Politics*

Acknowledgements

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Contents

Overview

"We ought to plan the ideal of our city with an eye to four considerations. The first, as being the most indispensible, is health." Plato, *Politics*

It is well established that community design and the built environment affect human health and well being. This toolkit provides health advocates with a concrete path forward to improve community health. These tools can be used comprehensively in an integrated approach that examines how well the physical characteristics of a community promote positive health outcomes, or individually to address a specific problem. A wide range and deep breadth of elements of community planning, design, and development are addressed, from how to promote the use of rain gardens to improve local water quality to how to establish municipal policies that plan for a healthier future.

This toolkit is prepared by professional planners with an interest in public health for use by public health professionals interested in planning. It identifies key "Leverage Points" in local community design, planning and development to facilitate the complicated process of making Massachusetts communities healthier. The toolkit fits squarely into the history of planning and public health, an exemplar of the reunion of these parallel professions to improve quality of life. The profession of Urban Planning in the United States was itself a response to the public health crisis created by the success of the industrial revolution and rapidly expanding communities. Overcrowding near unregulated polluting factories along with lack of adequate waste disposal caused infectious diseases and other health problems, driving the need for separation of uses and zoning regulations. Now, public health professionals and planners are advocating for mixed-use communities so that people can be physically active in their busy daily lives.

According to the U.S. Department of Health and Human Services, "In its broadest sense, environmental health comprises those aspects of human health, disease, and injury that are determined or influenced by factors in the environment. This includes not only the study of the direct pathological effects of various chemical, physical, and biological agents, but also the effects on health of the broad physical and

social environment, which includes housing, urban development, land-use and transportation, industry, and agriculture."[1]

The Healthy Community Design Toolkit is designed for use by Mass in Motion partners and Massachusetts municipalities to support and develop municipal policies, regulations, incentives, and programs that promote healthy communities. The toolkit provides many different avenues for action and enables communities to choose those ideas that fit well into their unique physical and social mosaic. Each tool includes a checklist with specific actions to promote a healthier community, along with links to additional information and example policies and regulations. The checklists are by no means exhaustive, and communities are encouraged to come up with new ideas that fit their own needs.

[1]Department of Health and Human Services (US). *Healthy People 2010*. Volume 1. Washington: DHHS; November 2000.

Leverage Points

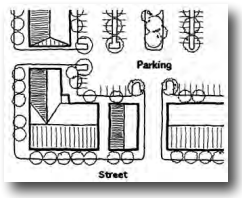
The leverage points in this toolkit can be used to promote walking and biking, to protect water quality for recreational uses, and to improve local air quality.

Subdivision Regulations

Subdivision Regulations establish the characteristics of roads and other features of new neighborhoods.

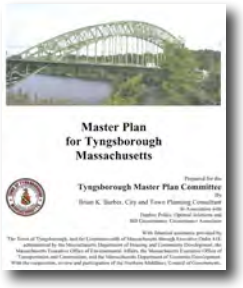
Site Plan and Special Permit Review

Site Plan and Special Permit Review use established review criteria as the basis for requiring improvements to and approving development plans.



Community Plans

Community Plans set long-term goals and guide decision-making. The most widely used plans are Master Plans and Open Space and Recreation Plans.



Smart Growth Development

Smart Growth Development tools (including zoning regulations as well as incentives) promote Smart Growth, a comprehensive land use strategy that concentrates development around commercial centers (such as downtowns and village centers) and public infrastructure to create walkable communities, protect open space and farmland, revitalize downtowns, and provide more housing and transportation choices.

Road Design

Better road design standards encourage alternative forms of transportation, including more walking and biking. Complete Streets are designed to safely balance the needs of drivers, cyclists and pedestrians. Green Streets reduce the amount of polluted stormwater runoff that enters the storm drain system and flows to nearby water bodies.

Stormwater Management

Pollution from stormwater runoff directly impacts surface water quality and whether it is safe to boat or swim in a given water body. Traditional approaches to stormwater management result in significant water pollution impacts. New approaches reduce water quality impacts by capturing and managing stormwater near to where it falls.

Walking, Biking and Transit Networks

Most vehicle trips are short (50 percent are within 3 miles of home[2]). Communities can promote walking, biking and transit use by establishing and maintaining interconnected sidewalk, multi-use path and bicycle lane networks.

Green and Fit Buildings

By designing buildings that take into consideration the health of people who use those buildings, everyday activities become healthier activities. Green buildings address energy efficiency, occupant health, stormwater management, urban heat island effects and other environmental issues. Better indoor air quality and greater exposure to sunlight (daylighting) improve occupant health. Fit buildings promote physical activity as part of the daily behavior of occupants.

Municipal Policies and Programs

Municipalities must lead by example, and local policies and programs can have significant effects on community health. These tools range from policies to site municipal and school facilities in walkable locations to programs that install benches, water fountains, trees and bicycle racks throughout the community.

TO IDENTIFY WHICH LEVERAGE POINTS TO BEGIN WITH, THE BEST STARTING PLACE FOR USING THIS TOOLKIT IS TO MEET WITH YOUR LOCAL PLANNING BOARD/DEPARTMENT, PUBLIC WORKS BOARD/DEPARTMENT, AND HEALTH BOARD/DEPARTMENT. MUCH OF THE WORK AHEAD INVOLVES DEVELOPING WORKING RELATIONSHIPS WITH THESE LOCAL REPRESENTATIVES, AS WELL AS EDUCATING THESE REPRESENTATIVES ABOUT HOW THEIR AREA OF JURISDICTION RELATES TO LARGER COMMUNITY HEALTH GOALS. IN ADDITION, THESE REPRESENTATIVES WILL BE ABLE TO HELP YOU FORMULATE A PLAN AND DETERMINE THE BEST PLACE TO BEGIN IN YOUR COMMUNITY.

[2] Federal Highway Administration. (2009) *National Household Travel Survey*. US Department of Transportation. Retrieved from: http://www.fhwa.dot.gov/policyinformation/nhts.cfm (via http://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis)

Community Design and Health – Making the Connection

Courtesy of Gryffindor (Own work) [CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0) or GFDL (http://www.gnu.org/copyleft/fdl.html)], via Wikimedia Commons

There is a growing body of research that links community design to health outcomes. The benefits of clean air and clean water are well known, as are the benefits of physical activity, but there are a great many connections between community design and human health that are not as widely recognized. A walk in the park not only exercises the body, but also relaxes the mind,[3] reduces brain fatigue,[4] and increases the ability to maintain focus on specific tasks.[5] Introducing greenery to urban areas has also been shown to clean the air we breathe,[6] reduce and clean stormwater runoff (keeping nearby water bodies cleaner),[7] and reduce elevated outdoor temperatures that occur in developed areas.[8] Greener parts of inner cities have also been shown to feel safer and to have reduced crime (provided that vegetation does not block views).[9]

[3] Tsunetsugu, Yuko; Lee, Juyoung; Park, Bum-Jin; Tyrväinen, Liisa; Kagawa, Takahide; and Miyazaki, Yoshifuma. *Physiological and psychological effects of viewing urban forest landscapes assessed by multiple measurements*. Landscape and Urban Planning. Volume 113. May 2013. Pages 90-93. ISSN 0169-2046. 10.1016/j.landurbplan.2013.01.014. Retrieved from: http://www.sciencedirect.com/science/article/pii/S0169204613000212

[4] Reynolds, G. (2013, March 27). *Easing Brain Fatigue With a Walk in the Park*. The New York Times. Retrieved from http://well.blogs.nytimes.com/2013/03/27/easing-brain-fatigue-with-a-walk-in-the-park/?src=meandref=general

[5] Kaplan, S. (1995). *The Restorative Benefits of Nature: Toward an Integrative Framework*. Journal of Environmental Psychology *15*: 169-182.

Taylor, A. (2009). Children With Attention Deficits Concentrate Better After Walk in the Park. *Journal of Attention Disorders 12: 402-409.*

[6] Pugh, Thomas A. M.; MacKenzie, A. Robert; Whyatt, J. Duncan; and Hewitt, C. Nicholas. *Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons.* Environmental Science and Technology 2012 46 (14), 7692-7699

[7] Seitz, Jennifer and Escobedo, Francisco. May 2008. *Urban Forests in Florida: Trees Control Stormwater Runoff and Improve Water Quality.* University of Florida. Institute of Food and Agricultural Services. Retrieved: March 20, 2013. Retrieved from: https://edis.ifas.ufl.edu/fr239

[8] Tsunetsugu, Yuko; Lee, Juyoung; Park, Bum-Jin; Tyrväinen, Liisa; Kagawa, Takahide; and Miyazaki, Yoshifuma. *Physiological and psychological effects of viewing urban forest landscapes assessed by multiple measurements*. Landscape and Urban Planning. Volume 113. May 2013. Pages 90-93. ISSN 0169-2046.

A great deal of research has been done on the subject of transportation planning and its relationship to injury reduction, showing that streets can be made significantly safer for pedestrians and cyclists when traffic calming measures are implemented.[10] Reduced traffic also improves mental health and social outcomes. Studies have shown that children who live on streets with less traffic have more friends,[11] and more time outdoors can lead to more chances for social interaction.

In Jane Jacobs' classic book, *The Death and Life of Great American Cities*, she argued that walkable neighborhoods with higher densities, mixed-uses, and a significant public realm bring people out onto the streets, leading to greater safety through more "eyes on the street", as well as an increase in social networks and community trust. One study found that a feeling of safety affects health, as evidenced by a higher prevalence of obesity in women who live in areas where they do not feel safe.[12] In another study, it was found that porches and other architectural features that promote viewing of the street from the exterior of a building have a positive impact on perceived social capital (connections within and between social networks).[13]

Having a healthy community for children to grow up in is one of society's biggest concerns. Being able to walk or bike to school or to a friend's house independently can help build competence and, by extension, self-confidence. In addition, one study found that children who cycle or walk to school perform measurably better on tasks demanding concentration, such as

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10.1016/j.landurbplan.2013.01.014. Retrieved from: http://www.sciencedirect.com/science/article/pii/S0169204613000212

[9] Kou, F.E. and Sullivan, W.C. *Environment and Crime in the Inner City: Does Vegetation Reduce Crime?* Environment and Behavior, 2001

[10] Bunn, F.; Collier, T.; Frost, C.; Ker, K.; Steinbach, R.; Roberts, I.; Wentz, R. (2003). Area-wide Traffic Calming for Preventing Traffic Related Injuries. Cochrane Database of Systematic Reviews.

[11] Appleyard, Donald. *Livable Streets*. 1981. Palgrave Macmillan

[12] Burdette, H. L., Wadden, T. A. and Whitaker, R. C. (2006). *Neighborhood Safety, Collective Efficacy, and Obesity in Women with Young Children*. Obesity, 14: 518–525. doi: 10.1038/oby.2006.67

[13] Brown, Scott C.; Mason, Craig A.; Lombard, Joanna L.; Martinez, Frank; Plater-Zyberk, Elizabeth; Spokane, Arnold R.; Newman, Frederick L.; Pantin, Hilda; and Szapocznik, José. *The Relationship of Built Environment to Perceived Social Support and Psychological Distress in Hispanic Elders: The Role of "Eyes on the Street"* J Gerontol B Psychol Sci Soc Sci (2009) 64B(2): 234-246 first published online January 1, 2009 doi:10.1093/geronb/gbn011

solving puzzles, and that these effects last for up to four hours after children arrive at school.[14] Another study found that children who live in neighborhoods in which they can walk to school, the library, and nearby supermarkets with healthy food are 59 percent less likely to be obese than children in neighborhoods without these characteristics.[15]

"The built environment presents both opportunities for and barriers to participation in physical activity, thereby influencing whether or not we exercise. Research by CDC and others has indicated that two of the main reasons for not exercising are lack of structures or facilities (such as sidewalks and parks) and fears about safety." —R. Jackson, et al., *Healthy Environment: The Impact of the Built Environment on Public Health*, Centers for Disease Control and Prevention, 2001.

The physical environment plays a powerful role in shaping the choices we make every day and can create impacts that we do not always perceive. For example, development patterns that include large amounts of parking affect transportation choices. Destinations become further apart, making it more difficult and less pleasant to walk or bike, as well as less efficient to provide transit service. More people choose to drive for more of their daily trips, leading to increased air pollution and decreased physical activity.

Access to healthy food also plays a significant role in the health of a community. Living closer to a supermarket leads to lower rates of obesity and diabetes.[16] In one study, the rate of overweight, obese and hypertensive people dropped by 9 percent, 24 percent and 12 percent respectively when compared to people who did not live near a supermarket.[17]

See Appendix for additional research connecting community design and health.

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[14] Goodyear, Sarah. *The Link Between Kids Who Walk or Bike to School and Concentration.* (2013). The Atlantic Cities Place Matters . Retrieved from: http://www.theatlanticcities.com/commute/2013/02/kids-who-walk-or-bike-school-concentrate-better-study-shows/4585/

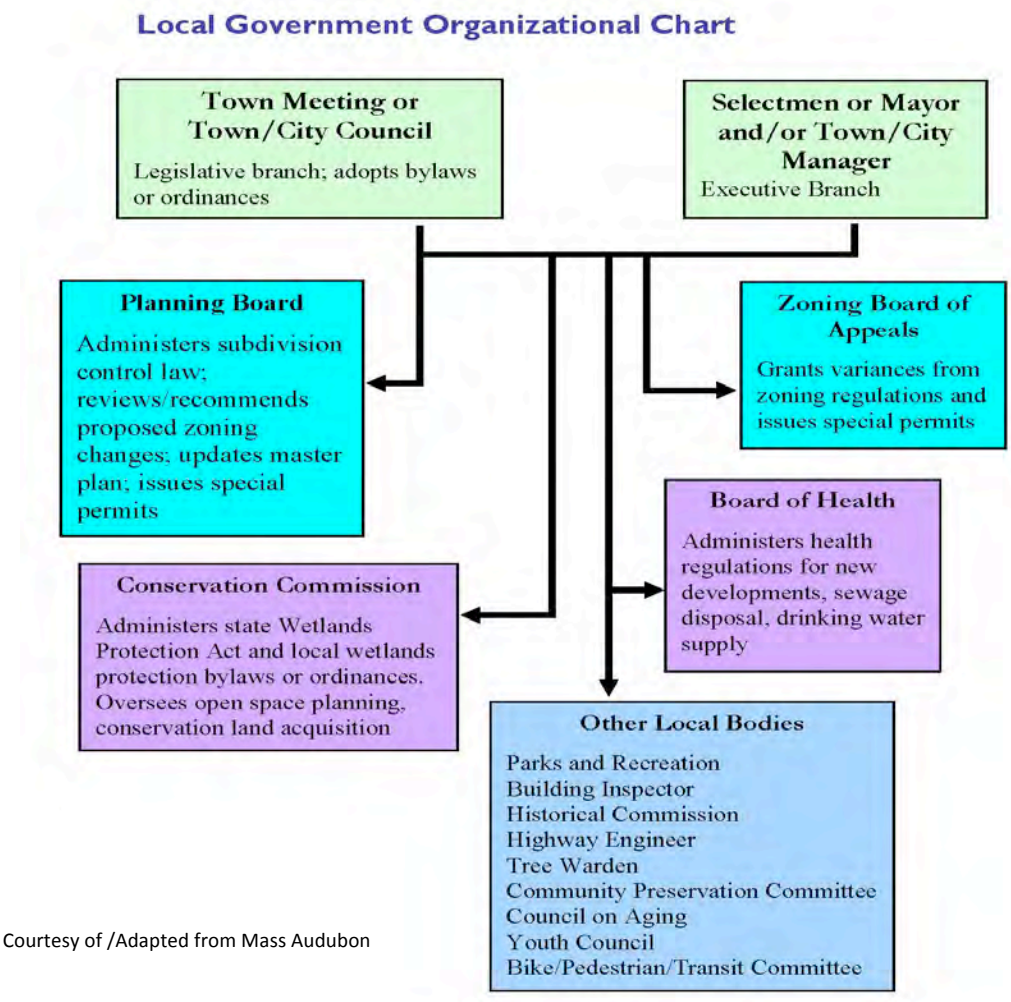
[15] Rochman, Bonnie. *Walking to School, Libraries and Markets Helps Keep Kids Slimmer: A cluster of studies relies upon geographical data-mapping to analyze the impact of neighborhood on children's health.* (2012). Time Health and Family. Retrieved from: http://healthland.time.com/2012/04/10/walking-to-school-libraries-and-markets-helps-keep-kids-slimmer

[16] Drewnowski, Adam et al., *Obesity and Supermarket Access: Proximity or Price?*, American Journal of Public Health 102, no. 8 (August 2012): e74–e80, doi:10.2105/AJPH.2012.300660.

[17] Morland, Kimberly; Diez Roux, Ana V.; and Wing, Steve. *Supermarkets, Other Food Stores, and Obesity*, American Journal of Preventive Medicine 30, no. 4 (April 2006): 333–339, doi:10.1016/j.amepre.2005.11.003.

Understanding Municipal Processes and Where You Fit In

The cities and towns of Massachusetts have different forms of government. Most towns have a Select Board and a Town Meeting (or multiple town meetings as deemed necessary by the Select Board) at which a majority of residents present make decisions, voting on land use regulations, proposed budgets and other important aspects of local government. Some larger towns have a representative Town Meeting, which means that elected Town Meeting members are the only people who can vote on policy and regulatory decisions. Some towns also have Town Managers or Town Administrators. Most cities in the Commonwealth have a Mayor and a City Council, and some cities also have a City Manager. It is important to know which kind of government you are going to be working with, as your strategy to leverage change will vary. For additional information on Massachusetts government and details on our 351 cities and towns, visit www.mma.org, the website of the Massachusetts Municipal Association (MMA).



Courtesy of /Adapted from Mass Audubon

If you are a government official, you will probably want to start your work within the local government structure to leverage change. If you go first to elected officials or advocacy groups, you might end up alienating your colleagues. However, if you try to work from within and fail, you might decide to work from the outside in.

If you are an advocate working to make your city healthier, you might start by speaking with a city councilperson for a specific area or ward, or with an at-large councilperson. You might also try working with the appropriate professional staff or Boards, most likely planners/Planning Board, engineers/Boards of Public Works, or the Public Health Director/Board of Public Health.

In the case of a town, ideas can be brought to professional staff or the boards they serve, or to members of the Select Board. In some smaller communities, professional staff may be limited to a Town Clerk (full or part-time) and Highway, Police and Fire Departments. Most communities have a Planning Board and a Board of Health.

If you are unsure whom to contact, check the municipality's website (nearly all 351 cities and towns in the Commonwealth have websites that can be found through a search engine or the Massachusetts Municipal Association website), or stop in at your Town or City Hall.

Regardless of who you are or what kind of a government you are functioning in, it is essential for you to understand your municipality's existing rules and regulations as well as the established processes for changing them. For an overview of land use regulations in Massachusetts, visit the Massachusetts Executive Office of Housing and Economic Development (EOHED) website at: http://www.mass.gov/hed/community/planning/zoning-resources.html

The public can be a powerful force in transforming a community and also in directing the kind of transformation desired. Encouraging as much public involvement as possible from all community stakeholders will give many people a voice and build momentum for a healthier community. Ideas for change may come from children at a local elementary school who want to be able to ride their bikes to school, from seniors who cannot find a nice place to walk, or perhaps from parents who want healthier food served in school cafeterias. Regardless of who originates ideas to make your community healthier, they may need assistance in bringing ideas before the appropriate board or committee. An argument that always gets the municipality's attention is "this idea will save us money."

The information provided in this toolkit includes processes for ensuring that health is considered in municipal planning decisions. There are times however when pursuing the provided strategies may not be sufficient (for example when a community is facing a decision on a large proposed development or a significant change to municipal bylaws) and a more focused assessment of health impacts is warranted. Health Impact Assessment (HIA) is a tool for doing this. HIA is a "combination of procedures, methods, and tools by which a project, program, policy, or legislative proposal may be judged for its potential effects on the health of a population and the

distribution of these effects within it".[18] HIAs have been gaining popularity in Massachusetts, and there are now several organizations with the expertise to complete HIAs. However, while HIA is an important tool, putting into practice the principles outlined in this toolkit mitigate the need for it. For more information on Health Impact Assessment, visit: www.mass.gov/healthycommunitydesign and www.humanimpact.org.

This toolkit is designed to be a part of the healthy community development process, and we look forward to hearing your suggestions on how to make it better.

[18] WHO European Centre for Health Policy, eds. (1999). *Health Impact Assessment. Main concepts and suggested approach. Gothenburg Consensus Paper, December 1999*. Copenhagen: WHO Regional Office for Europe.

Subdivision Regulations

Definitions

Approval Not Required (ANR) refers to subdivisions that result in new parcels with frontage along existing roadways. This type of subdivision does not require approval by the local Planning Board.

Complete Streets are roads that are designed for all modes of transit, including vehicles, public transportation, biking and walking, and people of all abilities. Design considerations include bike or bus lanes, road narrowing, sidewalks, crosswalks, and facilities such as covered bus stops or bicycle parking.

Low Impact Development (LID) is a stormwater management approach that mimics nature by managing stormwater as close as possible to its source. LID employs techniques such as preserving and recreating natural landscape features, minimizing imperviousness, detaining and infiltrating stormwater in dry basins, and treating stormwater as a resource rather than a waste product.

Stormwater Pollution occurs when rain that falls on streets, parking lots and other land carries pollutants into lakes, rivers, streams or other water bodies. Pollutants can include oil and fuel from vehicles, fertilizers and pesticides from yards or agricultural lands, pet waste, and soil picked up by erosion.

Subdivision is the division of a tract of land into two or more smaller parcels. A subdivision can occur along an existing road or can create a new road.

Subdivision Regulations set rules that determine the characteristics of a land subdivision development. For example, Subdivision Regulations typically address road design, utilities, open space and stormwater drainage. In Massachusetts, Subdivision Regulations are adopted by a majority vote of a municipality's Planning Board or, in some small towns without a Planning Board, by the Board of Selectmen.

Urban Heat Island Effects occur when pavement and buildings absorb solar energy throughout the day and radiate that heat back into the air. This is due to pavement, buildings and other structures absorbing more heat from sunlight than the natural landscape. For example, this can cause the ambient temperature of a city of one million people to be 2-5°F hotter during the day and up to 22°F hotter at night than a rural location in the same area.[19]

Introduction

The Subdivision Regulations established by a community have a dramatic effect on the characteristics of subdivision developments, and, by extension, affect community health. Perhaps most importantly, Subdivision Regulations govern the design of new roadways. Requiring sidewalks and shade trees helps create a safe and comfortable pedestrian environment that promotes walking. Requiring narrower roads and traffic calming measures creates safer streets for pedestrians and enables children to travel safely and to be more active. This is especially true if a subdivision sets aside land for a playground or community park. Connecting sidewalks and bike lanes to larger networks creates additional opportunities for physical activity and allows people to access the larger community without having to rely on an automobile. For example, connections to sidewalk networks can allow children to walk or bike to school.

A community's Board of Health can play a significant role in the subdivision approval process. The Subdivision Control Law gives a Board of Health 45 days to approve a subdivision design or return the plans to the applicant with required changes, along with specific reasons for the needed changes. [20] The Planning Board then cannot approve the plan without the Board of Health's changes. Failure of the Board of Health to submit its report with the 45 days constitutes approval of the plan.

Subdivision Regulations Checklist

- Require sidewalks.
  - In rural environments or other locations where sidewalks on both sides of the street may not make sense, a sidewalk on one side of the street is acceptable.
- Require interconnecting street and sidewalk networks.
  - If a dead-end is created, require the subdivision design to allow for streets to be connectable in the future.
  - Where applicable, require multi-use paths at the end of dead-end streets that connect to a larger network of pathways.
  - Require bicycle and pedestrian linkages to nearby public ways.
- Design driveways to minimize pedestrian impacts.
  - Encourage shared/common driveways to reduce the number of automobile curb cuts.
  - Require driveways to rise up to the level of the sidewalk instead of designing the sidewalk to descend to the level of the driveway.

[19] *Heat Island Effect.*(2013). US Environmental Protection Agency. Retrieved from: http://www.epa.gov/hiri/
[20] Mass Dept. of Housing and Community Development (2009), *An Overview of the Subdivision Control Law*, p.34, 35.

- Narrow road widths and the turning radius at intersections to reduce traffic speeds and the crossing distance at intersections. (Reducing the total amount of pavement also decreases stormwater runoff pollution impacts on waterways as well as urban heat island effects.)
- Require Low Impact Development (LID) stormwater management techniques to protect the quality of surface waters that serve recreational and drinking water purposes.
- Encourage a preliminary meeting with the Planning Board/Department prior to subdivision design to review potential healthy design strategies.
- Encourage submission of Preliminary Subdivision Plans to provide an opportunity to encourage healthy design strategies before plans are finalized.
- Create an Inter-Departmental Project Review Process that establishes meetings of representatives from various municipal departments/boards, including the Board of Health, to provide review and feedback on projects while still in design development.
- Require a set-aside of future parkland (even if only temporary, as required by Massachusetts law), to give the homeowner's association, municipality or other entity time to acquire it.[21] Encourage a community garden set-aside for subdivisions with small lot sizes.
- Require roads to be designed to "Complete Streets" standards, with equal attention to the needs of automobiles, cyclists and pedestrians.
- Require shade trees along pedestrian and bicycle pathways.
- Require traffic and environmental impact studies for subdivisions over 5 units.
- Require an analysis of pedestrian circulation for subdivisions over 15 to 20 units.

[21] Mass. Gen L. c 41 § 81U. Retrieved from: https://malegislature.gov/Laws/GeneralLaws/PartI/TitleVII/Chapter41/Section81U

Resources

Commentary on Updating Subdivision Regulations in Massachusetts. (n.d.) Feiden, Wayne, AICP. Highland Communities Initiative. Retrieved from: http://www.thetrustees.org/assets/documents/highland-communities-initiative/Illustrated-Subdivision-Commentary.pdf

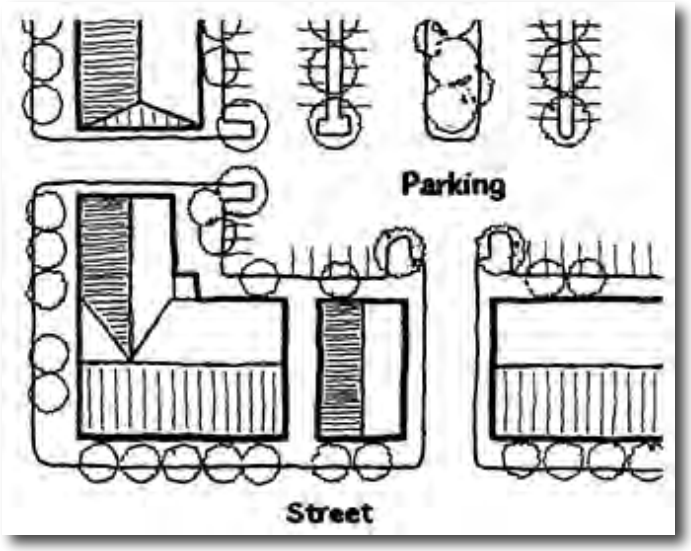
Model Sidewalk Regulations – Zoning and Subdivision. (2013). Pioneer Valley Planning Commission. Retrieved from: http://www.pvpc.org/val_vision/html/toolbox/PDFs/building%20blocks/Sidewalks.pdf

Rules and Regulations Concerning the Subdivision of Land. (2011). Worthington, Massachusetts. Retrieved from: http://worthingtonma.vt-s.net/Pages/WorthingtonMA_BComm/Planning/subdivregs.pdf

For information on Cluster/Open Space subdivisions and Traditional Neighborhood Development Subdivision Regulations, see Smart Growth Development section.

Site Plan and Special Permit Review

Definitions



Low Impact Development (LID) is a stormwater management approach that mimics nature by managing stormwater as close as possible to its source. LID employs techniques such as preserving and recreating natural landscape features, minimizing imperviousness, detaining and infiltrating stormwater in dry basins, and treating stormwater as a resource rather than a waste product.

Site Plan Review is a process for reviewing site plans according to established goals and design criteria. Criteria are established to meet environmental, health, walkability, urban design and other goals that fit new development into the larger community. The reviewing board can require reasonable changes to a plan, including road design, parking, lighting, etc., but, except in extreme cases, cannot block a plan from going forward.

Special Permit Review is a discretionary approval for a use or project that is not allowed by-right. Massachusetts state law requires a Special Permit use to be "in harmony" with the community. The Special Permit Granting Authority "in the proper use of its discretion, is free to deny a special permit even if the facts show that such a permit could be lawfully granted."[22]

Stormwater Runoff Pollution is rain that falls on streets, parking lots, or other developed land, that carries pollution into lakes, rivers, streams, or other bodies of water. This can be pollutants such as oil or fuel from vehicles, fertilizers or pesticides from agricultural lands, pet waste, or soil from construction sites.

Urban Heat Island Effects occur when pavement and buildings absorb solar energy throughout the day and radiate that heat back into the air. This is due to pavement, buildings and other structures absorbing more heat from sunlight than the natural landscape. For example, this can cause the ambient temperature of a city of one million people to be 2-5°F hotter during the day and up to 22°F hotter at night than a rural location in the same area.[23]

[22] *Pioneer Home Sponsors v. Board of Appeals of Northampton* Mass App. Ct. 830, 831 (1973), via University of Massachusetts Citizen Planners Training Collaborative
[23] *Heat Island Effect.* (2013). US Environmental Protection Agency. Retrieved from: http://www.epa.gov/hiri/

Introduction

The Site Plan Review process, which is commonly the purview of the Planning Board, uses established Site Plan Review criteria as the basis for reviewing development plans. After reviewing a site plan, the Planning Board or other reviewing authority can either approve the project or require changes prior to approval. This process can allow a community to require healthy community design criteria to be included in a project. The changes required as a result of Site Plan Review can include improvements to plan layout, sidewalks, bicycle parking, stormwater management, etc. Due to their discretionary nature, Special Permit projects can be required to make more significant site plan changes, including amendments to the proposed use and scope of a project. However, even a Special Permit process should be guided by explicit principles and criteria that relate to larger community goals. All review decisions, whether through Site Plan or Special Permit Review, must be defensible and must serve a purpose that relates to public health, safety or well being.

Establishing the right community goals and review criteria is important. This can ensure the approval of projects that encourage walking, biking and other outdoor activities, and that protect the quality of the outdoor environment.

Site Plan and Special Permit Review Checklist

- Encourage submission of preliminary site plans (also known as a pre-application conference) to provide an opportunity to encourage healthy design strategies before plans are finalized.
- Create an Inter-Departmental Project Review Process that establishes meetings of representatives from various municipal departments/boards, including the Board of Health, to provide review and feedback on projects while still in design development.[24]
- Allow the Planning Board or other reviewing authority to reduce parking requirements through Site Plan or Special Permit Review based on information that demonstrates that the proposed development will have reduced parking demand.

[24] See Inter-Departmental Project Review Process Fact Sheet in Appendix.

Site development plans must:

- Provide for safe internal traffic and pedestrian flows, and provide bicycle and pedestrian connections to the larger community.
- Include site-wide sidewalk networks in large developments, and reduce on-site driving through efficient design of roads and parking areas.
- Particularly in the case of institutional uses (including schools, churches and other community-based facilities), make appropriate connections to the larger community, including connections to sidewalks, bike lanes, multi-use paths, etc. (even if they will not connect to networks currently built).
- Include bicycle parking/storage.
  - All commercial and civic developments must provide bicycle racks for customers and employees.
  - Large commercial and civic developments (e.g. larger than 20,000 square feet) must provide covered bicycle storage and shower facilities for employees.
  - Multifamily residential buildings must provide covered bicycle storage for at least 15 percent of all building occupants.
- Orient buildings to serve pedestrians on the street, where appropriate.
  - Place parking lots at the back or to the side of buildings, with the main entrance in the front and near the sidewalk. A secondary entrance may be oriented to the parking.
- Minimize the total paved area to decrease stormwater runoff pollution impacts on waterways, and to reduce urban heat island effects.
- Incorporate Low Impact Development (LID) stormwater management techniques to the extent feasible in order to protect the quality of surface waters that serve recreational and drinking water purposes.
- Provide landscaped parking lot islands (where applicable) and shade trees to create comfortable walking conditions and to reduce urban heat island effects.
- To the extent feasible, set aside 10 percent of all parking lot spaces for carpools and fuel efficient vehicles.
- Consider siting outdoor common areas (e.g. shaded outdoor seating for lunch) and exercise options where appropriate.
- Consider using light colored pavements and reflective roofing materials or green roofs in order to reduce urban heat island effects.

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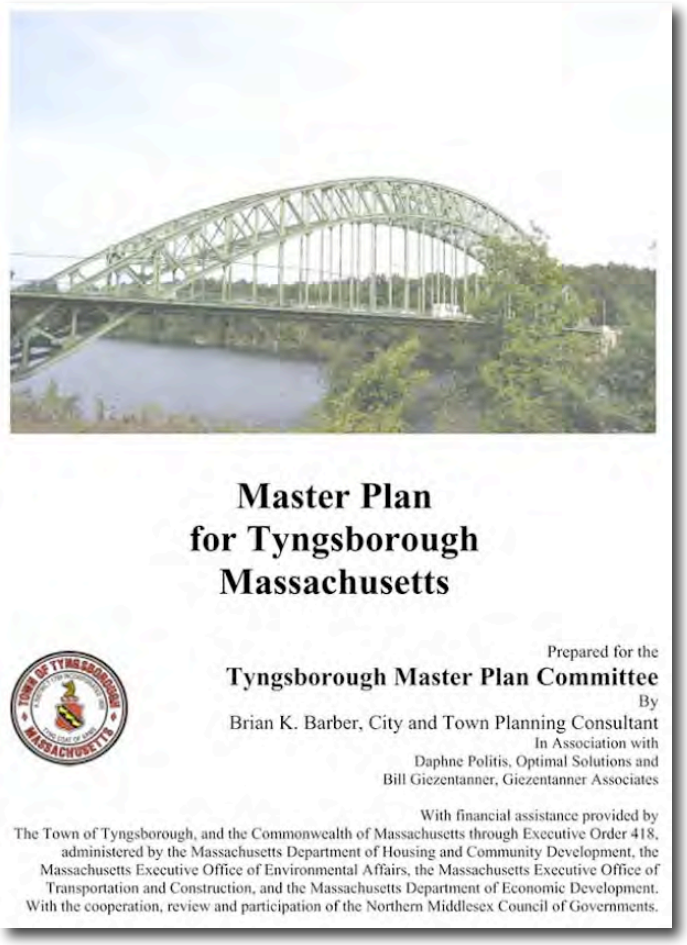
Community Plans

Definitions

Complete Streets are roads that are designed for all modes of transit, including vehicles, public transportation, biking and walking, and people of all abilities. Design considerations include bike or bus lanes, road narrowing, sidewalks, crosswalks, and facilities such as covered bus stops or bicycle parking.



Infill Developments are projects in already developed areas that "fill in" vacant lots (e.g. between existing buildings). Infill most commonly happens in downtown areas and is designed to increase density to create a more walkable and more aesthetically uniform streetscape.

Master Plans and *Community Development Plans* are community-wide, action-oriented plans designed to achieve a shared community vision. A Master Plan establishes future goals in areas such as land use, transportation, housing and economic development.

Smart Growth refers to development that is concentrated in and around downtowns, village centers, transit stops, or other infrastructure that provides convenient access to goods and services without relying on use of automobiles. Smart Growth is characterized by mixed-use downtowns and neighborhoods, diverse housing options and increased walkability. This compact development pattern protects open space and farmland, revitalizes downtowns, supports affordable housing options, and provides more transportation choices by directing growth to locations where higher densities can be supported.

Universal Design incorporates the needs of everyone, including the elderly and people with disabilities, into a design to allow its use by the greatest number of people regardless of age or ability.

Introduction

Because a Master Plan is a document that establishes a vision for the future, it can be a very powerful tool in shaping the future health of a community. A Master Plan can respond to changing demographics (e.g. increases in senior citizen populations with lower rates of automobile use), and can promote healthy community strategies such as protection or creation of open space, zoning regulations that increase walkability, and transportation network improvements. Healthy community principles can be incorporated throughout a Master Plan that is under development, or if a community's Master Plan is reasonably up to date, a standalone community health chapter can be appended to the existing Master Plan. However, it is preferable to include applicable healthy community principles in each chapter of a Master Plan.

Almost all municipalities have a Master Plan, but the frequency with which they are updated can vary widely. A Master Plan does not have to be updated all at once. Adopting a single chapter at a time can be a viable way to improve a plan. Depending on how the plan is organized, another option is to take a neighborhood by neighborhood approach.

An Open Space and Recreation Plan (OSRP) addresses preservation and development of open space, greenways, playgrounds and ball fields. The OSRP can provide guidance in protecting water supplies and open spaces, connecting different greenspaces to each other, or connecting trails and paths to create a more cohesive network. In addition to its planning purposes, a Commonwealth-approved OSRP makes a community eligible for grants from the Executive Office of Energy and Environmental Affairs (e.g. Land and Water Conservation Funds).

In addition to Master Plans and Open Space and Recreation Plans, there are a wide variety of additional plans that communities adopt, including greenway plans, bike and pedestrian plans, and plans that focus on a specific area of a city. Only Master Plans and OSRPs are included in the Community Plans Checklist below. Most if not all community planning processes have a large public outreach component. This provides advocates of particular issues with an opportunity to publically discuss and build support for their ideas within the community.

Community Plans Checklist

Master Plan

- o Ensure that a health advocate serves on the Master Plan committee.
- o Require a public health component in each of the Master Plan chapters.
- o Housing
  - Encourage siting of housing developments within walking distance of parks, schools, jobs and shopping.
  - Establish zoning regulations that allow for a variety of housing types at densities that support walkable commercial services and transit.
  - Allow higher density development around transit stops.
  - Encourage affordable and senior housing projects to include access (by foot or transit) to public parks, fitness opportunities, and healthy food shopping.
- o Transportation and Circulation
  - Promote development of interconnected bike lanes, multi-use paths and sidewalk networks.
  - Address sidewalk maintenance and snow clearing.
  - Ensure that different transit options connect to each other.
  - Plan for streets to be brought up to Complete Streets standards.
  - Assess the location of transit routes and stops.
  - Ensure universal design at transit stops.
  - Accommodate bikes on public transit.
  - Promote traffic calming and enhanced intersection design for pedestrian safety.
- o Open Space and Recreation
  - Promote the development of interconnected pathway networks.
  - Develop recreational opportunities near underserved neighborhoods.
  - Acquire new public open spaces and maintain existing open spaces.
  - Create community gardens in parks.
- o Education
  - Develop a Safe Routes to School program.
  - Site educational facilities centrally within walking distance of residential populations and transit options.
  - Close roads adjacent to schools to through-traffic during drop-off and pick-up times to increase safety for children who are walking and biking.

- Land Use
  - Revise zoning regulations to promote compact, walkable smart growth development.
  - Encourage the establishment of community gardens.
  - Allow/encourage infill, cluster and mixed-use development.
  - Reduce setbacks in zoning regulations to bring buildings closer to the street.
  - Leverage Agricultural Preservation Restrictions (APR) to protect farmland and local food sources.
  - Commercial development
    - Reduce off-street parking requirements and encourage on-street parking to facilitate smart growth and walkability.
    - Encourage integration of fitness opportunities for employees and customers.
- Economic Development
  - Encourage mixed-use developments over single-use commercial developments to increase density and pedestrian traffic.
  - Provide public transportation options to large commercial and industrial areas.
  - Enable and encourage commercial agriculture.
- Natural and Cultural Resources
  - Develop a walking or biking tour of cultural and historic sites.
- Services and Facilities
  - Locate or consolidate municipal facilities in town and city centers to increase walking and biking access.
- Include a Food/Food Systems Chapter
  - Leverage Agricultural Preservation Restrictions (APR) to protect farmland and local food sources.
  - Create community gardens.
  - Ensure universal access to healthy food.
  - Promote urban agriculture.
  - Establish community farmers markets.

Open Space and Recreation Plan (OSRP)

- Require a public health advocate to serve on the OSRP committee.
- Acquire conservation lands and develop hiking trails, focusing on efforts near existing open space and trails, as well as underserved neighborhoods and other residential populations.
- Develop new and improve existing parks and playgrounds, focusing on efforts near underserved neighborhoods and other residential populations.
  - Create community gardens in parks.
- Plan an interconnected system of accessible open spaces. Ensure that open spaces are connected to multiple modes of transportation and are easily accessed by all residents.
- Develop bike paths and greenways that connect to the larger community, and install bicycle parking facilities at open space locations and transit hubs.
- Build and maintain sidewalk networks, and ensure that they connect to the larger community, including community open spaces.
- Adopt the Community Preservation Act to help fund open space and recreation enhancements.
- Protect areas of the community that are important to flood and stormwater management.

Resources

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Smart Growth Development

Definitions

Portsmouth New Hampshire.
Courtesy of Amy Fater

Accessory Apartments, sometimes called mother-in-law units, are smaller apartments located on single-family residential properties (e.g. an apartment over a garage or in a converted garage). Accessory Apartments can allow older residents to live near their family members or can offer low-cost housing options that provide supplementary income to homeowners. When located near existing centers (downtowns, village centers, etc.), new accessory apartments provide walkable access to a variety of goods, services and recreational opportunities.

Chapter 40R Smart Growth Overlay District is a zoning district superimposed over existing underlying zoning districts that allows for higher density development. Within a 40R District, a developer has a choice of undertaking a higher density development in accordance with the requirements of the 40R Overlay District, or may undertake a lower density development in accordance with the requirements of the underlying district. Chapter 40R Districts feature increased residential densities, may allow for mixed-uses, and may establish design standards. 40R Districts must be located near transit stations or "areas of concentrated development" such as downtowns, and must meet specific state criteria regarding allowed housing densities and required percentage of affordable housing. Communities that establish a 40R District receive a one-time incentive payment from the state based on the number of additional ("bonus") residential units permitted by-right (beyond the number of units allowed by the underlying zoning districts), and also receive bonus payments upon the issuance an occupancy permit for each "bonus" unit. Compact Neighborhood Zoning (CNZ) is a new tool similar to 40R that features different residential density and affordability requirements.

Form-Based Code is a relatively new type of zoning code that places an emphasis on building, site and community design over use regulations. In form-based codes, the physical form of the building (including height, setbacks and design standards) is established, while allowed uses are not as restricted as they are in standard zoning. Compared to traditional zoning codes, form-based codes set more specific requirements for the physical design characteristics of development, and are similar in some ways to a regulatory set of design standards. Form-based

code can be combined with standard “Euclidian” or used-based zoning within several hybrid forms. Form-based codes are more illustrative than traditional zoning codes and are particularly appealing for use in special character districts (e.g. downtowns, historic districts and commercial corridors).

Infill is new construction or redevelopment that “fills in” empty lots or adds units or uses in areas that are already developed. For example, a new infill building would be constructed in an empty lot between existing buildings. Infill most commonly occurs in and near downtown areas and is designed to increase density in order to create a more walkable, vibrant and aesthetically pleasing community. Infill replicates historic city, town and village development patterns and is an important tool for concentrating development in walkable neighborhoods rather than sprawling into undeveloped areas.

Mixed-Use Zoning Districts allow more than one type of use on a single parcel. This typically refers to zoning that allows commercial uses on the first and sometimes second floors of a building, with the remaining floors above the commercial space zoned for residential uses. A mixed-use zoning district is not necessarily the same as a mixed-use district, which is a broader concept describing an area with a mix of complimentary commercial and residential uses where a variety of goods and services are available. Mixed-use districts can be zoned with a single Mixed-use zoning district, or may include a variety of different zoning districts. Mixed-use districts are also good candidates for form-based code.

Smart Growth refers to development that is concentrated in and around downtowns, village centers, transit stops, or other infrastructure that provides convenient access to goods and services without relying on use of automobiles. Smart Growth is characterized by mixed-use downtowns and neighborhoods, diverse housing options and increased walkability. This compact development pattern protects open space and farmland, revitalizes downtowns, supports affordable housing options, and provides more transportation choices by directing growth to locations where higher densities can be supported.

Traditional Neighborhood Development (TND) is characterized by homes on small lots with small setbacks. These developments, which can consist of both single family and multifamily homes, are modeled after older (traditional) neighborhoods near downtowns and village centers that have narrow streets, make use of on-street parking, and tend to have a more diverse mix of unit sizes and higher residential densities than newer neighborhoods.

Transit Orientated Development (TOD) is a mix of uses clustered within walking distance (usually ¼ mile) of a transit station with a relatively high frequency of service. Successful TOD districts typically feature high quality pedestrian and bicycle networks, reduced parking requirements for automobiles, and public amenities in order to encourage compact multifamily homes and varied businesses.

Urban Sprawl is low density, auto-oriented development that segregates residential, commercial and other uses. It is characterized by low density housing subdivisions, strip malls and shopping malls.

Introduction

Smart growth, sometimes called compact growth, is a comprehensive land use strategy that concentrates development in and near commercial centers (downtowns, village centers, etc.) and infrastructure in order to create more walkable communities, protect open space and farmland, revitalize and beautify downtowns and nearby neighborhoods, and provide more housing and transportation choices. By increasing development densities in centralized locations and locating residential, commercial and civic uses within proximity of each other, smart growth increases the number of homes and destinations in walking distance, as well as associated pedestrian activity. Destinations can include work, shopping, parks, community gardens, municipal services and public transit. Higher residential densities and greater interaction among different uses enhances business vitality, supporting a greater variety of commercial services and employment opportunities within walking distances of each other and nearby neighborhoods.

Mixed-use development on a downtown street (e.g. ground floor commercial uses with residential uses above) is a good example of smart growth, such as on Newbury Street in Boston, State Street in Newburyport, or the Queset Commons development in Easton. Traditional neighborhoods within walking distance of mixed-use neighborhood or town centers are also a good example of smart growth. In rural communities, smart growth zoning restricts strip commercial development, allows residential units above commercial uses in the village center, and allows traditional neighborhoods near the village center. All of these examples encourage walking (for example, from home to a café, from shop to shop, from home to work, etc.) and lead to a healthier community. In addition, by concentrating development in areas where public infrastructure can support higher densities, urban sprawl development patterns are avoided. This preserves open space, farmland, critical environmental resources and valued rural landscapes.

Smart growth zoning tools make communities more walkable by increasing allowed development densities and broadening the mix of compatible uses permitted in an area. These zoning tools allow for smaller lot sizes, mixed-use development and multifamily housing (e.g. duplexes,

rowhomes or larger multifamily developments). Infill development, new neighborhood centers, Transit Oriented Development (TOD), cluster or Open Space Residential Developments, accessory apartments, urban parks and community gardens, and mixed-use districts are all examples of smart growth. A Chapter 40R Smart Growth Overlay District is a specific zoning tool enabled through state legislation (MA G.L. Ch. 40R) that was developed to promote housing production and smart growth development. The commonwealth provides incentive funds for municipalities to implement 40R Smart Growth Districts, which must meet specific housing density and affordable housing requirements. Compact Neighborhood Zoning (CNZ) is a new tool similar to 40R that features different residential density and affordability requirements.

Even in communities that are largely car dependent, smart growth development can create a more walkable community by enabling drivers to "park once" in a single district in order to accomplish multiple tasks on foot. Making just one stop to accomplish multiple tasks improves health and reduces environmental impacts. Over time, smart growth retrofits (sometimes called suburban retrofits) can help to make all communities and neighborhoods more walkable and less car dependent.

Smart Growth Development Checklist

- o Assess how well your zoning regulations promote smart growth, walkability, healthy food access and physical activity.[25]
- o Revise zoning maps and text to establish regulations that provide for diverse housing options, retail, services and employment within walkable distances. To increase walkability, amended zoning regulations should allow for increased density near downtown areas (e.g. by reducing minimum lot sizes and/or required lot area per unit) and should enable new infill development. Zoning map changes can be used to promote mixed-use neighborhoods with housing, schools and shopping within walking distances.
- o Establish mixed-use zoning districts that allow residential units above commercial uses in downtown, village center and other appropriate locations.
- o Reduce off-street parking requirements in order to allow more space in central locations to be utilized for housing, retail and other active uses (increasing development densities), and to reduce the negative impacts associated with an oversupply of off-street parking (aesthetic impacts, dead spaces in central commercial areas, sprawl and increased driving impacts, reduced walkability, increased stormwater pollution, etc.).[26]
    - Reduce off-street parking requirements and the number of automobile curb cuts allowed.
    - In downtowns and village centers, shift the burden of providing parking from private property owners to the municipality. Allow payments in lieu of meeting

[25] See A Checklist for Downtown Zoning in Appendix in addition to Holyoke Food and Fitness Review in Resources.
[26] Also see Road Design section.

off-street parking requirements that can go into a municipal fund for public parking and transit improvements.
    - Allow the Planning Board to reduce off-street parking requirements when reduced needs are demonstrated through shared parking arrangements, mixed-uses with different peak parking times, demand management measures, etc.
    - Allow developers to set aside some portion of the space required for parking as green space that can be developed into parking later if needed.
    - Require parking to be located behind (or to the side) of buildings where appropriate, with the main entrance in the front and near the sidewalk for better pedestrian access and a more aesthetically pleasing streetscape.
- Adopt inverse zoning regulations such as maximum lot sizes, minimum building heights, and maximum off-street parking spaces to increase development densities.
- Allow and promote community gardens by amending the community's zoning land use tables, establishing a community garden ordinance, and encouraging integration of community gardens into new development (e.g. through Subdivision Regulations and Site Plan and Special Permit Review).[27]
- Establish Transportation Oriented Development (TOD) zoning districts that create new housing within walking distance of public transit and provide walking/transit access to shopping, jobs, schools and other community resources.
- Allow accessory dwellings units. When located near existing centers (downtowns, village centers, etc.), new accessory apartments provide walkable access to a variety of goods, services and recreational opportunities. Accessory units can also create low-cost housing options that provide supplementary income to homeowners.
- Allow Cluster Residential Developments (also known as Open Space Residential Developments) that preserve open space and provide hiking and other recreational opportunities in neighborhoods.
- Utilize Chapter 40R Smart Growth or Compact Neighborhood Zoning Overlay Districts to increase residential densities and allow mixed-use development near shopping and public transit.
- Establish a Traditional Neighborhood Development (TND) Zoning Overlay District to allow new neighborhood developments that are modeled after older neighborhoods characterized by walkability, a diverse mix of housing options, and higher residential densities.
- Undertake a comprehensive Smart Growth Zoning Overhaul, reviewing and revising the following as needed to implement smart growth goals: Zoning Map, Table of Land Uses, Table of Dimensional Standards, Off-Street Parking Regulations, Site Development Standards, Site Plan and Special Permit Review, Form-Based Codes (in special districts or for entire municipality)
- Offer tax incentives (or, for nonprofit entities, lower payments in lieu of taxes) to new private educational facilities and other private institutional uses to site their facilities in walkable locations.
- Use tax incentives such as District Improvement Financing (DIF) to encourage private investment in appropriate locations.

[27] See Subdivision Regulations section, as well as Site Plan and Special Permit Review section.

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Road Design

Definitions

Complete Streets are roads that are designed for all modes of transit, including vehicles, public transportation, biking and walking, and people of all abilities. Design considerations include bike or bus lanes, road narrowing, sidewalks, crosswalks, and facilities such as covered bus stops or bicycle parking.

Cycletracks are protected bike lanes that are physically separated from automobile traffic with parked cars, curbs or bollards.

Urban Heat Island Effects occur when pavement and buildings absorb solar energy throughout the day and radiate that heat back into the air. This is due to pavement, buildings and other structures absorbing more heat from sunlight than the natural landscape. For example, this can cause the ambient temperature of a city of one million people to be 2-5°F hotter during the day and up to 22°F hotter at night than a rural location in the same area.[28]

Introduction

Incorporating Complete Streets principals into local standards governing the construction and repair of municipal roads can create a safer and more inviting environment for drivers, bikers and walkers alike. While the inclusion of "reasonable provisions" for Complete Streets planning is required by state law (MA G.L. Ch. 90E), implementation has been a gradual process. In communities with Complete Streets policies or standards, implementation often occurs only as roads are reconstructed or repaved.

Improved road design standards can address travel lane widths, bike lanes, sidewalks, streetscapes, and other aspects of roadway infrastructure. Better road design standards encourage alternative forms of transportation, including more walking and biking, as fewer people will walk or bike along roads that feel unsafe. Enhanced road design can also result in better stormwater management and improved water quality (see Stormwater Management

[28] *Heat Island Effect.*(2013). US Environmental Protection Agency. Retrieved from: http://www.epa.gov/hiri/

section), as well as improved air quality through the use of "cool" (lighter color) pavements, which reduce urban heat island effects and smog formation.[29]

Good design of sidewalks and intersections enhances safety by improving interactions between cars, pedestrians and cyclists. Reducing the number of automobile curb cuts decreases the number of points of conflict between cars, pedestrians and bikers. Narrowing road widths, especially at pedestrian crosswalks, slows vehicles down and reduces the time required for street crossings.

Street design has a significant effect on driving habits. For example, traffic can be slowed by creating artificial chicanes, narrowing road widths, installing bump-outs at crosswalks, raising crosswalks ("tables"), or reducing an intersection's turning radius. Proper signage and line painting for pedestrian crossings and bicycle lanes can alert drivers to potential interactions with pedestrians and cyclists and increase overall safety.

Road Design Checklist

- Adopt a community-wide Complete Streets Policy with strong, enforceable language.
- Update/establish municipal standards for Complete and Green Streets, including design standards for sidewalks, crosswalks, bicycle lanes and cycletracks, bicycle and pedestrian signage, bicycle parking, lighting, street trees, intersections, etc.
  - Require pedestrian crossings at large or complicated intersections, with pedestrian refuges where needed.
  - Revise municipal road building standards to narrow travel lane widths and include bike lanes, sidewalks and streetscaping. Place bike lanes in between parking and the sidewalk if possible, and ensure that bike lanes are clearly separated from sidewalks.
  - Ensure that street design standards comply with the Americans with Disabilities Act (ADA) and meet the needs of people of all abilities.
- Promote on-street parking over off-street parking to increase pedestrian safety (by reducing automobile curb cuts) and to facilitate smart growth (by enabling increased development densities).
  - Provide public parking (on-street if possible), reduce/eliminate private off-street parking requirements, and work to reduce automobile curb cuts (through private

[29] Heat pollution contributes to smog formation.

property agreements, incentives and zoning regulations that limit new automobile curb cuts).
    - Evaluate the occupancy and price of on-street parking to reduce cruising for parking spaces.
    - Consider innovative parking designs such as angled parking to improve visibility and reduce conflicts between parking cars and cyclists.
- Develop and implement a Traffic Calming Program. Establish methods to survey residents and police to identify problem spots. Pay special attention to major pedestrian corridors and areas around schools.
- Incorporate street shade trees and bike lanes (along the street) or cycletracks (separate from the street) into municipal street improvement projects.
- Consider maintenance in the design of roads and sidewalks.
- Require public input for street improvement projects prior to design so that community concerns and suggestions can be incorporated into construction plans.
- Create an Inter-Departmental Project Review Process that establishes meetings of representatives from various municipal departments/boards, including public works and public safety (police, fire and ambulance) personnel, to provide review and feedback on projects while still in design development.[30]
- Prioritize projects that promote walkability and bikeability in the community's Capital Improvement Plan. Develop a long-term Capital Improvement Plan if the municipality does not have one.
- Attach pedestrian and bicycle improvements to road maintenance, not just road reconstruction projects.
- Develop roadside paths in rural areas where sidewalks may not be appropriate.

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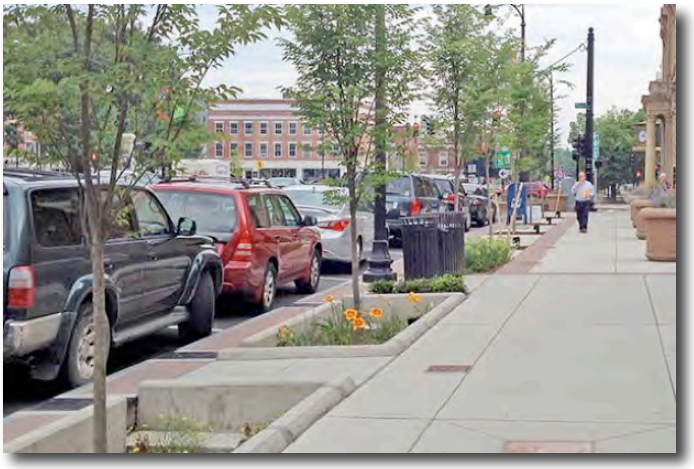
Stormwater Management

Definitions



North Street, Pittsfield, MA. Bioretention Planters receive stormwater from the street and sidewaslk. Photo courtesy of Vanasse Hagen Brustlin, Inc.

Combined Sewer Overflow (CSO) systems are older water management systems that collect both stormwater runoff and wastewater (sewage) using the same network of pipes. After small rain events, these combined sewers bring a stormwater/sewage mixture to wastewater treatment plants for treatment prior to discharge in local water bodies. However, after large rain events, stormwater overloads the system, causing the stormwater/sewage mixture to flow directly into rivers and streams. Most locations are now served by separate sewer and stormwater systems, but some CSO systems are still connected, as it is an expensive process to separate the systems.

Green Infrastructure consists of natural or engineered systems (including rain gardens, bioswales, green roofs and cisterns) that capture and control stormwater near to where it falls. In these systems, stormwater can be cleansed as it moves through soils and the roots of plants, returned through soils to groundwater (infiltration), returned to the air (evapotranspiration), or captured to irrigate plants or flush toilets (reuse). Because these systems typically use plants to enhance or mimic natural processes, they are called “green infrastructure.” Green infrastructure contrasts with traditional “gray infrastructure,” which is typically built to convey rainfall from roofs, parking lots and streets into catchbasins and pipes that have outlets at the nearest waterway.

Green Roofs incorporate soil and vegetation into a structure’s rooftop system. These systems can range from thin soils with moss up to thick soils capable of supporting micro-farms. The main benefits of green roofs are enhanced stormwater management, insulating properties, and UV protection for roof membranes.

Green Streets include green infrastructure into the overall design of the roadway. Instead of relying solely on storm drains, green streets incorporate techniques including permeable pavements, vegetated swales, and other systems that mimic natural processes to reduce the amount of runoff that is introduced into the stormwater system.

Gross Floor Area is a calculation of the amount of usable floor area of a structure. This is sometimes used in zoning regulations to determine how much usable floor space is allowed in a particular zone. This is often related to Floor to Area Ratio (FAR) which is a ratio of the gross floor area of a building to the actual size of the parcel it is built on. In some municipalities, an accessible roof counts toward the Gross Floor Area calculation. Note: The exact definition of what is and what is not included in this calculation varies by municipality.

Low Impact Development (LID) is an approach to land development that mimics nature by managing stormwater as close to its source as possible. LID employs techniques such as preserving or recreating natural landscape features and minimizing the amount of impervious surface area to create site drainage that treats stormwater as a resource (through reuse or infiltration back into the ground), rather than a waste product.

Rain Gardens are areas designed to collect and infiltrate water into the ground quickly, redirecting water that would normally drain into the stormwater system. The water is filtered by vegetation and soil as the water infiltrates either into the ground, or if the soil is not suitable, into a below-ground pipe connected to a larger system.

Stormwater Utilities are fees that charge users for municipal stormwater services, including maintenance and upgrades to a community's stormwater management infrastructure. Note: This term can be confusing because a stormwater or sewer utility is also the organizational entity that is in charge of collecting the fees and providing the service.

Introduction

The health of a community's water includes not only the drinking water supply, but also the quality of surface waters used for recreational purposes, including lakes, rivers and streams. Pollution from stormwater runoff directly impacts surface water quality and whether it is safe to boat or swim in a given water body.

Traditionally, stormwater management systems have been designed to remove runoff from developed areas as quickly as possible, with little concern for other effects. This traditional approach creates considerable water pollution and flooding impacts. As stormwater runoff is collected and channeled to underground pipes, it carries pollutants that are discharged directly to local water bodies, including sediments, nutrients (e.g. from fertilizers that have been applied to

lawns), pesticides, bacteria (e.g. from pet waste), and oil and heavy metals (e.g. from automobiles). Sometimes pollutants (e.g. used oil, paint thinners, restaurant grease) are illegally dumped directly into storm drains. Where Combined Sewer Overflow (CSO) systems are still in pace, large rain events cause raw sewage to flow directly into local rivers and streams.

There are many documented health impacts associated with stormwater pollution. The most acute human health impacts result from fecal coliform bacteria in surface waters, which result from nutrient pollution and commonly exceed standards for recreation. Exposure to bacteria and parasites from swimming and other recreation in water contaminated with stormwater runoff causes various illnesses, including ear and eye discharges, skin rashes, and gastrointestinal problems.

Today, communities are thinking of better ways to manage stormwater, ideally before the water reaches the drainage system. One significant management goal is to reduce peak flows, or the largest volume of runoff that occurs at a given time after a rain event. This reduces the amount of pollutants that are carried to nearby water bodies. In locations that still have Combined Sewer Overflow (CSO) systems, peak flow reduction reduces the frequency with which the volume of the stormwater/sewage mixture exceeds wastewater treatment plant capacity and must be discharged directly without treatment into local water bodies. In addition to more traditional approaches to reduce peak flows (e.g. detention basins, which hold and then slowly release water after a rain event), new Low Impact Development (LID) approaches such as rain gardens hold water and infiltrate it into the ground, reducing the total quantity of runoff that reaches the stormwater system.

By improving stormwater management, a community can create healthier waterways that allow residents to safely enjoy boating and swimming activities.

Stormwater Management Checklist

- Adopt a stormwater bylaw/ordinance.
  - Require a large proportion of stormwater runoff to be infiltrated, and require that post-development runoff volumes and rates do not exceed pre-development conditions.
  - Give preference to Low Impact Development (LID) management techniques where appropriate.
  - Include standards for small projects, and encourage residential projects to manage stormwater with rain gardens.
  - Develop standards for improvement at redevelopment sites.
  - Minimize pooling of water, discourage large retention ponds and require retention ponds to drain within a maximum of 2-3 days to eliminate mosquito breeding.

- Create a stormwater management program responsible for systematic efforts to improve the municipality's stormwater services and local water quality.
- Establish a stormwater utility to charge for municipal stormwater management services (just as utility fees are charged for providing drinking water, sewers, and other public services) and to fund the local stormwater management program.
- Establish a stormwater rebate program to promote improved stormwater management practices at existing properties. Rebate incentives can be provided through stormwater utility fee reductions or direct rebate payments.
- Adopt a Green Streets Policy to ensure systematic stormwater management improvements on municipal roadways. Also see section on Road Design.
- Encourage Low Impact Development (LID) techniques through Site Plan Review and Special Permit criteria, as well as Subdivision Regulations.
- Incentivize green roofs through zoning regulations (e.g. through density bonuses or by exempting accessible green roofs from Gross Floor Area calculations).
- Within landscaping regulations (typically part of site development regulations in zoning), require or encourage the use of plants that need little watering or fertilizer.
- Establish source reduction regulations, including bans on use of chemical fertilizers, pesticides, and coal tar sealants.
- Install green infrastructure (e.g. rain gardens, green roofs) on municipal properties, and highlight municipal green infrastructure projects as public educational examples.
- Create/Participate in surface water quality monitoring programs and public education explaining the link between stormwater management and water quality.

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Walking, Biking and Transit Networks

Definitions

Courtesy of City of Cambridge

Capital Improvement Plans (CIPs) address large scale infrastructure projects such as road and school construction. A CIP details municipal capital improvement projects, ranks them in order of importance to the community, and provides timetables and a funding plan.

Community Preservation Act (CPA) is an act passed by the Massachusetts state legislature that allows communities to adopt an extra 1-3 percent property tax surcharge in order to create a fund for local improvements to affordable housing, historic preservation, open space and recreation. The state government matches a certain percentage of the funds collected.

Regional Transit Authorities (RTAs) operate transit services in a particular geographic region. RTAs such as the MBTA (Massachusetts Bay Transportation Authority) in Greater Boston operate large rail and bus systems, while smaller RTAs such as the Franklin Regional Transit Authority in Franklin County operate a handful of bus routes and shuttle services.

Sustainable Transportation Networks are interconnected systems for modes of transportation that do not rely on automobiles. Sustainable transportation networks include public transportation networks for busses, subways, streetcars, etc., as well as walking and biking networks.

Introduction

Ninety percent of all travel is done by car, but 50 percent of trips are within 3 miles of home, and 63 percent of trips are within 5 miles of home.[31] Meanwhile, the Centers for Disease Control (CDC) recommends 150 minutes of exercise per week. Given that most vehicle trips are less than 3 miles, these short trips provide perfect opportunities for walking or biking and can be encouraged by establishing and maintaining networks of sidewalks, multi-use paths and bike

[31] Federal Highway Administration. (2009) *National Household Travel Survey*. US Department of Transportation. Retrieved from: http://www.fhwa.dot.gov/policyinformation/nhts.cfm (via http://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis)

lanes throughout a community. Just a 15 minute walk each way 5 times a week meets the CDC exercise recommendation.

Unfortunately, most communities do not yet have comprehensive interconnected sustainable transportation networks that support walking and biking. Sidewalks are sometimes not present, or are present but are not well-maintained. Bike lanes are often present only along part of a street, and even in cases where bike lanes are provided along the entire length of a street, a turn onto a different street may not connect to another bike lane. Multi-use paths (bike paths, rail trails, greenways, etc.) are growing in popularity but often provide limited sustainable transportation connections across a community.

Extensive rail/subway systems require a huge investment and often make sense only in connection with large cities like Boston. Light rail, including trams and streetcars, can make sense for smaller cities but also involve a large investment that makes most communities and states shy of developing such systems. Bus networks often fill the void where rail and light rail investments have not or cannot be made. Greater Boston's MBTA (Massachusetts Bay Transportation Authority) and the Pioneer Valley's PVTA (Pioneer Valley Transportation Authority) operate the two largest bus networks in the state, but there are 14 smaller regional transit authorities that operate bus service as well, including the MVRTA (Merrimack Valley Regional Transit Authority), the GATRA (Greater Attleboro Taunton Regional Transit Authority), and others. Smaller RTAs such as the FRTA (Franklin Regional Transit Authority) in Franklin County operate only a handful of bus routes.

In addition to fixed-routes, transit authorities must meet the need for more flexible transit options like shuttle services, especially for senior, disabled and low-income populations, and in rural areas. These vital on-demand networks provide mobility to those who do not drive, either by choice or need, and can provide critical connections to open space resources, farmers' markets and quality grocery stores, as well as to work, school and commercial centers.

Developing interconnected sustainable transportation networks makes walking, biking and use of transit more attainable for more people. Community plans can create a vision for walking and biking networks, and tools such as Capital Improvement Plans and the Community Preservation Act can help fund these projects. Large-scale community planning efforts can help get residents involved in planning, executing and eventually using a robust sustainable transportation network.

Walking, Biking and Transit Networks Checklist

- Develop a sidewalk inventory and maintenance program. This can be added to existing pavement management programs/systems for streets, which are typically managed by the Department of Public Works.
- Create a community-wide Greenway and Bikeway Plan or add a Greenway and Bikeway chapter to the Open Space and Recreation Plan.
- Establish Capital Improvement Plans that include greenway, bikeway, sidewalk and other sustainable transportation projects.
- Ensure that annual municipal budgets include adequate funds for greenway, bikeway, and sidewalk maintenance.
- Provide public bicycle racks at strategic locations in the downtown or town center. If needed, use existing on-street parking spaces for this purpose.
- Adopt the Community Preservation Act (CPA) to help fund open space and recreation improvements identified by community plans. Ensure that the community's CPA Plan identifies recreation paths as a funding priority.
- Ensure a clear distinction between spaces for walking versus biking, as these uses can come into conflict and pose a threat to pedestrians. Where this is not possible, consider design solutions that minimize pedestrian/bicycle conflicts (e.g. wider greenways and bike paths).
- Design greenways and bike paths to have destination stops along the route as well as at each end.
  - Select routes that pass by destination locations.
  - Create extensions that lead to destinations.
  - Create new parks and open space destinations along routes.
  - Use redevelopment initiatives and zoning regulations to create/encourage new destinations along routes.
  - Install maps and signage to identify destinations.
  - Provide information about destination locations on appropriate websites.
- Evaluate which greenways and bike paths are used and why in order to improve the network.
- Advocate for public transportation that reaches those who need it most, that connects people to open space and recreation opportunities, and that provides access to quality food. Advocate for well-designed transit stops, including shaded waiting areas with seating, covered bicycle parking, and compliance with Americans with Disabilities Act (ADA) requirements.
  - Contact your municipality's representative to your Regional Transit Authority (RTA) governing or advisory board, and/or contact the RTA directly.
  - Attend public outreach meetings held by your RTA, and/or attend meetings of your community's Transportation or Public Transportation Committee.
  - Identify and work with organizations that are already involved with issues of concern.

- Adopt a community-wide Complete Streets Policy to ensure that streets accommodate all modes of transit.[32]
- Develop measures to monitor and maintain road markings for pedestrians and cyclists, and to provide an easy way for the public to notify the municipality of problem spots. These measures may be accomplished through a new program or integrated into an existing Traffic Calming Program.[33]
- Work with municipal staff and transit authorities to design walking, biking and mass transit networks that interconnect with each other. These interconnections (e.g. bike paths connect to bus routes and bus stops provide secure bicycle storage) facilitate use of multiple modes of sustainable transportation in a single trip.[34]
- Keep sidewalks clear of snow in order to provide for safe winter walking.
  - Publicize the requirement for private property owners to shovel sidewalks in front of their properties, and create a robust enforcement program to ensure that this requirement is met. Some communities have shoveling programs in which volunteers help those in need of assistance.
  - Establish and enforce procedures for municipal snow plowing to maintain clear pedestrian pathways where streets meet sidewalks (e.g. to avoid piling snow at street-sidewalk junctions, and to continue to regularly check and clear street-sidewalk junctions until all sidewalks are cleared of snow).
  - Alternatively, advocate for the sidewalk network to be considered a public service similar to the public street network that is kept clear of snow by the municipality. At minimum, the municipality should assume responsibility for snow clearing in downtown commercial districts.
  - Work with MassDOT to address issues along state-owned roads.
- Develop procedures to include bike lanes and cycletracks in plowing and street sweeping operations.
- Ensure that sidewalk, greenway/bike path and transit networks comply with the Americans with Disabilities Act (ADA) and meet the needs of people of all abilities. Partner with groups that represent senior and disabled populations (e.g. the Council on Aging) to identify strategies to ensure that transportation networks are universally accessible.

[32] See Complete Streets discussion and resources in Road Design section.
[33] See Traffic Calming discussion resources in Road Design section.
[34] See Road Design section for specific ways to improve the interaction between different transportation networks.

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Green and Fit Buildings

Definitions

Fit Buildings, also called Active Buildings, are buildings that promote physical activity as part of the daily behavior of occupants. For example, fit buildings can include designs that promote use of stairs over elevators.

Fit buildings promote physical activity as part of the daily behavior of occupants. Green buildings incorporate indoor air quality measures and provide exposure to sunlight (daylighting) to improve occupant health.
Photo Credit: Frank Schulenburg

Green Buildings are designed, built and operated in a manner that is environmentally responsible and resource efficient. Green buildings address energy efficiency, occupant health, waste reduction, materials production, and other relevant issues.

Green Roofs incorporate soil and vegetation into a structure's rooftop system. These systems can range from thin soils with moss up to thick soils capable of supporting micro-farms. The main benefits of green roofs are enhanced stormwater management, insulating properties, and UV protection for roof membranes.

Smart Growth refers to development that is concentrated in and around downtowns, village centers, transit stops, or other infrastructure that provides convenient access to goods and services without relying on use of automobiles. Smart Growth is characterized by mixed-use downtowns and neighborhoods, diverse housing options and increased walkability. This compact development pattern protects open space and farmland, revitalizes downtowns, supports affordable housing options, and provides more transportation choices by directing growth to locations where higher densities can be supported.

Urban Heat Island Effects occur when pavement and buildings absorb solar energy throughout the day and radiate that heat back into the air. This is due to pavement, buildings and other structures absorbing more heat from sunlight than the natural landscape. For example, this can cause the ambient temperature of a city of one million people to be 2-5°F hotter during the day and up to 22°F hotter at night than a rural location in the same area.[35]

[35] *Heat Island Effect.*(2013). US Environmental Protection Agency. Retrieved from: http://www.epa.gov/hiri/

Introduction

By designing buildings that take into consideration the health of people who use those buildings, everyday activities become healthier activities. Green buildings address occupant health as well as larger community and environmental impacts. For example, indoor air quality can be improved by using low-VOC (volatile organic compound) paints and adhesives during construction, and by ensuring good ventilation while the building is in use. Green buildings are also often sited in smart growth locations within walking distance of multiple destination resources. Overall, green buildings reduce environmental impacts, and some of these measures directly augment the ability of local residents to maintain an active lifestyle. For example, better stormwater management improves the quality of nearby rivers and other water bodies that are used for recreation purposes.[36] Another example is the use of light-colored roofs and pavements, both of which reduce urban heat island effects and smog formation (harmful gasses and particulates in the air), making developed areas more comfortable for physical activity (though decreased outdoor temperatures in summer) and improving local air quality.

Designing a building to be a fit building, or to promote physical activity as part of the daily behavior of occupants, also has lasting health impacts. For example, a building's design can increase stair use by locating the stairs prominently by the entrance while placing elevators out of direct sight. Another example gives employees the option to use standing workstations in place of desks in an effort to combat the harmful health effects of sitting all day (including increased blood pressure and cholesterol levels[37]).

Local actions promoting green and fit buildings are limited by the requirement for the Building Code to be uniform statewide. The state establishes the Building Code, and municipalities cannot make changes to it that would apply only locally.

Green and Fit Buildings Checklist

- Require new development projects over 25,000 square feet to meet the requirements of the most current applicable USGBC (United States Green Building Council) LEED (Leadership in Energy and Environmental Design) and/or other applicable green building rating systems.
- Encourage or incentivize (e.g. through density bonuses, expedited permitting, or reduced permitting costs) buildings that meet the requirements of EPA's Indoor airPLUS Certification program.
- Adopt bicycle parking/storage requirements.
    - Require commercial and civic developments to provide bicycle racks for customers and employees.

[36] See Stormwater Management section.
[37] Levine, James A., M.D., Ph.D., (June 16, 2012) "What are the harmful risks of sitting?" Adult Health. Mayo Clinic. Retrieved from: http://www.mayoclinic.com/health/sitting/AN02082

- Require large commercial and civic developments (e.g. larger than 20,000 square feet) to provide covered bicycle storage and shower facilities for employees.
- Require multifamily residential buildings to provide covered bicycle storage facilities for at least 15 percent of all building occupants.

o Provide green and fit building design guidelines to developers to promote:
- Green building design, in particular measures addressing indoor air quality and daylighting (both improve occupant health and productivity).
- Fit building design and healthy snack options in vending machines.
- Work programs that encourage fit activities and that incentivize use of sustainable transportation by employees.

o Use development pre-application conferences, Site Plan Review/Special Permit processes and design guidelines to encourage the incorporation of fit building concepts into construction so that buildings are designed to:
- Promote use of stairs and walking pathways.
- Have well lit, prominent and wide stairways that promote walking.
- Focus more on stairways and less on elevators and escalators.
- Incorporate walking routes within the interior design layout.
- Provide exercise rooms or other on-site exercise options, as well as showers and locker rooms, in larger facilities.
- Include places to store and prepare healthy foods.

o Establish Site Plan Review criteria to encourage outdoor common areas (e.g. shaded outdoor seating for lunch) and exercise options where appropriate.

o Adopt green and fit buildings policies for school and municipal construction projects.[38]

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Definitions

Shade trees and benches support walking

Complete Streets are roads that are designed for all modes of transit, including vehicles, public transportation, biking and walking, and people of all abilities. Design considerations include bike or bus lanes, road narrowing, sidewalks, crosswalks, and facilities such as covered bus stops or bicycle parking.

Green Infrastructure consists of natural or engineered systems (including rain gardens, bioswales, green roofs and cisterns) that capture and control stormwater near to where it falls. In these systems, stormwater can be cleansed as it moves through soils and the roots of plants, returned through soils to groundwater (infiltration), returned to the air (evapotranspiration), or captured to irrigate plants or flush toilets (reuse). Because these systems typically use plants to enhance or mimic natural processes, they are called "green infrastructure." Green infrastructure contrasts with traditional "gray infrastructure," which is typically built to convey rainfall from roofs, parking lots and streets into catchbasins and pipes that have outlets at the nearest waterway.

Joint (or Community) Use Agreements are formal agreements between separate government entities that allow for shared use of public property or facilities (e.g. an agreement between a city and a school district to allow community members to use playgrounds and fields when school is not in session).

Safe Routes to School programs designate a safe path to school for children using sidewalks, bike lanes and multi-use paths. Signage identifies the route to drivers where appropriate.

Smart Growth refers to development that is concentrated in and around downtowns, village centers, transit stops, or other infrastructure that provides convenient access to goods and services without relying on use of automobiles. Smart Growth is characterized by mixed-use downtowns and neighborhoods, diverse housing options and increased walkability. This compact

development pattern protects open space and farmland, revitalizes downtowns, supports affordable housing options, and provides more transportation choices by directing growth to locations where higher densities can be supported.

Transportation Demand Management employs strategies to decrease traffic that reduce travel demand, especially use of single-occupancy automobiles, or that redistribute travel demand.

Walking School Bus programs organize children, led by adults such as parents or teachers, to walk to and from school as a group. Bicycle trains are similar but involve biking instead of walking.

Introduction

Municipalities must lead by example, and municipal policies and programs can have a very real effect on the health of a community. These strategies address siting of schools and municipal buildings, developing programs that promote healthy activities, and incorporating healthy community ideas into everyday municipal decisions.

Public bicycle racks

The siting of municipal facilities and schools in accessible, smart growth locations that can be reached with existing walking, biking and public transit options can go a long way to promote more walking and biking. For example, a school sited at the edge of a community may only be reachable without a car by a select few who live in that part of town. In comparison, a school located in the heart of downtown neighborhood allows many more students and staff to walk or bike to school. According to MassRIDES, in 1963 roughly 48 percent of children walked or biked to school.[39] Today that number is 13 percent, and travel to school may account for 25 percent of all morning traffic. The Federal Highway Administration points to the dangers of traffic as one of the largest reasons that parents do not allow their children to walk to school.[40]

Programs that attempt to overcome this barrier and actively promote walking and biking to school include Safe Routes to School and Walking School Busses or Bicycle Trains. In addition, by getting some students to walk and bike to school rather than being dropped off by cars, these programs also reduce traffic around schools, further increasing safety for students and increasing parent comfort levels with allowing their children to walk to school.

[39] *Safe Routes to School*. (n.d.). MassRIDES. Retrieved from: http://www.commute.com/schools

[40] *Barriers to Children Walking and Biking to School.* (2005). U.S. Centers for Disease Control. (as cited in *Safe Routes to School*. (2012). USDOT Federal Highway Administration. Retrieved from: http://www.fhwa.dot.gov/environment/safe_routes_to_school/#s4)

Municipal programs can also incentivize walking, biking and public transit use by municipal employees. Meanwhile, a robust network of Complete Streets promotes active lifestyles while ensuring that everyone can safely travel to where they need to go.[41]

Municipal Policies and Programs Checklist

Adopted Policies and Resolutions

- Adopt a policy to site new municipal facilities in walkable locations, and for site plans to be walkable. (City Council/Town Meeting)
- Adopt a policy to site new schools within walking distance of existing residential populations, [42] to focus on the renovation of existing neighborhood schools when feasible, and for school site plans to be walkable. (School Board)
- Adopt a policy to site public affordable and senior housing in walkable locations with easy access to shopping, services, recreation and transit. (City Council/Town Council)
- Adopt the Planning for a Healthier Future through the Built Environment and Community Design Resolution. (Board of Health)
- Adopt green and fit buildings policies for school and municipal construction projects.[43] (City Council/Town Meeting, School Board)
- Adopt a Complete Streets Policy[44] (City Council/Town Meeting, Board of Public Works)

Administrative Policies

- Require a community health advocate to sit on the School Building Committee and all ad hoc municipal building committees.
- Create an Inter-Departmental Project Review Process that establishes meetings of representatives from various municipal departments/boards, including the Board of Health, to provide review and feedback on projects while still in design development.[45]
- Establish joint use agreements (also known as community use agreements) making school and municipal facilities (e.g. pools, playgrounds or playing fields) open to all residents.

[41] See Road Design section.
[42] The location of public school facilities is selected by the local school district and is not governed by the Massachusetts School Building Authority (MSBA).
[43] See Green and Fit Buildings section for a discussion of green and fit buildings.
[44] See Road Design section.
[45] See Inter-Departmental Project Review Process Fact Sheet in Appendix.

Programs

- Develop Safe Routes to School and Walking School Bus programs. Close roads adjacent to schools to through traffic during morning drop-off and afternoon pick-up times to increase safety for walking and biking students and faculty.
- Create a municipal program to implement, monitor and evaluate the effectiveness of municipal healthy community efforts.
- Implement a municipal Transportation Demand Management Program.
- Offer incentives to encourage municipal and school employees to use sustainable transportation.
  - Subsidize public transportation passes.
  - Provide vouchers for employees who carpool, walk, bike or take transit to work. Vouchers could include coupons for local business or local currency such as the Berkshire region's BerkShares.
  - Encourage opt-out parking programs for employees who do not regularly drive to work.
- Establish a Farm to School Program to source school foods from local growers.
- Establish a program to improve stormwater management on public land and roadways.[46]
- Establish a Traffic Calming Program.[47]

Other Actions

- Install green infrastructure (e.g. rain gardens and green roofs) on municipal properties, and use examples of municipal green infrastructure for public education.[48]
- Install benches, water fountains, trees and bicycle racks at schools, municipal facilities and in public spaces to promote walking and biking.
- Ensure local, safe and varied playgrounds for children of all ages.
- In downtowns and town centers, promote smart growth and walkability by providing public parking (on-street if possible), removing private off-street parking requirements, and working to eliminate automobile curb cuts.[49]
- Provide public bicycle racks at strategic locations in the downtown or town center. If needed, use existing on-street parking spaces for this purpose.[50]
- Develop contractual requirements for school (and other municipal) food providers to source a certain percentage of their food locally, and assist institutional food providers with local food sourcing.

[46] See Stormwater Management section.
[47] See Road Design section.
[48] See Stormwater Management section.
[49] See Smart Growth and Road Design sections.
[50] See Walking, Biking and Transit Networks section.

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APPENDIX

Table of Contents

Massachusetts Healthy Communities Research

Facts about the health of Massachusetts Communities:

- The State of Massachusetts is ranked 10th overall in the *2012 State of Well-Being: Community, State, and Congressional Districts Well-Being Reports*. While the state ranked 1st in Basic Access (to necessities crucial to well-being), and 7th in Life Evaluation (a self-evaluation of present life situation and anticipated life situation five years from now using the Cantril Self-Anchoring Striving Scale), Massachusetts ranked 43rd in Mental Health (stress, happiness, etc.).[51]

- Massachusetts is doing well in terms of obesity and is over 13 percentage points better than the national average (In 2010, 36 percent of the national population was obese versus 23 percent in Massachusetts). According to the Centers for Disease Control and Prevention, in 2010, 23 percent of adults and 11 percent of adolescents in Massachusetts were obese,[52] and the Massachusetts Department of Public Health reports that 33 percent of children are overweight. Obesity is increasing, from 10 percent in 1990 to 22 percent in 2007, a 115 percent increase in just 17 years.

- Healthcare costs are greatly impacted by health. Obesity is associated with a 36 percent increase in inpatient/outpatient healthcare costs and a 77 percent increase in prescription medication costs.[53] Being overweight increases yearly per-person healthcare costs by $125, while obesity increases these costs by $395.[54] One study of individuals aged 15 and over without physical limitations found that average annual direct medical costs were $1,019 for those who were physically active and $1,349 for those who reported being inactive.[55]

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[52] United States. Department of Health and Human Services. Centers for Disease Control and Prevention. (9/2012) *Massachusetts State Nutrition, Physical Activity and Obesity Profile.* Retrieved from: http://www.cdc.gov/obesity/stateprograms/fundedstates/pdf/Massachusetts-State-Profile.pdf

[53] Sturm, Roland. *The Effect of Obesity, Smoking, and Drinking on Medical Problems and Costs*. Health Affairs 21(2): 245-253, 2002.

[54] National Center for Policy Analysis. *Costs of Obesity, Drinking, Smoking and Growing Older*. Daily Policy Digest: Health Issues/Preventive Medicine. 19 Apr. 2002. Retrieved from: http://www.ncpa.org/iss/hea/2002/pd041902e.html

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- Obesity rates and health indicators vary considerably among Massachusetts communities. In 2005, the percentage of the population that was obese ranged from 30 percent in Taunton (with a Median Household Income of $53,000) to 11 percent in Brookline (with a Median Household Income of $95,000).[56] In 2010, there were 610 emergency room visits for asthma-related issues per 100,000 persons statewide,[57] but in Springfield this number was almost triple the state average at 1,754 asthma-related emergency room visits per 100,000 people.[58]

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FACT SHEET

Strategy: **Inter-Departmental Project Review Process**

Goal: Identify and resolve possible issues during the preliminary planning and design stages of construction and building projects prior to beginning the formal Site Plan or Special Permit process.

Objectives: To reduce the cost of the design process for applicants.
To foster dialogue between various departments and developers.
To reduce the time needed in the Site Plan and Special Permit Review process.

Why Do We Need this Strategy?

By having informal discussions with departmental staff, applicants, developers, and designers can identify technical problems in preliminary designs and discuss ways to resolve the issues early in the design stages. This will reduce, or eliminate, the need for revisions to plans during the Site Plan Review/Approval or Special Permit process, saving both the municipality and the applicant time and money.

What Issues Does the Strategy Address?

The Site Plan and Special Permit processes can become a prolonged ordeal with multiple revisions and changes and Board members trying to address issues that are better handled by the community's professional staff. By having the technical deficiencies of a plan identified and addressed prior to submission, Boards can be free to concentrate on the planning and policy aspects of a proposal. The submission of better prepared and more complete plans can result in the project receiving a more positive reception by the municipality and the public and can lead to a better outcome for all parties involved.

How does the Strategy Work?

Inter-departmental review participants are typically the city's professional technical staff (from Planning, Community Development, Conservation, Engineering, Building Inspector, Zoning, Water, Sewer, Gas & Electric, Health, Police, Fire, etc.) and do not include elected officials or board/commission members. Such a process can offer a one-stop comprehensive review of all projects. Many communities utilize some form of inter-departmental review of projects and, while primarily established to expedite the review of Zoning related permits (i.e. Special Permits and Site Plan Approvals) some have evolved to review many types of construction and public works projects as well as conducting most pre-construction conferences.

While all projects may have to go through this review process once they are formally filed, applicants should be strongly encouraged to bring their project in at project i its earliest stages of plan development and prior to its formal submission to the Planning Board or other permit granting authority. The mantra of "come early and come often" is sound advice. The primary function of the review is to identify and address problems as early in the process as possible so that when a project is formally filed it has already received the approval of the relevant city departments. For example, it makes for a much smoother Public Hearing if, when the question is asked about traffic issues, it can be reported that those aspects have already been reviewed and approved by the City Engineer, Public Works Director and Police Department. Attending the inter-departmental review early in the plan development process also allows for easier identification of, and more efficient coordination with, any other local or state permitting that might be required. Participation in this process goes a long way to avoiding last minute surprises.

Strategy adopted from Westfield Round Table Review Process.

A Checklist for Downtown Zoning

Three principles:

1. Calibrate regulatory standards in support of downtown's brand and downtown goals.
2. Don't place unnecessary procedural burdens on downtown compared to other parts of town.
3. Don't suppress the market for downtown houses and buildings; use the right zoning to strengthen it.

Areas of zoning policy to check for needed repairs:

Zoning Districts

Downtown commercial area should have its own zoning district, tailored to its needs

Downtown residential neighborhoods should have their own zoning district(s), tailored to their needs

Setbacks and Build-To Lines

Downtown commercial: Replace minimum setbacks with build-to line or a narrow setback range (min/max)

Downtown residential: Measure the minimum and maximum prevailing historical setbacks, and set those as the minimum and maximum build-to lines

Lot Size Standards

Downtown commercial: No minimum (Alternative: Set based on the low end of prevailing historical lot sizes,

bringing most downtown lots into conformance with zoning)

Downtown residential: As a general guide, use the low end of prevailing lot sizes in the district as minimum; allow houses on lots as small as 3,000 square feet – but fit the standards to the neighborhood's particular needs

Lot Coverage, FAR, Open Space

Downtown Commercial: Allow 100% lot coverage except for rights-of-way such as alleys OR calibrate based on prevailing historical conditions. If your town-wide stormwater regulations require incremental improvements for pre-existing properties that do not conform to the stormwater requirements (recommended!), couple the increased lot coverage allowance with reasonable stormwater runoff regulations specific to and tuned for downtown (i.e. that don't place an unreasonable burden on downtown properties)

Downtown residential: No fixed percentage; let setbacks (building envelope) determine coverage. (Alternative: Set based on prevailing historical conditions)

Building Heights

Do not set building heights that would dwarf downtown icons or exert pressure to take down historic buildings. Set a 2-story minimum to prevent concrete and other 1-story structures that do not fit existing downtown character

Driveways

Do not allow individual curb cuts for downtown commercial sites; use alleys or shared access to parking lots behind

Off-Street Parking

NO off-street parking requirement for individual downtown uses and sites. Couple with parking demand management strategies as necessary. (Alternative: Phased reductions within a parking supply management plan, off-street parking behind buildings, and encourage reduction of curb cuts through shared access to parking lots)

Allow on-street parking and exhaust parking management approaches before developing a downtown parking lot; and then only do so where it will not interrupt the primary retail street

For residential units downtown, do not require off-street parking (residents use street parking or lots)

In downtown residential neighborhoods, do not require excessive off-street parking. (1 to 1.5 required off-street parking spaces per unit is sufficient, depending on the prevailing neighborhood character and coupled with on- street parking and parking demand management strategies as needed. Properties can provide more than is required if they desire to do so.) Do not require off-street parking spaces for accessory units (Alternative: Require only 1 parking space for these smaller "mother-in-law" units).

Table of Allowed Uses

Prohibit uses that undercut downtown's brand identity:

As a pedestrian place – automotive orientation or service, drive-ins, standalone parking, repair As a fit setting for quality goods & services – adult uses, check cashing

As a place with aesthetic appeal – uses that are unsightly, noisy, or generate unwanted side effects

As a critical mass of complementary uses – non-retail uses on the prime retail street face

Allow uses that promote downtown's brand identity and downtown goals: Allow more than one use in a building or on a site

Allow non-retail uses in fitting locations: housing in upper-floors and behind buildings; offices not on the primary retail street front are desirable (Some towns choose to allow office uses on the first floor in the downtown district so that market forces to determine the size of the primary customer-serving retail zone versus mixed retail/office districts. For this strategy to work best, do not undersize your downtown commercial zone and extend this zone up appropriate side streets off the main commercial street.)

Allow outdoor dining & beverage service, sidewalk displays, food carts, farmers markets, gardens B&Bs and Inns OK

Promote quality downtown residential neighborhoods and allow some flexibility as resident needs change:

Allow flexible conversions from single family to small multi-family, and back! A maximum of two to four units in a multi-family home is appropriate - tune based on the prevailing character of the neighborhood, community goals and lot size. Allow single family homes on small lots. Establish design standards for multi-family dvpts. B&Bs OK, apply development standards to address impacts

Review home occupations provisions to ensure sufficient flexibility and minimize impacts to neighborhood Allow small accessory units (e.g. <900 sq. ft) with reduced parking requirements on SF residential properties

Development Standards

Apply quality development standards in downtown commercial areas:

Buffering - No suburban-style buffering between different uses; apply quality development standards for compatible development, and screen utility/vehicular areas

Landscaping: Apply no requirement on individual sites. Apply downtown-appropriate standards: planters and

flowerboxes, street trees in public space – implemented through a town master plan

Screening: Site dumpsters, recycling, grease receptacles, HVAC, & loading areas at rear alley or along rear street where they are physically screened by buildings from view (if not, use wall or vegetative screening)

Signage: No monument signs except special/civic sites; OK types include pole, wall-mounted, window lettering, shingle, A-frame signboards on sidewalks

Apply sensible rules to outdoor display: maintain 3'- 4' clear zone on sidewalk, bring items inside daily, no boxes/pallets

Zoning Procedures and Permitting

Do not make downtown subject to overly extensive procedures. Under no circumstances make downtown

subject to more uncertain procedures than other zoning districts. As a general rule, enact correct standards, then allow development by-right pursuant to those standards. Streamline multiple permits, use pre- submission meetings, employ administrative approvals for small projects

Never require exceptions, appeals, special staff determinations, etc. to allow downtown to develop according to its correct setting. Instead, calibrate the standards correctly for downtown to begin with, so that development can take place by-right whenever possible.

Don't rezone or extend infrastructure to create general commercial areas that will compete with downtown for similar tenants and customers. If you have a general commercial district next to downtown, relegate auto uses to this area and minimize overlaps in allowed uses between downtown and general commercial.

This document was adapted by the Pioneer Valley Planning Commission (PVPC) from a checklist developed by the North Carolina Main Street Program. Adaptations were made based on PVPC experience in the Pioneer Valley region of Massachusetts. Call 413- 781-6045 or email dmckahn@pvpc.org to for questions in applying this checklist.