New Designs for Growth

Development Guidebook

ANTRIM COUNTY | BENZIE COUNTY | GRAND TRAVERSE COUNTY | KALKASKA COUNTY | LEELANAU COUNTY

A publication of

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New Designs for Growth
Development Guidebook

Introduction

Acknowledgements

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The *New Designs for Growth Development Guidebook* is a publication of the Traverse City Area Chamber of Commerce through its New Designs for Growth program.

Over one hundred community volunteers participated in the creation of the Guidebook through focus groups, feedback sessions, committee participation, review panels, survey responses, as well as the contribution of professional expertise.

Representing a broad spectrum of public and private sector professionals, a content advisory panel provided input and reviewed draft versions. This group consisted of Robert Bach, Terry Clark, Virginia Coulter, Betty Cronander, Barbara Gordon, Tim Johnson, Rob Larrea, Jim Lively, Brad Kaye, Jack Kelly, Suzanne Kelley, Megan Olds, Dave Neiger, Peter Read, Rick Sager, James Schmuckal, Russ Soyring, Jeff Weaner, and Jim Wiesing.

New Designs for Growth co-chairs, Tim Burden and Douglas Verellen, provided leadership along with project coordinator, Donna Lea Wilson, Executive Director of the Traverse City Area Chamber Foundation.

Special thanks to the visionary founders of New Designs for Growth - Ralph Bergsma, Keith Charters, and Marsha Smith - and the numerous people who reviewed and commented on draft versions of this document.

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JENNIFER M. GRANHOLM
GOVERNOR

JOHN D. CHERRY, JR.
LT. GOVERNOR

June 5, 2006

Dear Friends:

It is a privilege to offer my congratulations on the completion of the New Designs for Growth Development Guidebook.

What you have accomplished is exactly what I envisioned when I brought together some of the best minds in the state for the Michigan Land Use Leadership Council.

What emerged from that process was a clear awareness that we must join together as a state to nurture growth and development in a way that respects our precious land resources. This is absolutely essential as we look for ways of ensuring economic prosperity for the future.

One of the results of the Land Use Leadership Council was the development of Ten Tenets for Smart Growth. I am pleased to hear that these Ten Tenets have served as the backbone for this guidebook.

I commend the Traverse City Area Chamber of Commerce for taking the lead on this project. But most of all I commend all of you for working together in collaboration to tackle the tough and complex job of influencing land use policy.

I understand this guidebook has been used for over a decade and the revised guidebook is the product of over a year and a half of stakeholder input. You are a truly exemplary community. Yours is the kind of citizen action that will transform this beautiful state of ours and help to create a bright future for all of us.

Sincerely yours,

Jennifer M. Granholm
Governor

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Introduction

"Development needs to go somewhere or it just goes everywhere and looks like anywhere."

The creation of the *New Designs for Growth Development Guidebook*, the current evolution of the *Grand Traverse Bay Region Development Guidebook*, represents a continuation of efforts to demonstrate how development can occur while protecting natural resources. In the early 1990s, public recognition of the need for development that complements and protects the region's unique beauty, diverse natural resources, and exceptional recreational opportunities prompted creation of the first edition of the *Grand Traverse Bay Region Development Guidebook*. A public-private effort from its inception, the Guidebook provided townships in the five-county region (Antrim, Benzie, Grand Traverse, Kalkaska, and Leelanau) examples of development practices that would accommodate growth while maintaining and improving quality of life for residents for years to come. The effort of the Traverse City Area Chamber of Commerce to inform local government officials of guidebook principles and implementation methods led to the formation of New Designs for Growth (NDFG). A decade later, community feedback revealed the need for an updated version of the Guidebook. The second edition built off principles in the first but was expanded to include protection and improvement of established and evolving urban centers. In 2000, following two years of hard work by the dedicated volunteers on the Chamber's New Designs for Growth Guidebook Revision Subcommittee, a revised edition was issued.

In 2005, responding to intensified community desire for developments that enhance existing settlements and protect valuable natural resources, New Designs for Growth retained R. Clark Associates, Inc. to lead concerned citizens and area officials in the revision of the *Grand Traverse Bay Region Development Guidebook*. Input from a broad spectrum of community members shaped this revision: over eighteen months of focus groups and information gathering sessions provided a solid base of public and private sector input, as well as a survey of over a thousand elected and appointed government representatives in the five-county region and results of the Vision in GTC and L.E.A.M. studies. The RCAI team worked closely with a content advisory committee to ensure the Guidebook reflects the region's diverse needs. The *New Designs for Growth Development Guidebook* includes proactive approaches to development in the region, and the techniques are applicable to both new development and to redevelopment projects. The Guidebook demonstrates how thoughtful, quality design can improve our rural, suburban, and urban environments by creating sustainable developments of economic value that protect our natural resources.

The revision of the Guidebook has always been a collaborative, public-private process. It has also taken a balanced approach to change in the region. Neither anti- or pro-growth, the Guidebook stems from the premise that growth is inevitable and that development, with good planning and design, can be compatible with the environment. Throughout the revision process, the underlying goals of the original guidebook have endured. These include:

- Protecting the region's natural and rural landscape character
- Demonstrating how development can complement the natural landscape, farmland, and scenic views
- Providing economically and environmentally sustainable alternatives to conventional development practices
- Encouraging good design beyond legal restrictions and minimum standards
- Promoting the renovation, remediation, and adaptive reuse of existing sites
- Promoting the preservation and improvement of historical and cultural resources
- Encouraging the preservation and enhancement of communities

Communities throughout the five-county region have choices, and the Guidebook serves as a reference manual on ways to achieve development which protects both community character and people's choices and opportunities. The R. Clark Associates, Inc. revision team is honored to have lead the transformation of the *Grand Traverse Bay Region Development Guidebook* into the *New Designs for Growth Development Guidebook* – a manual that will aid concerned citizens, public officials, and developers in their efforts to guide growth by creating environmental, economical, and equitable development throughout the five-county region.

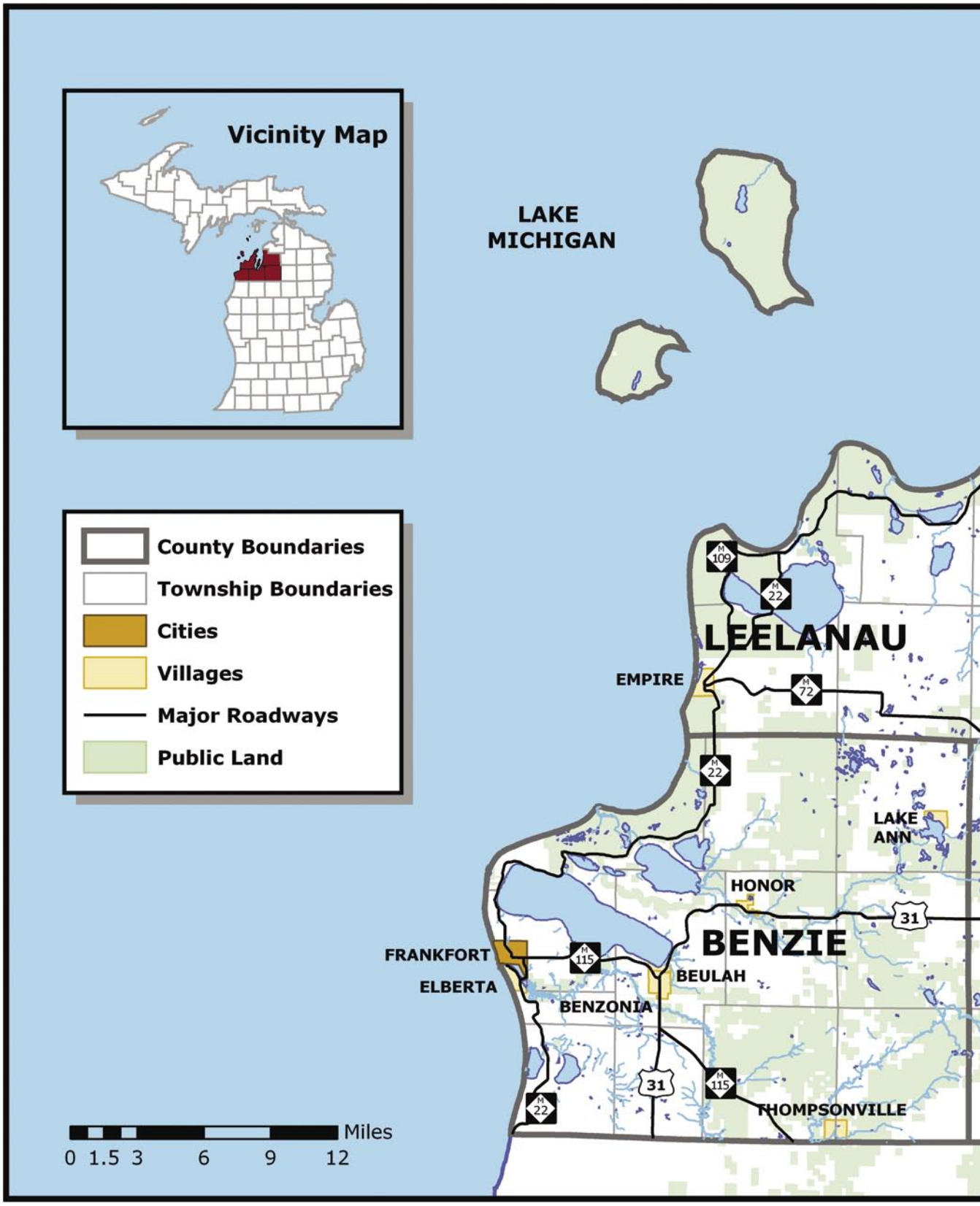
Intended Audience

The *New Designs for Growth Development Guidebook* is designed for appointed and elected public officials and developers within the five-county region. The guidebook, additionally, can inform other professionals, residents, and groups about site design options and alternatives for creating quality developments.

It is assumed the reader understands the following:

- Master plans provide a long-term guide to physical development policy, and policy is unique to each jurisdiction
- Local zoning ordinances, as well as subdivision and land use regulations and capital improvement plans, provide the legal requirements for land use and development policies
- Site-specific development proposals, such as rezonings, special and conditional use applications, annexation petitions, subdivision plats, and master plan reviews, provide an opportunity to implement principles contained in this guidebook
- Site design practices contained within the Guidebook support good design beyond minimum standards and may not always conform with current local zoning
- The Guidebook provides a foundation and resource for local communities to use when updating their master plans and zoning ordinances to better accommodate the needs and desires of their residents

Five-County Map

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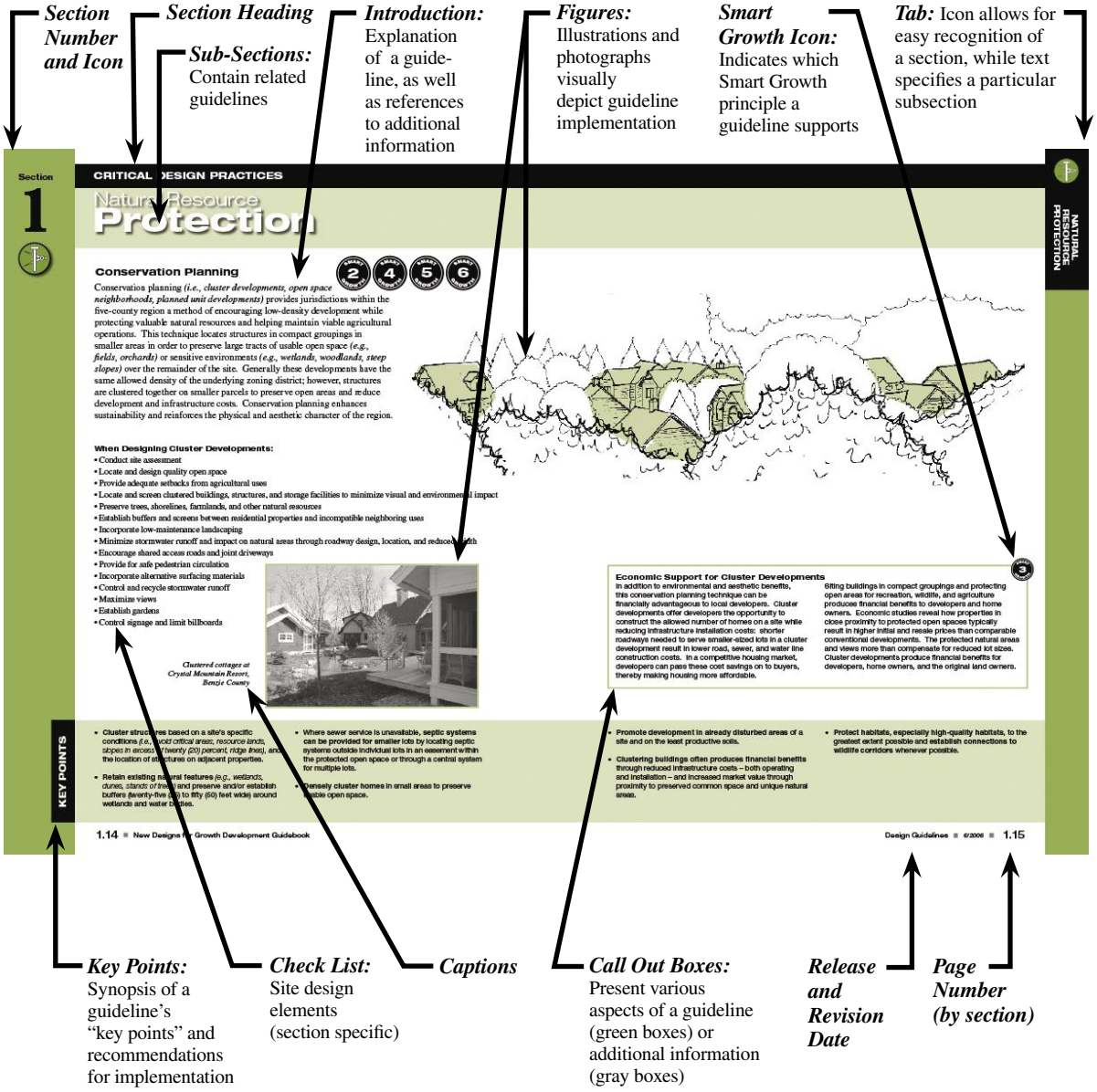
How to Use Design Guidelines

The New Designs for Growth development guidelines are organized in five major sections (refer to Reference Icons below). Each section is labeled with a numeral and icon (upper left hand corner), as well as a heading at the top of the page. Likewise, a heading indicates each sub-section, and a tab (right hand margin) provides a quick reference to both the section and subsection. At the end of each section a reference list is provided to find additional information on topics covered in the section.



REFERENCE ICONS

Smart Growth

Recognizing that development type and location is critical to economic and environmental health and sustainability, the Smart Growth Network created the following ten principles. The Smart Growth Network – a coalition of public, private, and nongovernmental organizations – helps create better communities through improved development patterns and methods. Communities throughout the United States have adopted these smart growth principles to achieve better developments for current and future residents.

Ten Tenets of Smart Growth

Mix land uses

Take advantage of compact building design

Create a range of housing opportunities and choices

Create walkable neighborhoods

Foster distinctive, attractive communities with a strong sense of place

Preserve open space, farmland, natural beauty, and critical environmental areas

Strengthen and direct development toward existing communities

Provide a variety of transportation choices

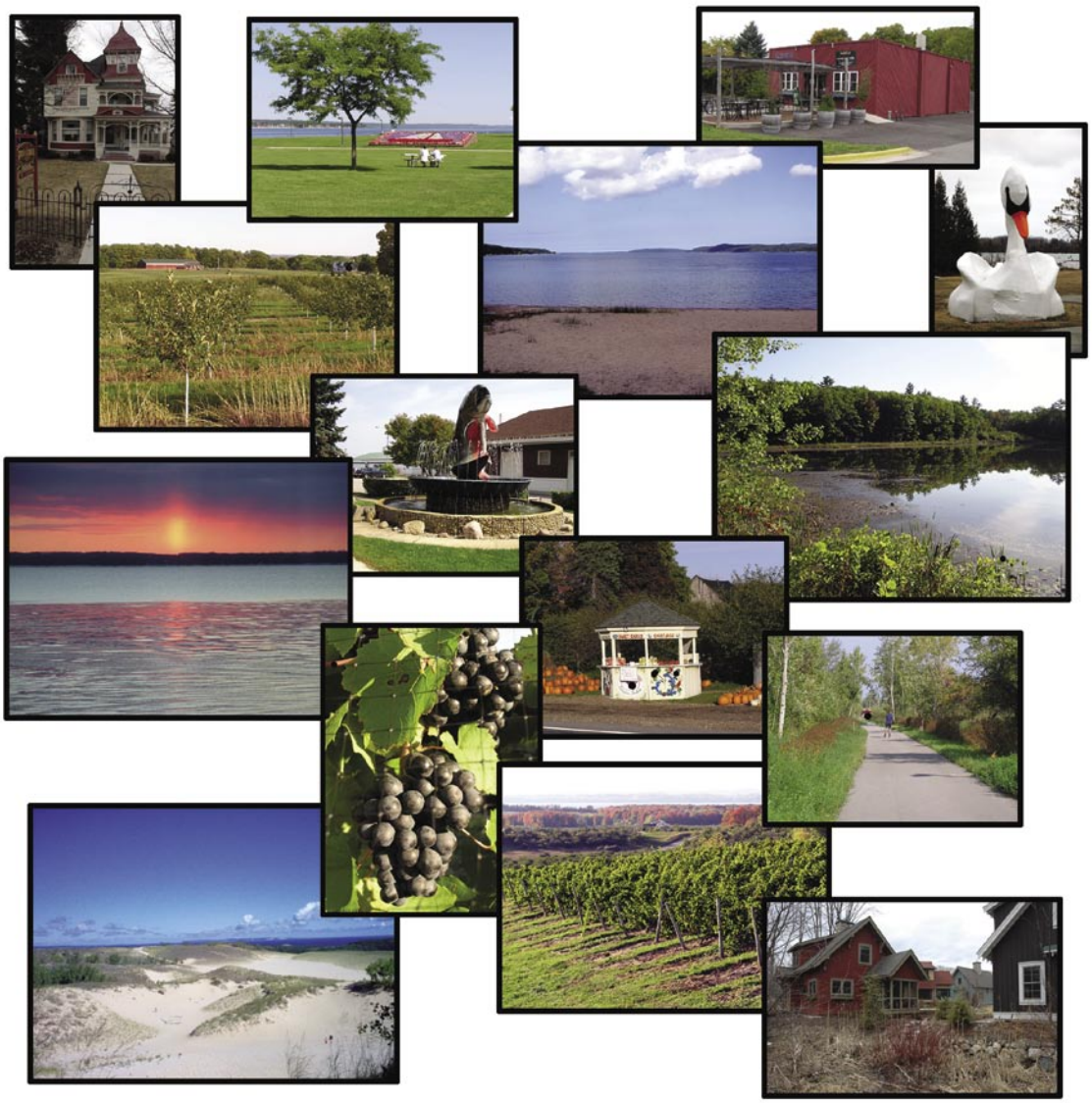
Make development decisions predictable, fair, and cost-effective

Encourage community and stakeholder collaboration in development decisions

For more information on Smart Growth, refer to www.smartgrowth.org and www.epa.gov/smartgrowth. Refer to the Index for the location of guidelines that support specific Smart Growth principles.

Beyond the Guidebook

The *New Designs for Growth Development Guidebook* demonstrates various methods of enhancing site design. The examples contained in this guidebook, most of which are taken from the area, show that sustainable growth techniques – alternatives to typical development – are already being successfully employed in communities throughout the five-county region. Given the multitude of methods, the Guidebook – while comprehensive – cannot include all possible site design elements. It is important to recognize the value of alternatives not included here which also achieve the balance of development with preservation of the natural environment. There are many effective site planning techniques that can enhance the five-county region.



New Designs for Growth
Development Guidebook

Design Guidelines

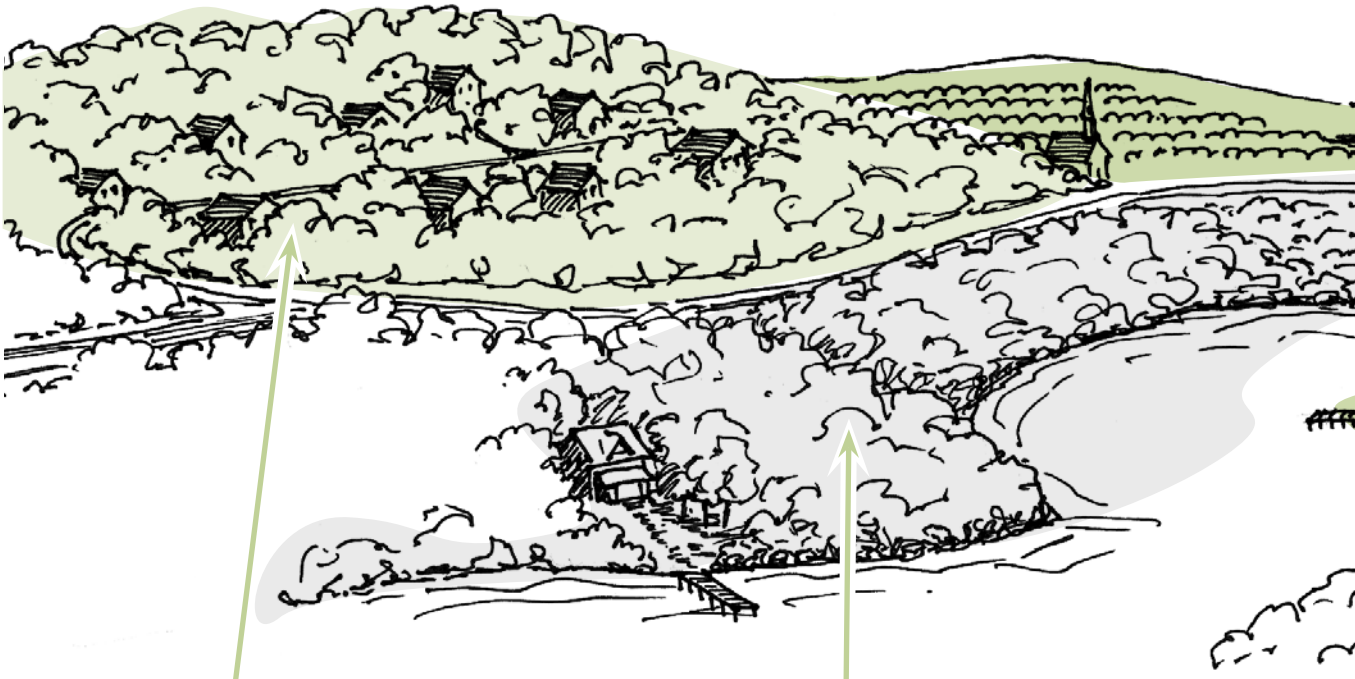
Section 1 Critical Design Practices

Section

1

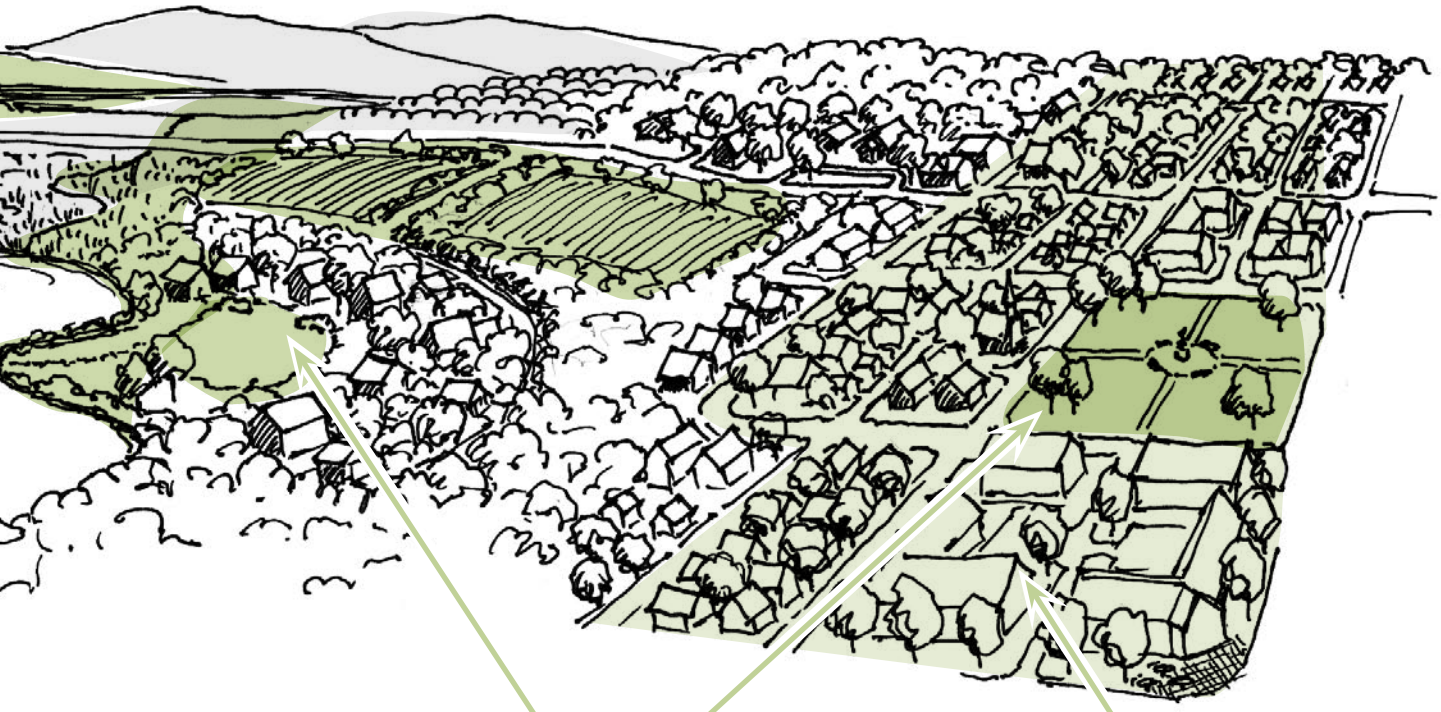
Introduction

The Critical Design Practices section includes guidelines applicable to development in the Grand Traverse Bay region regardless of size, use, or location. These guidelines depict practical ways for communities to obtain development that is environmentally sensitive, economically beneficial, and socially equitable, as well as produces economic benefits for developers. This form of development will complement and enhance our region by protecting its treasured natural resources for present and future generations' enjoyment. The guidelines are grouped into the following four categories:



Site Setting
Between the rolling topography and miles of shoreline, the region benefits from a wide variety of breath-taking scenic views. This section presents examples of how responsible development not only takes a site's natural features into consideration, but also how it can protect our region's environmental features and resources.

Natural Resource Protection
The Grand Traverse Bay region abounds in natural beauty and resources: clean water, dense woods, sandy beaches, towering dunes, and productive farmlands are important aspects of residents' and visitors' daily lives. Applying the guidelines within this section helps protect the region's natural resources and improves our rural, suburban, and urban environments.



Open Space
The five-county region is blessed with an abundance of open space ranging from small neighborhood parks and plazas to expansive fields and orchards. The Open Space section presents examples of the numerous types of open space, as well as methods of creating and maintaining usable open spaces.

Elements of Site Design
The "must do" primer for site development, this section outlines the basic elements that can enhance our region's development. Guidelines within this section include building placement and design, site access and parking, stormwater control, landscaping, signs, and lighting.

Site Setting

Sensitive site development can go a long way toward preserving and enhancing the regional character which attracts residents and visitors to this area. Thorough site assessment and careful design can be economically beneficial to the developer while protecting the region's natural character.

When Conducting a Site Assessment:

- Determine soil types present
- Analyze existing vegetation for preservation
- Examine topography for most suitable development areas
- Protect sensitive areas *(e.g., steep slopes, wetlands, shorelines, dunes)*
- Provide access and connectivity to adjacent sites
- Determine climate/micro-climate impacts on development *(e.g., air drainage, prevailing winds, sun angles)*
- Examine opportunities and impacts relating to adjacent land uses
- Analyze view opportunities from the site and minimize the development's visual impact on surrounding areas
- Evaluate the site's historic and existing land uses

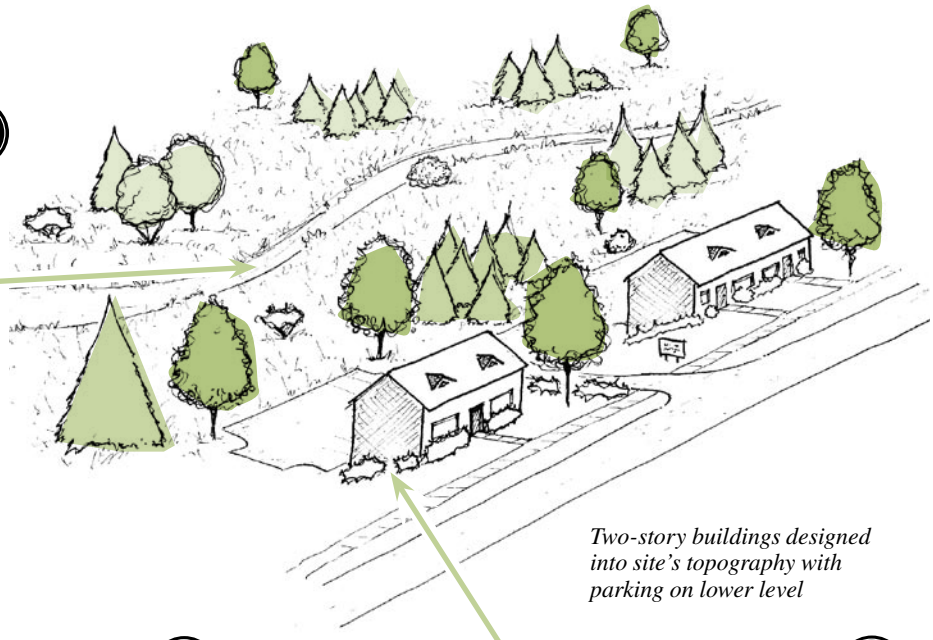
KEY POINTS

- **Conduct a site assessment** to determine irreplacable natural resources and the most appropriate building sites.
- **Explore potential connections to adjacent properties**, including trails, open space, parking, wildlife corridors, and access.

Natural Landscape Character

Farms, pastures, orchards, vineyards, and expansive forests cover our region's great dunes and ridges. Interwoven among the lands are numerous lakes, rivers, and streams. The area's waters and lands drive the economy and contribute to citizenry's sense of identity. Protection of our natural landscape character is critical to ensuring the continued environmental and economic vitality of the five-county region. Developments designed for specific conditions can help protect and enhance the region's natural and manmade character. A building's or development's design and location should reflect a site's topography, natural features, and sensitive areas.

Preserving Sensitive Areas
To preserve wetlands, wildlife habitats, woods, and steep slopes, buildings and other improvements should be located on a site's least environmentally sensitive land. In some cases, local jurisdictions may relax setback requirements to allow for the preservation of a site's natural features.



Two-story buildings designed into site's topography with parking on lower level

Natural Features
Buildings and other improvements should be integrated into a site's natural landscape with mature trees, especially large stands of trees, maintained to the greatest extent possible. Refer to **Critical Design Practices:** *Scenic Views & Development, Open Space,* and *Water Resource Protection* for additional information.

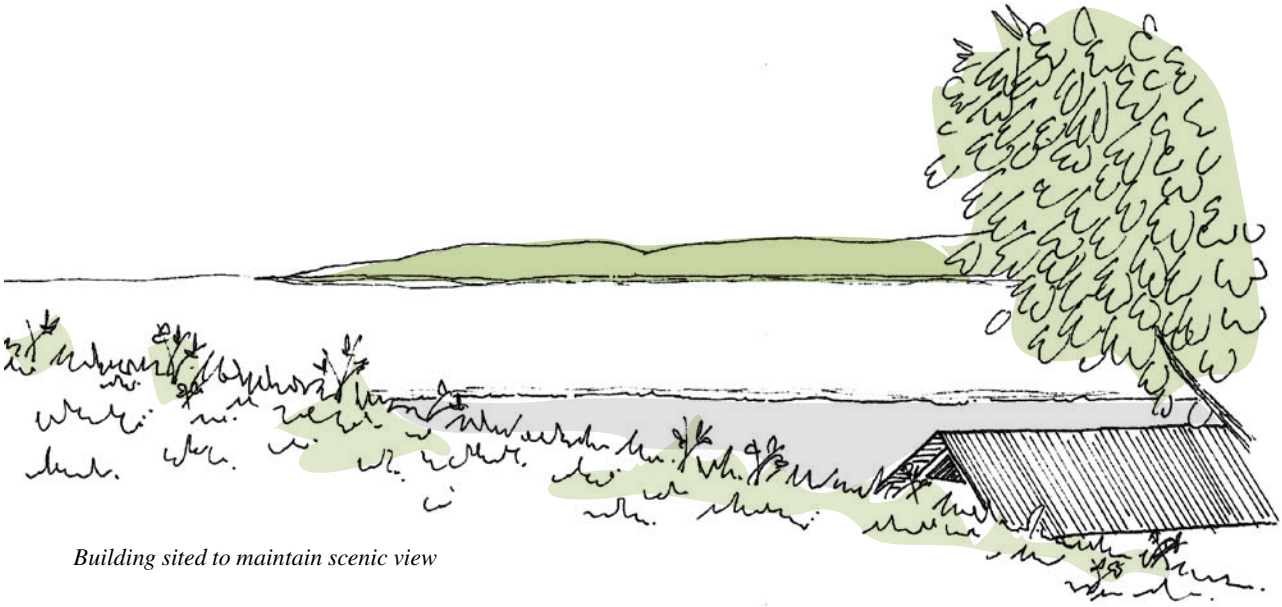
Topography
Development on sloping or hilly sites requires great care and restraint. Consideration should be given to the preservation and enhancement of the larger area surrounding a site. Hilltops and valleys, bluffs and dunes form integral parts of many of our treasured vistas and natural areas. Sensitive development of these areas is critical to maintaining the natural character of the region.

- Encourage the construction of buildings designed to fit into sloping sites with minimal alteration of the **topography** and **natural vegetation**. Minimizing grade changes protects not only a site's natural character but also soil, vegetation, and water. Incorporating topography into the building design and site layout provides opportunities for grade-level access to multiple floors and reduces the perceived size of the building.
- While federal, state, and local ordinances dictate the preservation of various sensitive ecosystems, the following guidelines provide a general foundation for **protecting the region's sensitive areas:** avoid sites with severe slopes of twenty (20) percent or greater, as well as site improvements which necessitate extensive grade changes, and protect natural areas during construction by prohibiting the storage of building materials or equipment in sensitive areas.

Site Setting

Scenic Views & Development

The Grand Traverse Bay region's numerous scenic views are among the intangibles which help create our unique sense of place and draw people to the area year after year. A balance of economic development and environmental interests requires designing new developments in a way that maintains and benefits from scenic views and vegetated ridge lines.



Building sited to maintain scenic view

Scenic Views

Scenic views have two important characteristics. First, they have a focal point: a feature that is the object of a view *(e.g., a landmark building, a streetscape, farmlands, a natural feature).* Second, they have specific access points or areas from which the focal point is best viewed *(e.g., scenic turn-outs, pathways, hilltops).* When siting buildings, consider the structure's relationship to unobstructed views which encompass large areas of land. Whenever possible, site buildings to retain and utilize significant views *(e.g., open spaces, historic buildings, waterfront, parks).* To preserve scenic views, local jurisdictions may consider altering setback requirements or other design guidelines *(e.g., permitting higher structures when width is reduced)* if doing so does not have a negative impact.

KEY POINTS

- **Protect scenic views** by setting aside open land or placing development where it has the minimum visual impact; clustering residential, commercial, and other development to retain open space; retaining naturally occurring vegetation to the maximum extent possible; and planting predominately native species in areas visible from roads.
- Local jurisdictions can preserve scenic views by **purchasing conservation easements** on shorefront property as it becomes available.

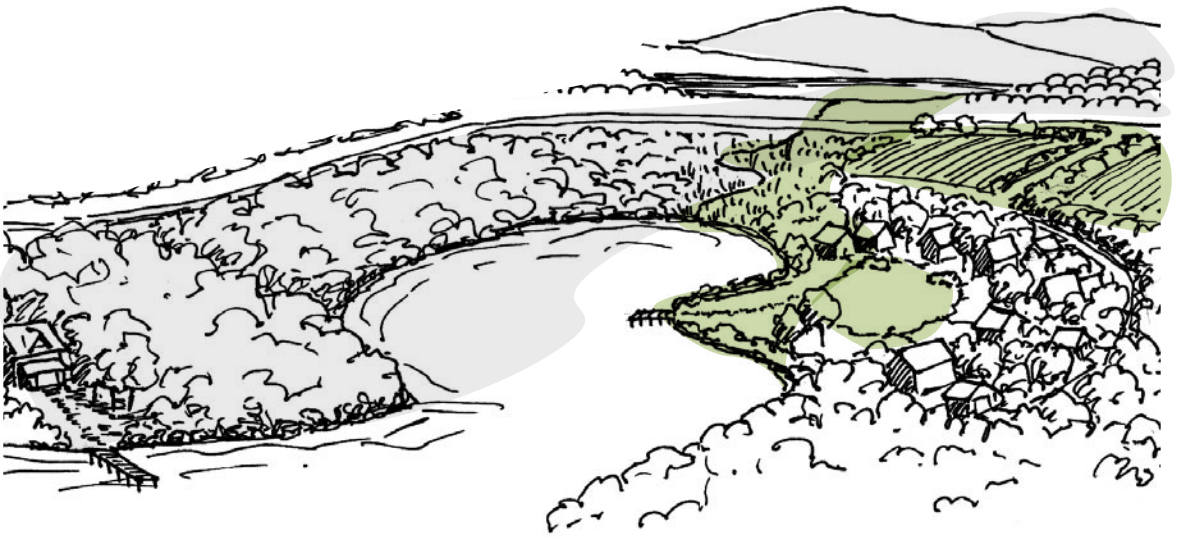
Hillside Development
Development on hilly or sloping sites can visually impact a landscape significantly greater than the area bounded by property lines. Ridge lines, graceful and dramatic in their natural state, can be protected while allowing development under and within the tree canopy.

Roadway Development
Just as development throughout the region should complement the natural landscape, views along roadways should be pleasing, not visually chaotic. Corridor development should adhere to the same principles as other projects – the critical design practices which apply to development throughout the five-county area regardless of type or location.

- **Ridge development** should minimize tree removal for structures and roads to maintain natural appearance.
- **Structures should be tucked into natural vegetation** *(i.e., under the tree canopy)* and landscaping used to minimize a development's impact on the skyline.
- Due to the high visibility of hillside developments, **special care should be given to site lighting.** Refer to **Critical Design Practices:** *Site Lighting & Utilities* for additional information.
- To help maintain the regional character and scenic aspects of the surrounding area, **avoid developing already barren ridges** or do so with only very low density. **Incorporate native landscaping** to minimize the visual impact of site alterations and to revegetate previously cleared areas.
- For general information related to corridor development, refer to **Critical Design Practices:** *Sign Design & Placement, Site Lighting & Utilities, Parking,* and *Roadways*.

Natural Resource Protection

Our region's abundant natural resources add to the attractiveness and value of a development if they are preserved, protected, and celebrated. Natural resource protection ranges from woodland, habitat, or water resource protection to redeveloping existing properties rather than building on undeveloped greenfield sites.



Habitat Protection

Expansive natural areas once covered the Grand Traverse Bay region and provided wildlife species with extensive habitat. Development impacts our region's wildlife through fragmenting habitats. Local jurisdictions that promote low-impact development techniques help preserve the greatest amount of contiguous habitat – on a site or, ideally, connected to natural areas on adjacent properties. Local jurisdictions are encouraged to work together and with public and private organizations to establish wildlife corridors.

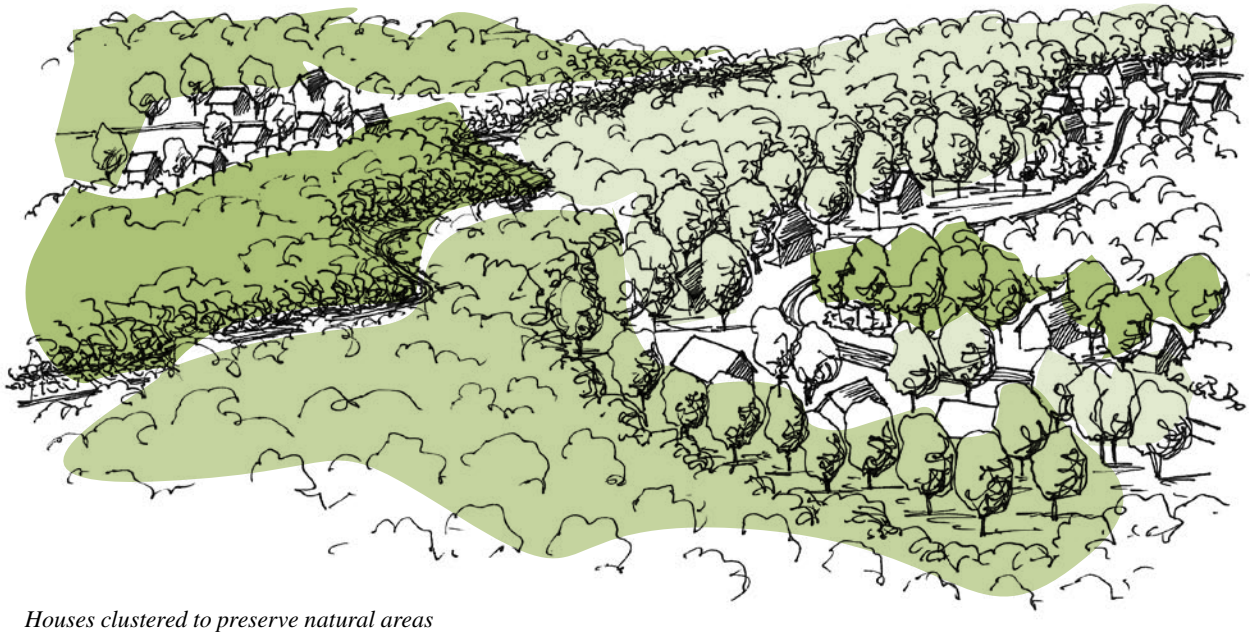
KEY POINTS

- **Clearing only the minimum vegetation** necessary to develop a site can result in greater land value, lower initial development costs, lower upkeep costs, and a more natural landscape appearance.
- **Contact state and local agencies** for assistance with natural resource protection. Refer to **Critical Design Practices:** *References* for a list of local organizations.
- **Protect and/or restore the highest quality wildlife habitats** on a site and, whenever possible, establish connections to natural areas on neighboring sites.

Woodland Protection

Woodland development requires a special sensitivity to maintain a delicately balanced environment. Forested landscapes provide an evolving and renewable ecosystem with economic, environmental, and social benefits. Preserving the natural vegetation of sites throughout the Grand Traverse Bay region contributes to healthier, more functional ecosystems and landscapes.

Existing developments throughout the region demonstrate how development and forests can coexist, as well as the benefits of preserving woodland *(e.g., Wood Winds, Port of Old Mission, Cedar Valley Ridge)*. Our region's trees improve air and water quality, contribute to stormwater management, and help reduce heating and cooling costs by providing shade and blocking winds. Preserving a site's woodland additionally enhances a development's economic value.



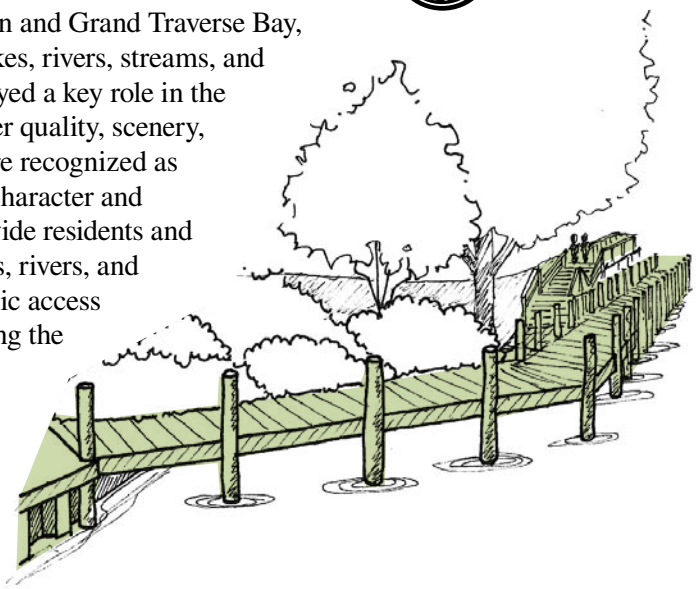
Houses clustered to preserve natural areas

- Local jurisdictions should **encourage developments that incorporate woodland protection**, balancing both short- and long-term economic considerations for owners and the region.
- Local jurisdictions that provide some **flexibility in siting buildings** *(i.e., modifying setback requirements)* facilitate the preservation of the largest contiguous tracts of woodland possible.
- **Mature trees offer many benefits** including improved air and water quality, reduced heating and cooling costs, as well as stormwater management.

Natural Resource Protection

Water Resource Protection

Much of our area's abundant beauty can be attributed to its natural waterways. In addition to Lake Michigan and Grand Traverse Bay, the region is endowed with numerous lakes, rivers, streams, and wetlands. Waterways and shorelines played a key role in the region's history and culture. Today, water quality, scenery, habitat, and recreational opportunities are recognized as crucial elements of our region's natural character and economic base. Shared waterfronts provide residents and visitors an opportunity to enjoy our lakes, rivers, and streams: trails and riverwalks offer public access while protecting sensitive vegetation along the shorelines.



Shoreline Appearance & Landscape

Shorelines are one of our area's most cherished natural assets. Diverse and varied in character, areas adjoining lakes, rivers, and streams range from tall sand dunes and marshy wetlands, to rocky beaches and densely wooded forests. While constantly changing dunes may be visually distinctive, the region's vegetated shorelines offer greater natural resource protection. Trees, shrubs, and herbaceous plants help stabilize shorelines and minimize erosion, as well as provide habitat for coastal species.

To preserve these natural systems, shoreline areas should remain natural to the greatest extent possible. Even in urban areas, indigenous vegetation should be retained as a natural filter system, while emergent vegetation such as cattails and bulrushes can reduce shoreline erosion caused by stormwater runoff, wind, and boat traffic.

Stream with natural shorelines

KEY POINTS

- **Require large setbacks from shorelines for structures** and restrict seawall construction except to prevent imminent property damage.
- **Require shielded lighting** on docks and along shore, visually screening development from the water.
- Most permits to establish a permanent shoreline are handled by the State of Michigan Department of Natural Resources; however, where applicable **local standards should be established** to provide the greatest protection of natural shorelines and water resources.
- **Retain or restore native trees and shrubs** along streams to moderate water temperature.

Buildings set back from shoreline with vegetated buffer, Garfield Township, Grand Traverse County

Buffering Shorelines

Maintaining or establishing shoreline buffers is a proven method for protecting water resources. Buffers consist of a vegetation strip of trees, shrubs, and herbaceous plants along shorelines to stabilize shorelines, minimize runoff pollution, provide wildlife habitat, and preserve natural scenic beauty. Shaded stream banks keep water cool benefitting cold water species such as trout. Water views can be created without damaging the effectiveness of shoreline buffers.

When establishing a shoreline buffer, consult with a landscape architect, conservation district, or horticulturalist to determine which plants will be most effective depending on the site's slope, amount of moisture, and soil type. Local jurisdictions are encouraged to establish ordinances specifying the extent to which shoreline vegetation may be removed.

Shoreline Building Placement

In order to protect the environmental and aesthetic quality of our region, local jurisdictions should require buildings be clustered and set back from shorelines to allow for an effective natural buffer zone to protect water quality and wetland habitats. Additional benefits from building setbacks include more potential for open space along the water, a more natural appearing shoreline, and longer building life in areas at high risk for coastal erosion.

- **Retain natural vegetation or plant** twenty-five (25) to fifty (50) foot wide vegetation strips to buffer waterways from the effects of traffic and building development.
- **Biofiltrate** runoff on-site to help protect the quality of the region's watershed.
- **Minimize soil erosion** by preserving shoreline vegetation and limiting the area and duration of clearing and grading *(e.g., clearing a maximum of thirty (30) percent of vegetation between thirty-five (35) and seventy-five (75) feet of the ordinary high water mark and no clearing in excess of a specified width).*

Natural Resource Protection

Water Resource Protection *continued*

Reducing Costs
Retaining natural vegetation can contribute to a reduction in landscaping maintenance costs *(e.g., mowing, irrigation, fertilizers).*

Natural steamside vegetation maintained in commercial development, Garfield Township, Grand Traverse County

Wetlands
Wetlands are an essential element in protecting the region's water quality. Retaining wetlands as part of a natural stormwater or open space system lessens infrastructure costs and flooding frequency. It also increases open space and wildlife habitat.

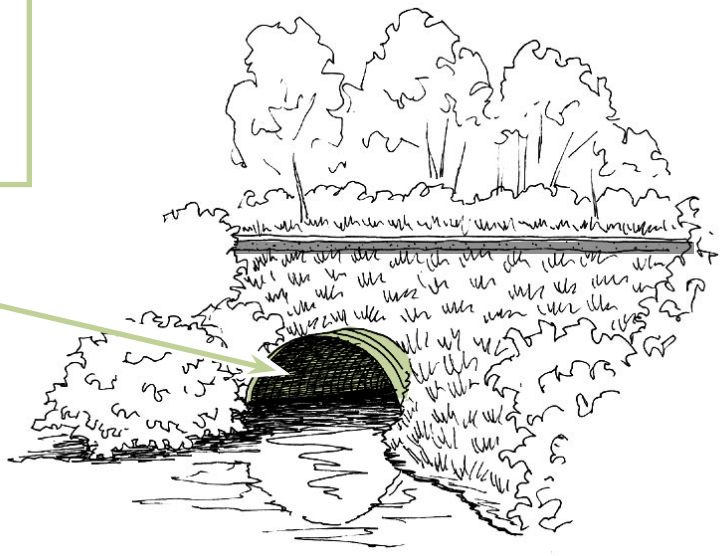
Non-Point Source Pollution
Protecting water quality includes addressing non-point source pollution, which can degrade the quality of our region's rivers, lakes, and bays. Non-point source pollution typically contains nutrients, oils, solvents, and other hazardous substances and comes from widely dispersed locations including farm fields, roadways, parking lots, and lawns. On-site methods for addressing non-point source pollution include incorporating pervious paving and biofiltration in parking areas, and buffers along waterways. For specific information on how to address non-point source pollution, refer to The Watershed Center Grand Traverse Bay (www.gtbay.com).

KEY POINTS

- Buffer zones, especially in **flood plain areas,** should be preserved from development for environmental and public safety purposes.
- **Set buildings back from shorelines** to prevent water quality degradation from construction activities and impervious surfaces. Structures should be at least fifty (50) to seventy-five (75) feet from the landward edge of shorelines, wetlands, drainageways, and areas with unique ecological characteristics whenever possible.

Sand Dune Protection
Sand dunes provide one of the region's most distinctive and memorable shoreline views. Although shorelines are alluring places to locate residences and commercial establishments, sand dunes are exceptionally sensitive and unstable ecosystems. Development of sand dunes can damage this unique natural resource, diminish its scenic qualities, and increase coastal erosion.

Stream Protection
Improved road crossings can be designed to allow the flow of rivers to be unobstructed by removing culverts and installing arched culverts (no bottoms) or bridges.



- **Locate buildings away from sand dunes** and other erosion sensitive areas. Preserve dune and slope vegetation, and locally enforce dune ridge setbacks.
- **Utilize bridges or arched culverts** when roadways cross streams.

Natural Resource Protection

Conservation Planning

Conservation planning *(i.e., cluster developments, open space neighborhoods, planned unit developments)* provides jurisdictions within the five-county region a method of encouraging low-density development while protecting valuable natural resources and helping maintain viable agricultural operations. This technique locates structures in compact groupings in smaller areas in order to preserve large tracts of usable open space *(e.g., fields, orchards)* or sensitive environments *(e.g., wetlands, woodlands, steep slopes)* over the remainder of the site. Generally these developments have the same allowed density of the underlying zoning district; however, structures are clustered together on smaller parcels to preserve open areas and reduce development and infrastructure costs. Conservation planning enhances sustainability and reinforces the physical and aesthetic character of the region.

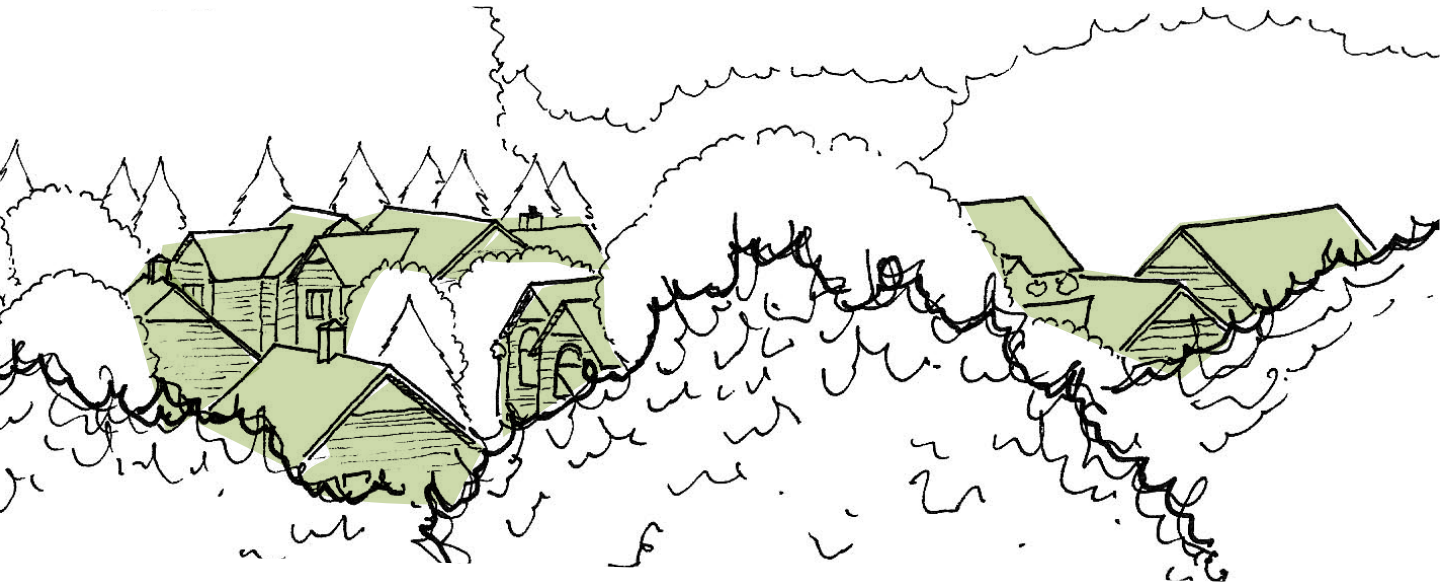
When Designing Cluster Developments:

- Conduct site assessment
- Locate and design quality open space
- Provide adequate setbacks from agricultural uses
- Locate and screen clustered buildings, structures, and storage facilities to minimize visual and environmental impact
- Preserve trees, shorelines, farmlands, and other natural resources
- Establish buffers and screens between residential properties and incompatible neighboring uses
- Incorporate low-maintenance landscaping
- Minimize stormwater runoff and impact on natural areas through roadway design, location, and reduced width
- Encourage shared access roads and joint driveways
- Provide for safe pedestrian circulation
- Incorporate alternative surfacing materials
- Control and recycle stormwater runoff
- Maximize views
- Establish gardens
- Control signage and limit billboards

Clustered cottages at Crystal Mountain Resort, Benzie County

KEY POINTS

- **Cluster structures** based on a site's specific conditions *(i.e., avoid critical areas, resource lands, slopes in excess of twenty (20) percent, ridge lines),* and the location of structures on adjacent properties.
- **Retain existing natural features** *(e.g., wetlands, dunes, stands of trees)* and preserve and/or establish buffers (twenty-five (25) to fifty (50) feet wide) around wetlands and water bodies.
- Where sewer service is unavailable, **septic systems can be provided for smaller** lots by locating septic systems outside individual lots in an easement within the protected open space or through a central system for multiple lots.
- **Densely cluster homes** in small areas to preserve usable open space.



Economic Support for Cluster Developments

In addition to environmental and aesthetic benefits, this conservation planning technique can be financially advantageous to local developers. Cluster developments offer developers the opportunity to construct the allowed number of homes on a site while reducing infrastructure installation costs: shorter roadways needed to serve smaller-sized lots in a cluster development result in lower road, sewer, and water line construction costs. In a competitive housing market, developers can pass these cost savings on to buyers, thereby making housing more affordable.

Siting buildings in compact groupings and protecting open areas for recreation, wildlife, and agriculture produces financial benefits to developers and home owners. Economic studies reveal how properties in close proximity to protected open spaces typically result in higher initial and resale prices than comparable conventional developments. The protected natural areas and views more than compensate for reduced lot sizes. Cluster developments produce financial benefits for developers, home owners, and the original land owners.

- **Promote development in already disturbed areas** of a site and on the least productive soils.
- **Clustering buildings often produces financial benefits** through reduced infrastructure costs – both operating and installation – and increased market value through proximity to preserved common space and unique natural areas.
- **Protect habitats, especially high-quality habitats,** to the greatest extent possible and **establish connections to wildlife corridors** whenever possible.

Natural Resource Protection

Conservation Planning *continued*

Open space and farmland preservation through cluster development at Telford Farm, Leelanau County

Open Space, Farm Lands, & Sensitive Ecosystems
Although clustering is a useful site planning tool on parcels as small as ten acres, it is especially beneficial when developing sites where large portions can be protected open space. Retaining significant natural areas benefits both new residents and the larger region.

Local jurisdictions are encouraged to require a minimum of 60 percent of the site be protected open space. While a variety of uses should be permitted *(e.g., farming, timber, recreation),* open areas should remain in one contiguous parcel and be linked with open spaces of adjacent cluster developments or publicly owned lands to the greatest extent possible. Protected lands should remain in a natural state unless employed for farming or forestry, and landscape restoration and wildlife habitat creation should incorporate low-maintenance and climate-appropriate species to the greatest extent possible to retain regional character.

SMART GROWTH 1 SMART GROWTH 2 SMART GROWTH 6

KEY POINTS

- **Retain large portions of open space** as natural, farm, or forest lands.
- **Critical areas** *(e.g., wetlands, steep slopes)* and resource lands *(e.g., agricultural lands)* may be included as part of the required open space.
- **Design open spaces for farming or forestry to minimize conflicts** between proposed housing and existing farm operations, including a 200 foot vegetated buffer to minimize impact on resource lands while granting views from residences. Local jurisdictions can encourage organic farming to further reduce potential conflicts.

Cluster Developments Complement Rural Landscapes

A survey of rural areas reveals that homes and farm structures were historically built in clusters near roadways or on higher, often sloping, portions of a site. These building patterns retained the most productive lands for agricultural use and produced a landscape of building clusters interspersed amongst large expanses of open fields and woodlands. New developments that cluster building sites to preserve open areas thus continue a long-standing development pattern in rural areas.

Cluster developments can be effective both on small and large sites. In rural areas, clustering should be encouraged in developments with three (3) or more sites. For large-scale developments, incorporating a mixture of uses is advisable. Refer to **Mixed-Use Developments** for more information.

Plan of Cedar Valley Ridge cluster development, Grand Traverse County

Role of Local Jurisdictions

Local jurisdictions can minimize the impact of low density residential development throughout the five-county region by encouraging cluster developments, which help protect the natural environment and maintain the region's rural character. Local jurisdictions are encouraged to revise their zoning ordinances and/or create a cluster development/conservation subdivision ordinance to facilitate cluster development as a use-by-right within established parameters and allow density bonuses for more environmentally sensitive developments. This may encourage developers wary of pursuing cluster projects given the length and risk involved in the existing process to propose the types of developments local jurisdictions desire. In areas where protecting natural or scenic resources is essential, local jurisdictions may wish to establish an overlay zoning district in which clustering is a requirement.

- Local jurisdictions should **encourage projects that include conservation planning techniques**, as well as revise their zoning ordinances to concentrate development in smaller areas in order to preserve large tracts of usable, natural open space.
- Local jurisdictions are advised to **establish maximum, as well as minimum, lot size requirements** as part of their cluster development ordinances.
- Planned Unit Developments (PUDs) can facilitate cluster developments but frequently involve a lengthy administrative and review process. Local jurisdictions are encouraged to revise and/or establish zoning ordinances to **establish cluster developments as a use-by-right** within established parameters (refer to **Critical Design Practices:** *Site Setting*).

Natural Resource Protection

Conservation Planning *continued*

Narrow street through cluster development with screening provided by existing and new vegetation

Lot Size & Roadways

Reducing lot sizes allows clustered structures to be carefully placed on a smaller portion of the site than otherwise possible. Cluster zoning typically limits the buildable area to less than half the site with structures permitted on the least visually prominent and environmentally productive portions of the site *(e.g., the edges of fields or within wooded areas, except where this would conflict with preserving the most valuable natural resource).*

Clustering structures allows for a reduction in roadways on a site. Roadways should be designed to complement a site's natural topography. Narrower streets facilitate creation of human scaled neighborhoods, slower traffic speeds, lower construction and maintenance costs, and reduced stormwater runoff volume.

Buffering & Screening

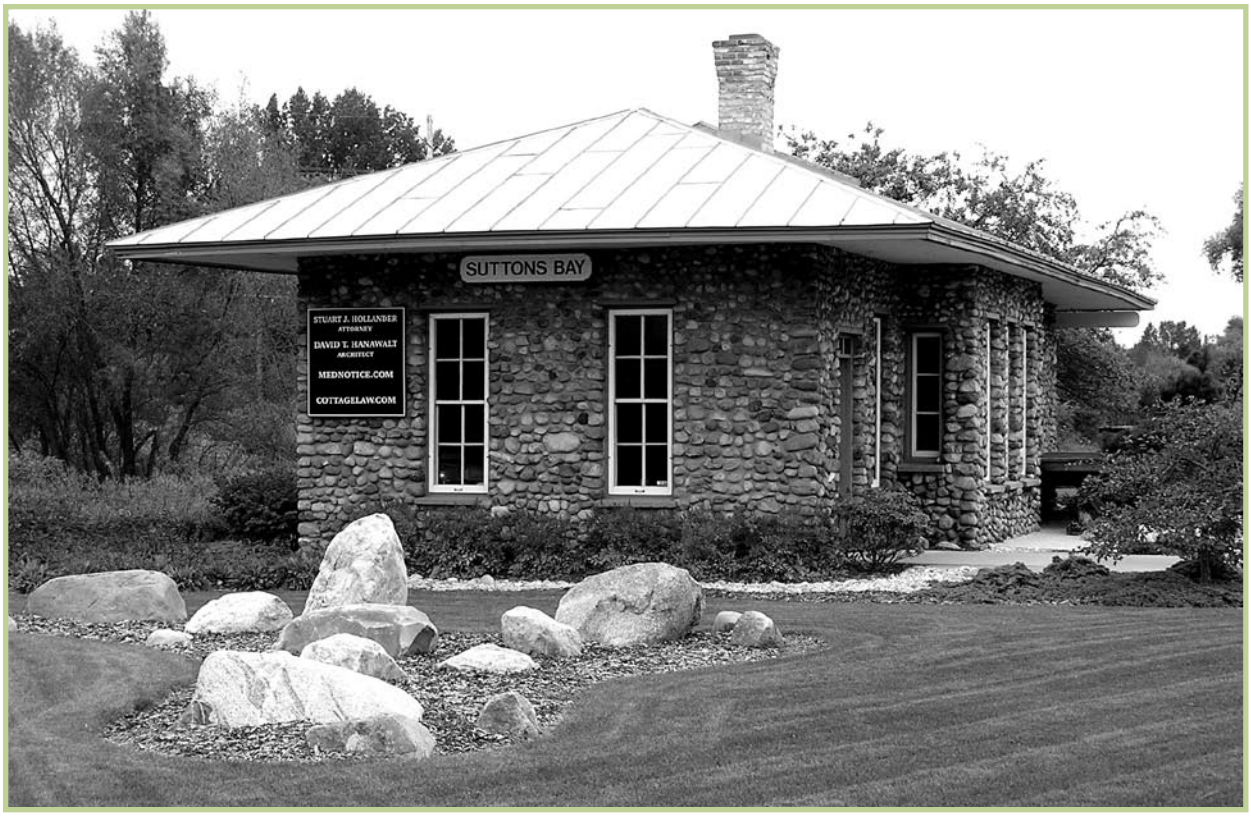
Judicious use of landscape buffers and screens can minimize the impact of cluster developments on adjacent properties. Where downsized lots adjoin standard-sized lots or other uses, local jurisdictions are encouraged to require buffer strips of densely planted native trees and shrubs. Buildings should be screened from roadways and existing vegetation preserved to the greatest extent possible.

KEY POINTS

- **Establish buffers and screens** of approximately seventy-five (75) feet between clustered buildings and adjacent structures and off-site roadways.
- **Downsize road rights-of-way to reduce scale and slow vehicle speed,** but still permit safe emergency vehicle access.
- **Minimize stormwater runoff** by incorporating infiltration systems and permeable paving.

Redevelopment of Existing Properties

Redeveloping existing structures and land promotes compact development patterns which aids in the protection of the Grand Traverse Bay region's natural resources. Whether reusing an existing structure for a new function or constructing a new building within an established neighborhood, redevelopment and infill reduces development pressure on our region's greenfields while revitalizing existing communities.



Train depot converted to office space, Suttons Bay, Leelanau County

Adaptive Reuse & Greyfield Development
The adaptive reuse of older buildings can contribute to the preservation of local community character, maximize local infrastructure investment by promoting development in areas where infrastructure is already established, and increase property values by restoring properties *(i.e., greyfields)* to productive uses. Older buildings can be adapted for a variety of new uses while retaining their historic features.

- **Encourage adaptive reuse and greyfield development** for economic and community revitalization.
- **Developing in established areas** reduces development pressure on greenfield sites.
- Promote **adaptive reuse** to maximize the community's infrastucture investment.

Natural Resource Protection

Redevelopment of Existing Properties *continued*

Redevelopment of former contaminated industrial site, Traverse City, Grand Traverse County

Brownfield Development
Brownfield development restores once contaminated abandoned, idled, or under-used properties, thereby making them available for productive uses. A site's location, as well as the State of Michigan's incentives and financing options, often prompts developers to undertake remediation and rehabilitation measures. Restoring and reusing properties is an enormous environmental, economic, and aesthetic benefit to the region.

KEY POINTS

- **Brownfield development** restores properties and capitalizes on the community's infrastructure investment.
- **The State of Michigan offers incentives and financing** options to encourage brownfield development.

Infill projects can complement existing neighborhoods

Infill

In the region's developed areas, existing patterns of land division and building provide the framework to support infill development. Infill is the development of skipped over, underused, or vacant properties within our region's communities. This technique not only meets land use needs but can help revitalize established areas. Infill offers communities a method of maximizing their local infrastructure investment by promoting development in areas with established infrastructure and support services. Infill projects also offer opportunities for communities to redirect development through a Transfer of Development Rights program. For additional information, refer to **Critical Design Practices:** *Open Space Protection Tools.*

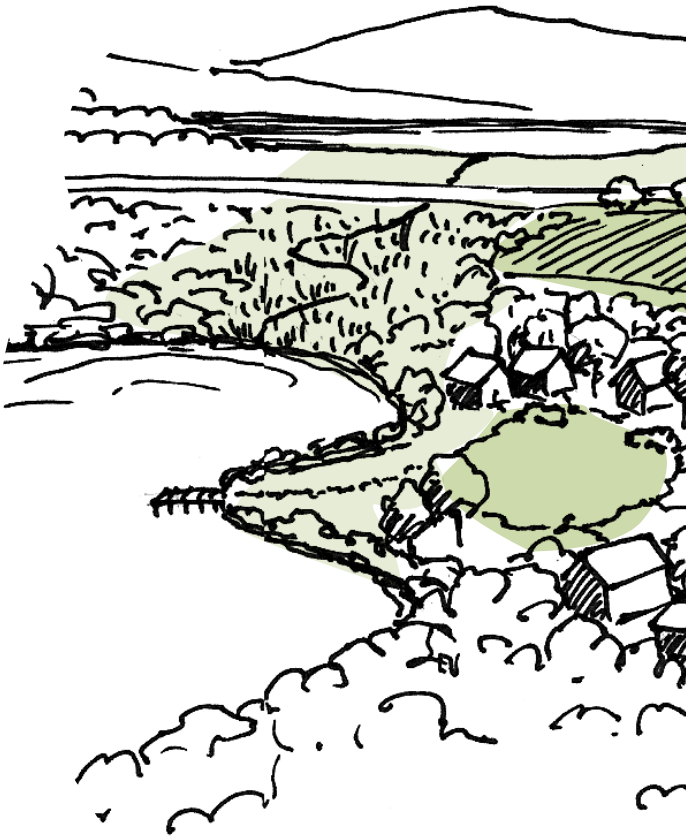
Residential infill project in downtown Traverse City, Grand Traverse County

- Local jurisdictions that offer **density bonuses or other incentives** help facilitate brownfield redevelopment and infill projects.
- **Infill development** maximizes public infrastructure and support services investment.
- **Infill reduces development pressure on greenfields** beyond the urban fringe.

Open Space

Public and private open spaces are a significant environmental, aesthetic, economic, and recreational value to the Grand Traverse Bay region. Throughout the year, local citizens and visitors enjoy the benefits afforded by both natural and designed open spaces. The variety of open spaces in the five counties includes miniparks and plazas in urban environs and expansive fields and forests in rural areas, as well as neighborhood parks, sports fields, trails and riverwalks, nature preserves, wetlands, floodplains, private yards, public gardens, and tree-lined streets.

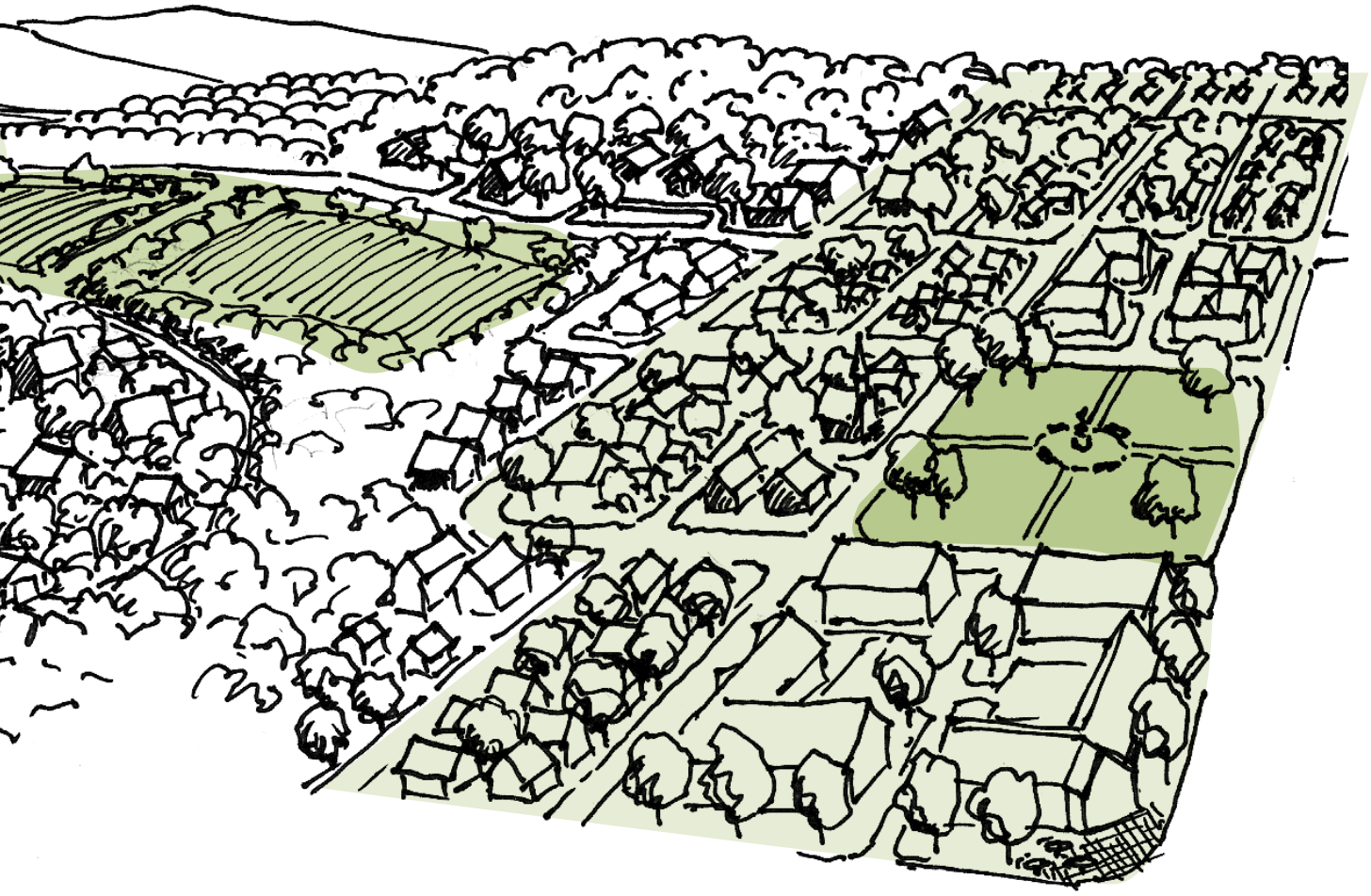
While some open spaces *(e.g., orchards, vineyards, fields, valleys)* are of scenic value, community members and developers alike recognize the economic value of our region's open space. Calculating the exact value of open space in economic terms may be difficult; however, area residents, as well as tourists, recognize open space as one of the Grand Traverse Bay region's most distinctive and valuable features.



Economic Value
Preserving and incorporating a site's natural features into usable open spaces enhances a development's identity and increases the value of neighboring properties. Economic studies repeatedly reveal how residential and commercial properties generally result in higher market values when in close proximity to open spaces – whether golf courses, forests, or parks.

KEY POINTS

- **Open space should be one of the first elements considered when designing a site** rather than the leftover, non-buildable lands. Buildings and the adjacent open spaces are interdependent and integral elements of site design. Even on small parcels of land, open spaces of sufficient size to accommodate human activity can be created through careful siting of buildings and appropriate landscape design.
- Preserving open space often significantly **increases property values** of residential and commercial developments.



Environmental Value

Open space is an invaluable ecological resource which contributes to the environmental health of our region. Open space provides habitats for indigenous and migratory species. It facilitates groundwater recharge, as well as a reduction in stormwater runoff as precipitation infiltrates through plants and the soil. An open space's vegetation also contributes to air quality and counters heat sinks created by intensely developed areas.

Aesthetic Value

Open spaces enhance streetscapes and civic life. When defined by buildings and streets, public commons *(e.g., greens, courtyards, squares)* can highlight buildings that front common areas and serve as a foundation for a community's social life. Dedicated open spaces which are kept natural are also valuable public assets and contribute to the visual character of the Grand Traverse Bay region.

- Establishing and protecting **contiguous open spaces** should be encouraged, especially in areas adjacent to environmentally sensitive lands and lands already protected.
- Consider the **protection of riparian ecosystems** through the establishment of stream corridors which could connect other environmentally sensitive areas and provide valuable wildlife habitat.
- Open space of **sufficient size** to preserve natural landscapes and be usable for multiple purposes can be achieved by clustering building and locating a site's open space next to that of an adjacent property's. Refer to **Critical Design Practices:** *Conservation Planning* for more information.

Open Space

Open Space Categories

The Grand Traverse Bay region includes a variety of open spaces. Whether public or private, small or expansive, these open spaces contribute to the region's attractiveness.

Farmers market in parking lot, Traverse City, Grand Traverse County

TBAYS soccer fields, Grand Traverse County

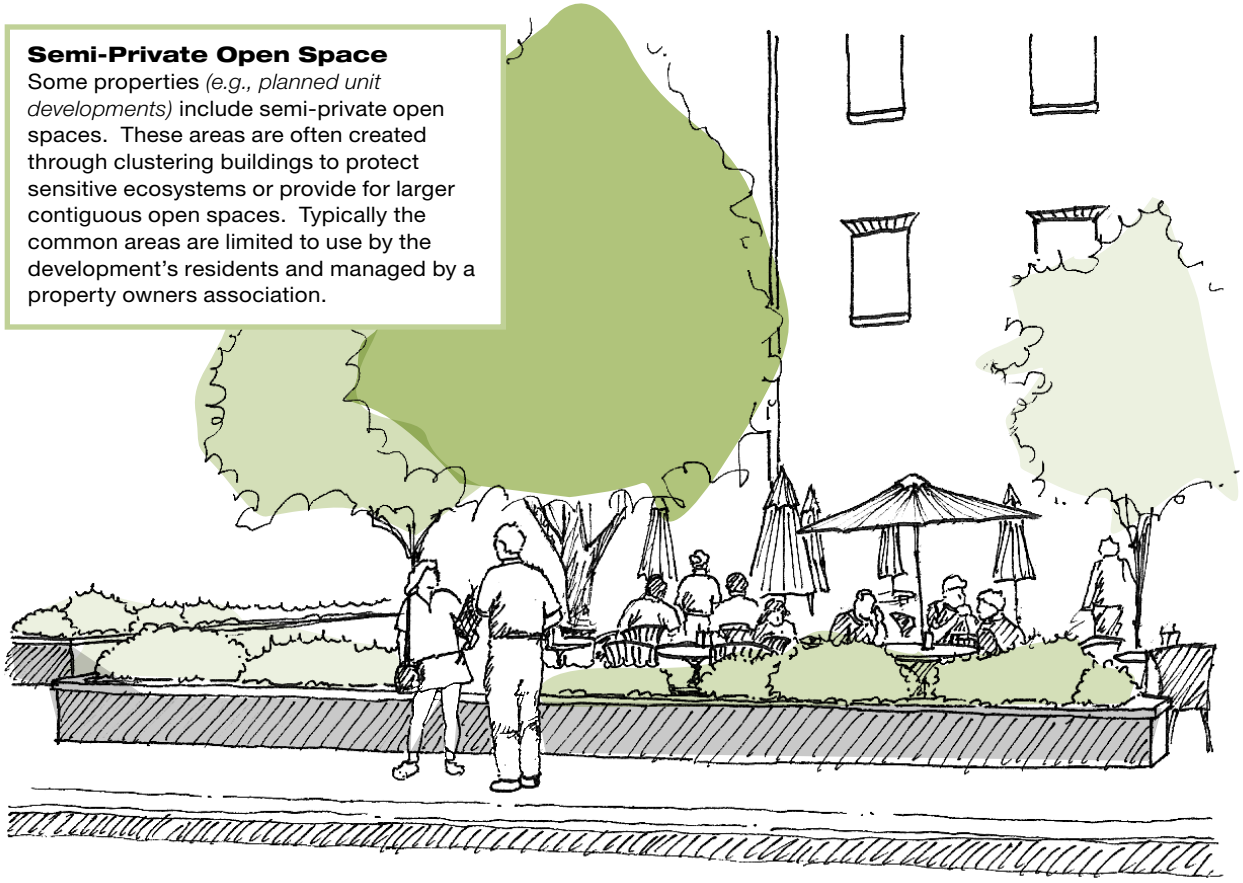
Public Open Space
Public open spaces are more than playing fields and active recreation sites. They are also small residential squares and miniparks which provide passive recreation opportunities such as pathways for strolling, benches for reading or bird watching, and quiet areas for enjoying vistas. Open spaces can also be shared spaces with multiple uses: parking areas that double as basketball courts after regular business hours or flood plains with ball fields and walking trails.

The Open Space, Traverse City, Grand Traverse County

KEY POINTS

- **Build recreational opportunities** *(e.g., bike and pedestrian trails)* into open spaces so an individual site's open space can be incorporated into a local and/or regional system. This provides a substantial amenity to the region. For sites with sensitive habitats, establish open spaces with passive recreational uses and buffers to protect environmentally sensitive areas.
- **Recreational uses** *(e.g., ball fields, walking or bike trails)* can be sited in flood plains.

Semi-Private Open Space
Some properties *(e.g., planned unit developments)* include semi-private open spaces. These areas are often created through clustering buildings to protect sensitive ecosystems or provide for larger contiguous open spaces. Typically the common areas are limited to use by the development's residents and managed by a property owners association.



Semi-private open space adjacent to City Centre Plaza, Traverse City, Grand Traverse County

Private Open Space
Open space typically does not include privately owned spaces which vary in size from small, residential courtyards to expansive agricultural lands. These areas, nevertheless, contribute to the Grand Traverse Bay region's character. Communities are encouraged to identify significant open spaces within their jurisdiction and explore ways to protect them for enjoyment today and for future generations.

- Encourage the protection of existing open spaces and the creation of such spaces in underserved areas. Explore opportunities for creating **open spaces which serve multiple uses.**
- When creating development plans, look for opportunities to maximize open space size by creating **shared open areas with adjacent properties.**

Open Space

Open Space Design Elements

The design of open space should facilitate circulation and provide gathering places in order to encourage public participation in commercial, civic, and recreational activities. Safe open spaces that are visible to, yet protected from, street activity can be established through grade changes and the incorporation of low hedges and open air barriers.

The design should include safe, clearly marked pedestrian and bicycle access, as well as adequate parking (refer to **Critical Design Practices:** *Parking* for more information). Other common elements of frequently used open spaces include connected pathways, site furniture, appropriate lighting, waste receptacles, clearly defined edges, and an orientation to receive the greatest amount of sunlight and protection from strong winds.

Pubilc open space on Boardman River, Traverse City, Grand Traverse County

Pedestrian plaza at Clinch Park, Traverse City, Grand Traverse County

KEY POINTS

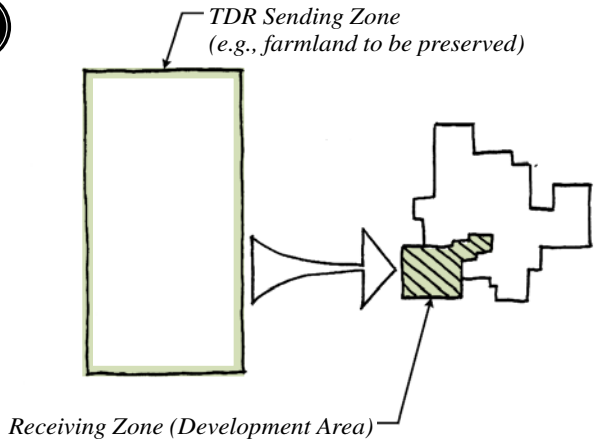
- Jurisdictions may wish to consider establishing **ordinances requiring developments to dedicate land for a trail network**, as well as open space requirements, especially for developments over twenty (20) acres.
- Develop places that **provide a setting for public participation** in commercial, civic, and recreational uses.

Open Space Protection Tools

Inasmuch as there is a variety of open spaces in the region, there is a variety of protection methods. These include Transfer of Development Rights, Purchase of Development Rights, Conservation Easements, and Conservation Planning. Refer to **Critical Design Practices:** *Conservation Planning* for specifics on the latter technique.

Transfer of Development Rights (TDR)

Transfer of Development Rights provides local jurisdictions a regulatory tool to redirect development from open space to areas more conducive to development. TDR programs alter development patterns in a community: sending development from one area to another. As with PDR programs, a landowner receives financial compensation for the development rights of a parcel; however, with TDR programs, the development rights are shifted *(i.e., transferred)* to another area within the community. TDR programs offer communities a method for directing development to those areas most appropriate for it. Refer to State of Michigan Public Act 228 of 2003 for specifics.



Purchase of Development Rights (PDR)

Purchase of Development Rights is a voluntary program where landowners receive financial compensation for selling a parcel's development rights to a land trust or similar agency. In return for the development value, a deed restriction is placed on a portion or entire piece of property protecting the land from future development. PDR programs provide land owners capital and ensure the protection of open spaces for future generations.

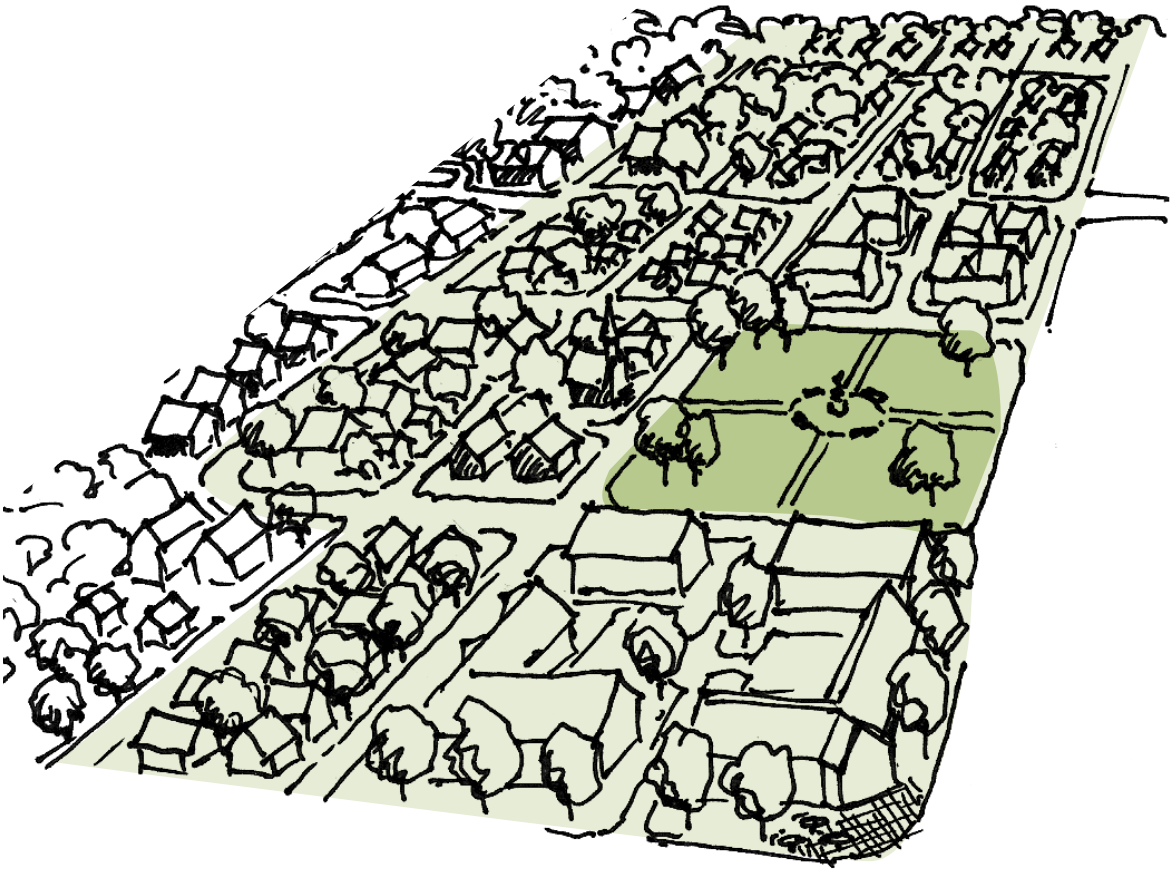
Conservation Easements

A conservation easement – also known as an agricultural preservation easement, historic preservation easement, scenic easement, or forever wild easement – is a legally binding agreement *(i.e., deed restriction)* between a property owner and a land trust. While individuals retain ownership of their property, an easement restricts the development of the property. In return for the donated or sold development rights, a land trust agrees to ensure the terms of the conservation easement are followed through monitoring the parcel, enforcing the easement's terms, and long-term stewardship. Easements are drafted to meet the specific needs of a property owner while adhering to the minimum requirements of a land trust. All donations are voluntary; nonetheless, since most land trusts are non-profit, donations frequently qualify as tax deductions. The income tax and property tax benefits many property owners receive provide an additional enticement to establish a conservation easement. Although land trusts can preserve land through leasing of property, management agreements, and mutual covenants, conservation easements provide the greatest protection for conservation.

- **Transfer of Development Rights redirects** development from a sending zone *(i.e., area to be protected)* to a receiving zone *(i.e., areas suited for development).* This allows communities to protect farmland or other open spaces while directing development to the most appropriate areas.
- **Purchase of Development Right removes** the potential for development from a parcel of land in exchange for financial compensation to the land owner.
- **A Conservation Easement** is a voluntary agreement between a land owner and a land trust or conservancy to **restrict development on all or a portion of the property.** Property owners can receive income tax and property tax benefits for donating or selling conservation easements.

Elements of Site Design

Residential, commercial, industrial, or agricultural site designs can dramatically improve a community's character. Incorporating elements such as building placement, landscaping, safe access, and parking into a site's natural features – as well as those of well-designed adjacent properties – contribute to the overall quality of our region.



Building Compatibility

A building's height and mass defines its relationship to other structures and the street, as well as contributes to an area's identity. Neighboring buildings of similar size and massing work together to create a pleasing streetscape and provide consistency between adjacent buildings with different uses. Compatibility includes building height and scale, orientation, architectural and landscaping elements, building materials, and roof lines.

KEY POINTS

- A **building's height** should be compatible with adjacent structures and, when necessary, incorporate sensitive transitions in height between low-rise and taller structures. Setbacks and variable roof heights can divide a building's mass into increments that correspond to the scale and massing of neighboring structures.

A streetscape with compatible buildings, Suttons Bay, Leelanau County

Building Height & Massing

In general, buildings with similar but not identical heights give a streetscape a consistency of scale without sacrificing the identities of individual buildings. Repetition creates a pattern while variety is accommodated within certain boundaries. Building height, roof pitches, and roof ridge lines should differ while characteristic massing remains compatible.

A building can be designed and oriented to maximize solar exposure, while minimizing its impact on adjacent structures and open spaces. While tall buildings may block light and the free flow of air, long buildings obscure scenic views. In the Grand Traverse Bay region's cities, villages, and hamlets, the average building height is two stories. Even two-story buildings, however, can impact neighboring properties. Options for minimizing a building's impact on neighboring properties include: increasing side setbacks, stepping back upper floors, and providing landscaping and trees as a visual buffer.

Since building to the maximum building height can alter the character of an area if the existing structures are built below the standard, local jurisdictions are encouraged to implement build-up lines to establish consistent streetscapes. Build-up lines specify the cornice height depending on number of floors, street type, and if a structure is elevated above ground level. It is important that building height not exceed the capacity of local fire fighting equipment.

- **Add false façades** to existing buildings to address significant differences in the heights of adjacent buildings and to improve the coherence of the streetscape as a whole.
- It is important to recognize that **communities change over time,** and building construction or remodeling should fit into the long-term vision.

Elements of Site Design

Building Compatibility *continued*

Building Scale

The communities of the Grand Traverse Bay region have a small-town feel. As a result, it is important that new and remodeled buildings are scaled so a few buildings do not overwhelm the others. New and remodeled buildings can be incorporated into areas with pleasing streetscapes by reflecting the architectural character of surrounding buildings *(e.g., similar design concepts, window patterns, entry configurations, orientation to the street, exterior materials).*

A building's scale refers to its perceived size in relation to a person *(i.e., human scale)* or neighboring structures *(i.e., architectural scale)*. Adjacent buildings sharing human-scaled architectural elements *(e.g., windows, doors, porches, vestibules, stoops, awnings at entrance level, other ground-level pedestrian amenities)* help establish an inviting, pedestrian-oriented streetscape.

Incorporating architectural elements of a human scale into a larger structure's design facilitates a building's integration into a neighborhood with a smaller scale. For instance, on small or narrow sites the massing and design of a building can reduce the perception of its bulk and incompatibility with adjacent structures. Refer to **Critical Design Practices:** *Building Design & Materials* for additional information.

Building incorporating human-scale architectural elements

KEY POINTS

- A **building's appearance** can be dramatically altered with the addition of porches, windows, roof details or the alteration of a roofline. Good design can reduce the apparent size of a building, allowing it to fit in with smaller buildings. The pattern and proportion of windows and doors are important to a building's architectural character and reflect its compatibility with neighboring buildings.
- **Design mixed-use buildings** to have a pedestrian scale and orientation.

Building with multi-level access and parking designed to fit site topography, Benzie County

Reference to Site Topography

Site context is an important consideration when determining the location, size, and shape of a building. The design of new buildings, as well as modifications to existing structures, should reflect a site's specific considerations. Generally buildings that are incorporated into a site's natural topography and reflect how neighboring structures have addressed topographic conditions are more likely to complement the local character. Designing structures in such a way may help reduce their perceived size.

Siting even a relatively short building on the highest part of the site can accentuate its position in the neighborhood and disturb the continuity of a streetscape. Consequently, the prominent placement and use of site topography to establish the importance of a structure should be reserved for buildings of local or community significance.

- **Buildings should reflect the natural topography.** Design structures on sloped sites to accommodate significant changes in elevation.

Elements of Site Design

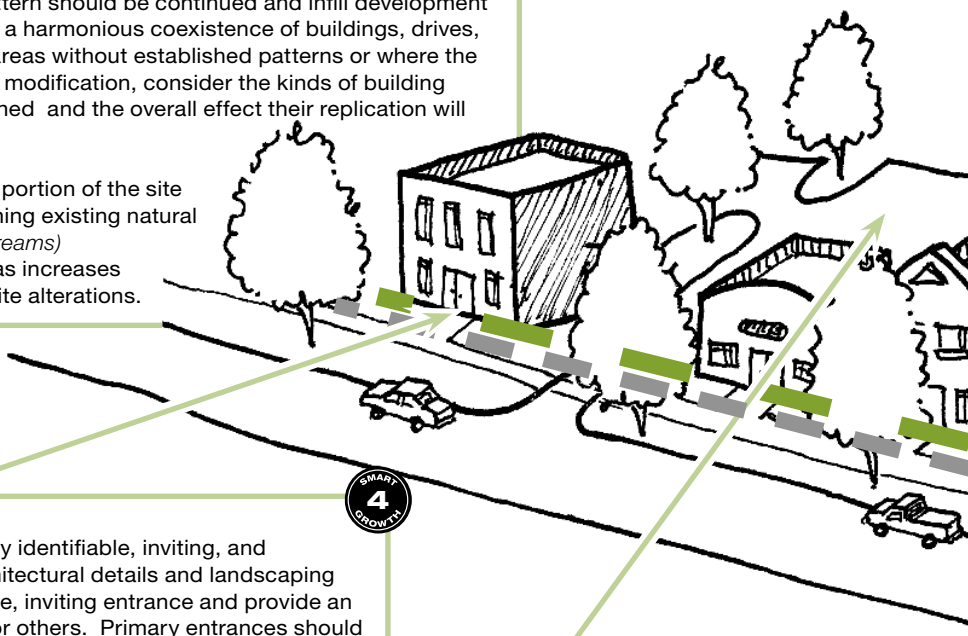
Building Orientation

Building placement and orientation is critical to enhancing a community's or development's character and promoting pedestrian activity. Buildings should be oriented toward streets and have easily recognizable and accessible primary entries. Build-to lines can help ensure development complements the existing neighborhood character while providing some flexibility for siting buildings on lots with challenging natural conditions.

Building Placement

An existing building placement pattern should be continued and infill development encouraged when it has produced a harmonious coexistence of buildings, drives, walks, and landscaped areas. In areas without established patterns or where the current pattern would benefit from modification, consider the kinds of building placement patterns being established and the overall effect their replication will have on adjacent properties.

Buildings should be placed on the portion of the site with the least natural value. Retaining existing natural features *(e.g., hills, trees, ponds, streams)* enhances the site's value, as well as increases community support of proposed site alterations.



Entries

Building entrances should be easily identifiable, inviting, and accessible. A combination of architectural details and landscaping elements can create a recognizable, inviting entrance and provide an area for people to gather or wait for others. Primary entrances should be from main streets, and entries from adjacent parking areas should supplement this entrance.

Variation in sites and businesses necessitates flexibility when establishing entrance locations. When a primary street entrance is not possible, inclusion of paved, well-marked and well-lit pathways from the street to the entrance is recommended. All entries should meet ADA requirements and be appropriately lit (refer to **Critical Design Practices:** *Site Lighting & Utilities*). Sloped sites provide an opportunity to provide grade-level access to multiple floors; however, soil characteristics influence the viability of developing sloped sites.

Parking Lot Placement

Whenever possible, parking areas should be located and accessed from the side or rear of a lot. Buffering and screening is encouraged to give visual relief to the parking area.

KEY POINTS

- Things to consider when determining **building placement** include: topography, natural characteristics, and open space on adjacent properties in order to maximize open space and natural habitats. Place buildings on the most suitable soils, in clusters, and behind stands of trees when site conditions permit. When placing buildings in open fields, use gentle earth mounds and screens of naturally occurring plant species.
- While commercial or mixed-use **entrances** typically are even with walkways, residential building entrances should be elevated at least sixteen (16) inches above pathways to provide residents additional privacy. ADA accessibility standards must be taken into account to provide access to people of all abilities.

Build-to Lines
Build-to lines provide a method of creating visually interesting, pedestrian-oriented streetscapes by arranging buildings and entrances to the front of lots. As opposed to setbacks that establish areas where a building cannot be constructed, build-to lines specify where a building is to be built on the lot. Establishing build-to lines can facilitate a sense of enclosure even along streets in lower-density areas within the five-county region.

Setbacks
Setbacks impact building placement and affect a lot's open space by specifying minimum distances from front, rear, and side lot lines. Appropriate setbacks vary depending on a building's use, as well as local street type and traffic volume.

Establishing appropriate setback distances, however, is critical to creating a human-scale environment. Shallow setbacks produce a feeling of congestion, increase safety risks, and make future road improvements difficult. Exceptionally deep setbacks reduce a neighborhood's connectedness and create unnecessary costs to owners in the form of sewer and water line connections, paving, and snow removal. To provide consistency yet allow for variation, consider establishing setback zones or variable build-to lines.

- **Build-to lines** are typically five (5) to thirty-five (35) feet from curbs with a small percentage of the structures (ten (10) to thirty (30) percent) permitted to deviate up to twenty-five (25) percent of that distance from the build-to line. Only a structure's primary mass need conform to the build-to line; porches, bay windows, and other minor building elements can and should project over or be recessed from the line. Public and institutional buildings frequently are exempted since those structures are traditionally larger and require more space.
- Front **setbacks** for commercial or retail establishments are generally narrow (approximately twelve (12) to fourteen (14) feet from curb) in order to site buildings along sidewalks to facilitate pedestrian access. Setbacks in residential areas frequently range from ten (10) to thirty-five (35) feet (in urbanized areas) and some variation (ten (10) to fifteen (15) percent) should be encouraged to provide visual interest.

Elements of Site Design

Building Design & Materials

Although specific architectural standards are beyond the scope of a site design guidebook, general building design principles do apply to development within our five-county region. Inasmuch as an oversized stained-glass window set in a small pole building looks out of place, so too do some buildings when placed on certain sites. The design of a structure and the materials selected for construction or remodeling affect the way a building relates to its natural and manmade context. When designed well, a building can contribute to the continuity of street elevation, as well as emphasize a site's unique characteristics *(e.g., slopes, corner lot, shoreline)*. Buildings with varied roof lines, window details, façade articulation, chimneys, entry details, and different but complementary materials contribute to the interest of a streetscape. Consequently, a building's design – particularly the façade – and exterior materials can have a significant impact on how the structure is perceived. To provide communities with the desired development type, jurisdictions are encouraged to formulate architectural and landscaping standards for their area.

Building Façade Design

Buildings with façades possessing common elements *(e.g., architectural features, building materials)* contribute to a unified street character even though their uses may differ. Newly constructed or modified building façades need not replicate existing building designs; however, they should complement existing buildings' geometry, scale, and/or quality of detail.

The introduction of good design elements creates patterns worth continuing. Whenever possible, building façades with historical significance should be preserved during renovation work and traditional building materials, colors, and textures encouraged in historic areas.

Varied rooflines provide visual interest, Leelanau County

Articulation, Modulation, & Rooflines

The use of different architectural elements can enhance a building's visual appeal and even diminish the perceived size of a large structure, thereby helping it fit into an existing neighborhood pattern. Regularly spaced entrances, windows, balconies, and different rooflines provide visual relief to large buildings by dividing their total mass into smaller, identifiable sections with a more human scale. A building's roofline can also facilitate compatibility with adjacent structures and reinforce the architectural character of a street.

KEY POINTS

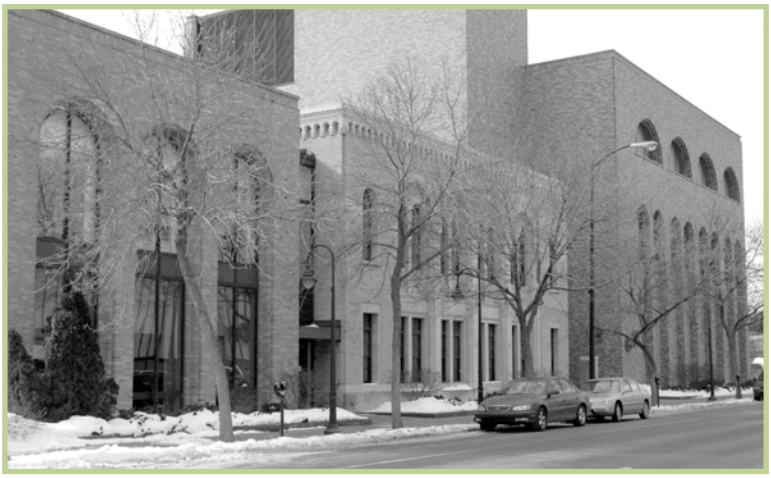
- **In building façade design consider:** compatibility, proportion, human scale, repeating patterns, consistent levels of detail, continuity of a theme, neighborhood character, signage, durability of materials, color, texture, historical character, local design standards, and window-to-wall-area ratio.
- Build structures with a **clear design concept.** Designs may be symmetrical or asymmetrical, may highlight a courtyard or architectural elements *(e.g., arcade, entry)*, or may use terracing *(a technique that can reduce a building's impact on a site with steep slopes)*. Buildings should be designed and situated on sites to complement the existing natural and built environment, as well as to provide compatibility and connectivity with neighboring sites.

Exterior Building Treatment & Materials

A building's exterior treatment significantly impacts how the structure is perceived. As a result, the incorporation of architectural styles, building materials, and color palettes complementary to the neighborhood building character is encouraged, especially in historic districts or areas with an established character.

Green building techniques *(i.e., energy-efficient building methods using environmentally safe materials)* should be considered when developing projects given the community's desire to preserve our region's natural resources. Green building techniques include, among other things: living roofs, utilizing local and/or recycled materials, daylighting, and greywater systems.

Architectural element improves the appearance of a basic structure



Buildings with compatible architectural elements, Traverse City, Grand Traverse County

Form-Based Codes

Form-based codes provide communities a method of regulating the visual aspects of development. This tool emphasizes a structure's architectural style, dimensions, façade features, and parking location rather than its use. Land use issues are addressed through broad parameters that allow for changes over time while still prohibiting undesirable uses.

Form-based codes utilize graphics and photos to depict the details of zoning requirements. Typically this makes form-based codes more readily understood by a wide range of people.

- Structures divided into forty (40) foot sections through the use of **architectural elements** result in the formation of buildings and streetscapes with greater visual interest. Methods include: varying the façade by more than six (6) feet; breaking up the roofline through the use of dormers, chimneys, gables, or stepped roofs; using various site elements *(e.g., lighting, landscaping, other site features)* to distinguish different sections of the structure.
- **Even modest and inexpensive additions** to a basic structure can improve its appearance considerably.
- **Exterior building materials** should be durable and appropriate for the region's four seasons. Consider incorporating a variety of masonry materials *(e.g., brick, stone, textured concrete, colored concrete or mortar),* mosaics, or other artwork to improve the appearance of blank walls.

Elements of Site Design

Building Revitalization & Reuse

The revitalization and reuse of older buildings, whether for a similar function or a new one, promotes compact development patterns that aid the protection of our region's natural resources. The adaptive reuse of older buildings can contribute to the preservation of local community character, optimize local infrastructure investment by promoting development in areas where infrastructure is already established, and increase property values by restoring properties to productive uses.

Mixed-use development in redeveloped factory, Traverse City, Grand Traverse County

Adaptive Reuse
Older buildings can be adapted for a variety of new uses while retaining their historic features. Some examples of the adaptive reuse of structures within the Grand Traverse Bay region include: the conversion of warehouses into live-work units, a lumberyard into a natural food store, and a train depot into office space.

Fitness Center in converted TC Cigar Box Company, Traverse City, Grand Traverse County

KEY POINTS

- Encourage **adaptive reuse** to optimize the community's infrastructure investment, preserve local community character, and restore properties to productive uses.
- Adaptive reuse of existing structures can **reduce the pressure to develop** greenfield sites.

Historic Preservation

Many of our region's older buildings testify to the quality of their original design and construction by outliving their original purposes. While their original design and function may be modified, the reuse of the historic buildings and the revitalization of historic neighborhoods contribute to the identity of communities within the Grand Traverse Bay region and the region as a whole.

The State of Michigan and Federal governments offer tax incentives to rehabilitate qualified properties *(e.g., structures on the National Register, State Register, within a locally protected historic district).* Additionally, Michigan's State Historic Preservation Office administers the Historic Preservation Fund – a grant-in-aid program – for the identification, designation, and protection of historically significant structures, sites, and districts.

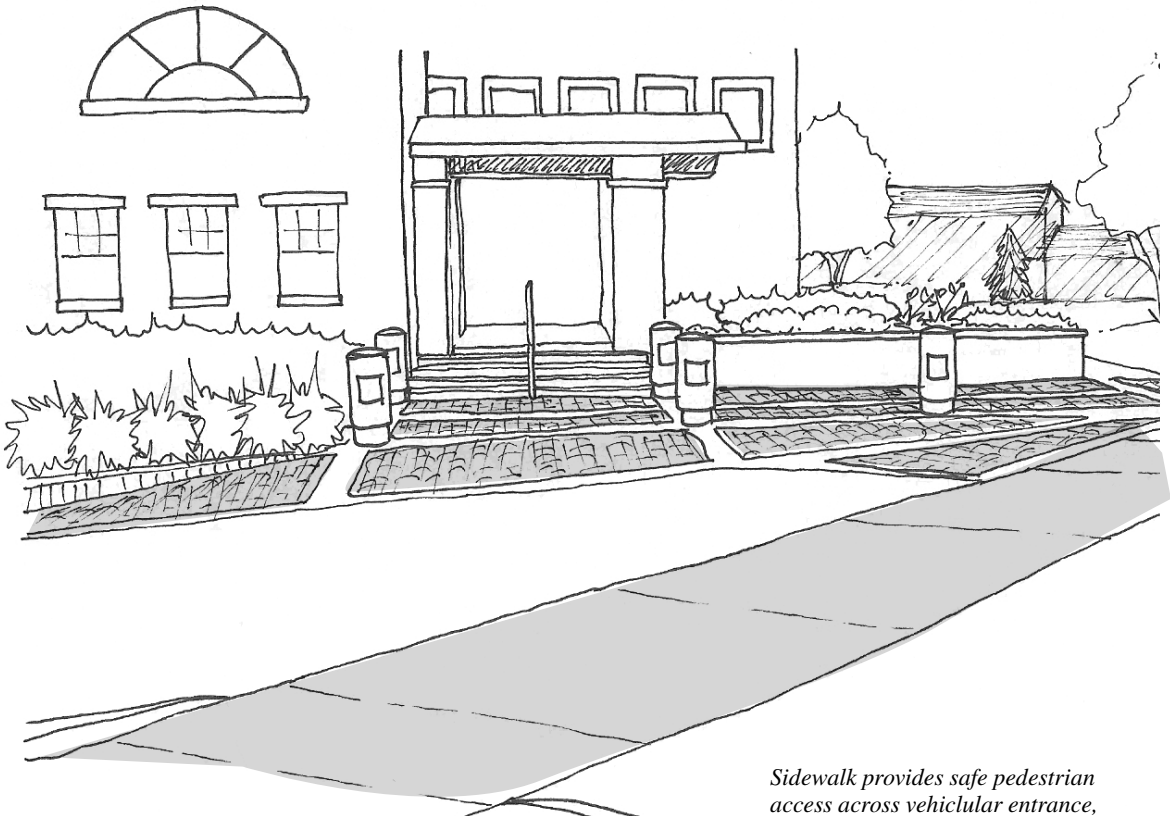
Munson Manor Hospitality House in former State Hospital building, Traverse City, Grand Traverse County

- Communities are encouraged to **preserve and reuse older buildings** displaying extraordinary craftsmanship. The decision to preserve old buildings or start over, however, includes both community discourse and private property interests.
- The state and federal governments offer **incentives and financing** for the rehabilitation of historic structures.
- By **establishing historic overlay districts**, local jurisdictions can facilitate historic preservation.

Elements of Site Design

Site Access

Providing safe, efficient pedestrian and vehicular access that complements topography and natural features is an essential component of site design. Site access involves the transition between major circulation routes and parking areas, between regional trail systems and a building's front door. Vehicular traffic proceeds from roadways to parking spaces via acceleration and deceleration lanes, limited access roads, shared access drives, and parking lot drive lanes. Site access also involves trails, sidewalks, crosswalks, bus stops and taxi stands, and bicycle parking areas. These elements facilitate entering a site from an adjacent property or another county.



Sidewalk provides safe pedestrian access across vehiclular entrance, Leelanau County

KEY POINTS

- **Ingress and egress** needs of the various users should be considered during site planning.
- **Alleys and shared roadways** minimize curb-cuts *(i.e., access points, driveways)*. Parking behind and beside buildings also reduces vehicular traffic through the pedestrian areas.
- **Linking parking lots** and providing shared roadway access whenever possible facilitates ease of access between adjacent properties, increases efficiency in parking lot layout, and reduces the amount of paved area.

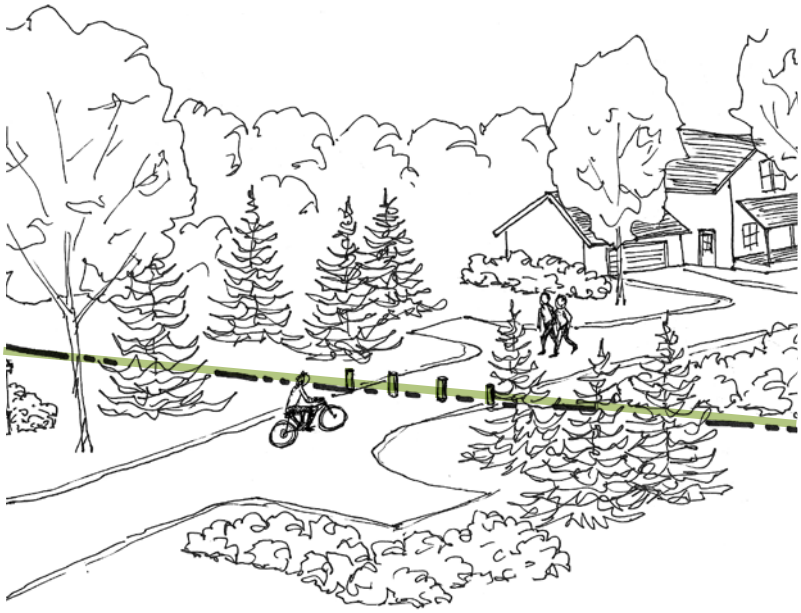
Access to Developments

Designing a site's road network and access points requires minimizing the number of curb-cuts *(i.e., driveways)* while providing interconnectivity between adjacent properties. Keeping curb-cuts to a minimum facilitates off-site traffic flow and helps preserve the regional character. Incorporating multiple access points *(e.g., roads, alleys)* whenever possible provides more circulation options, enhances emergency service access, and reduces vehicular flow at any one given point – especially near the collector street in cul-de-sac developments. The use of loop roads *(i.e., two access points)* and the connection of adjacent streets should be encouraged.

The design of new sites adjacent to established neighborhoods should pursue methods of enhancing vehicular and pedestrian connectivity between the properties. Some developments have connected roadways with removable or retractable bollards for emergency and service vehicle access between developments. Connecting the roadways allows access for pedestrians and bicyclists, while the bollards prevent most vehicular traffic.

Whenever topography permits, site design should include connections with neighboring properties and regional trail networks. Pedestrian access includes provision of appropriately placed, well-lit sidewalks or pathways between parking areas, building entrances, the street, and adjacent properties.

Pedestrian access to Oleson's Plaza West, Grand Traverse County



Retractable bollards allow pedestrian, bike, and emergency vehicle access

Access Roads, Alleys, & Shared Driveways

Frontage roads, alleys, service drives, and shared driveways are desirable methods of accessing a site and may provide alternative access to the site for emergency vehicles. They simplify roadside visual character and minimize conflicts and hazards, as well as increase on-street parking options. Placing parking areas behind buildings also increases green space and makes fewer and smaller signs more practical. Refer to **Critical Design Practices:** *Creating Usable Open Space* and *Sign Design & Placement* for additional information.

- **Site entries** should be clearly marked, and, when pedestrian and vehicular traffic intersect, the vehicular traffic should yield to pedestrians whenever possible. Refer to **Critical Design Practices:** *Pedestrian & Bike Circulation* for more information.
- The minimum distance between a site's vehicular access points and road intersections should be two hundred **(200) feet** wherever possible.
- Where limited access is desirable **connecting roadways** between adjacent neighborhoods and installing bollards provides for pedestrian and bicycle circulation while restricting through-traffic to emergency vehicles.
- **Design ingress and egress** for trucks and service vehicles for loading and unloading materials, as well as accessing appropriate parts of a site.

Elements of Site Design

Pedestrian & Bike Circulation

Circulation is a key component of a site's design. It enhances the quality of the overall environment by providing a transition from street or parking areas to building entrances, as well as allows for safe, easy access to adjacent sites for pedestrians and bicyclists. Different circulation routes *(e.g., pedestrian, trail)* should form a network that includes appropriately designed facilities ranging from high volume traffic areas to quiet walkways linking small courtyards.

Connectivity within Site & to Adjacent Properties
Pathways should be designed to facilitate pedestrian access to buildings, parking areas, and streets, as well as to nearby public, recreation, transit, and commercial facilities. Sidewalk design *(e.g., size, route, surface material, lighting, landscaping)* can vary depending on a site's natural features and intended use; however, sidewalks should separate pedestrians from automobile traffic whenever possible. Incorporating colored or textured sidewalks through parking areas should be considered as one option for establishing pedestrian zones within parking lots.

Brick surfacing emphasizes pedestrian zone, Traverse City, Grand Traverse County

KEY POINTS

- **Provide pedestrians convenient pathways and bicycle paths through landscaped areas.** Pedestrian circulation can be provided in well-designed landscaped areas within a parking lot. Use pathways to connect buildings with public spaces: an attractive urban public space, scaled to the pedestrian, is both protected and inviting. Pathway lighting should be scaled to pedestrians, such as lighted bollards. Refer to **Critical Design Practices:** *Site Lighting* for additional information.
- **Design sidewalks** in developed areas that are pedestrian scaled, well-defined, and protected from the street. Rural roads with wide shoulders can accommodate both pedestrian and vehicular uses.

Pedestrian pathway, Elk Rapids, Antrim County

Sidewalks & Shared Pathways

Sidewalks, which offer pedestrians of all ages and mobility levels safe access throughout a community, generally should start at the periphery of hamlets, villages, or cities where lot widths begin to narrow. While sidewalk width varies based on factors such as location and estimated usage, determining the appropriate width involves guaranteeing sufficient space for pedestrians and other users to safely pass. Sidewalks should also be designed to accommodate a site's topography and mature trees and, whenever possible, located within street rights-of-way.

The design of sidewalks establishes the continuity of pedestrian areas. Incorporating special paving elements *(e.g., brick pavers, colored or textured concrete)* consistently reinforces the pedestrian system and, at intersections, designates the point where drivers must yield the road to pedestrians. Landscaping and pedestrian amenities *(e.g., benches, trash cans, lighting, pedestrian furniture)* provided along sidewalks enhance the pedestrian area. In addition to their aesthetic value, trees and other landscape elements can serve a practical purpose: they provide a buffer between vehicular traffic along streets and pedestrians on sidewalks.

A Guideline for Sidewalks

• Arterials/Collectors	Both Sides
• Local Streets	
• Commercial Areas	Both Sides
• Residential Areas	
• Over 4 units per acre	Both Sides
• 1 – 4 units per acre	One Side
• Less than 1 unit per acre	None

Source: R.L. Knoblauch et al., *Investigation of Exposure Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets and Major Arterials,* Federal Highway Administration, Washington, D.C., 1988.

- **A sidewalk's texture and color are critical elements** in establishing a safer pedestrian zone, as well as creating a pleasing pedestrian environment. Sidewalks can be textured, scored, inlaid, stamped, or constructed of material that will help establish a pedestrian zone.
- **Incorporate pedestrian and landscaping elements** *(e.g., benches, lighting, plantings)* to establish inviting areas.
- Generally, **sidewalks** should be four (4) to six (6) feet wide in residential areas, eight (8) to twelve (12) feet in mixed-use and commercial areas, and eight (8) feet for combination pedestrian and bicycle pathways.

Elements of Site Design

Pedestrian & Bike Circulation *continued*

Trails & Bike Lanes

By enhancing the existing trail system and establishing additional bike lanes throughout the Grand Traverse Bay region, communities encourage the use of bicycles as a safe, convenient, environmentally friendly mode of transportation.

As with sidewalks, trail width varies depending on location and estimated usage. Trail surfaces include asphalt, crushed gravel edged in wood or metal, and wood chips depending on location and usage. For bike trails, asphalt is most frequently used and meets Federal ADA accessibility requirements. Trails and pedestrian pathways are typically easier to develop if they are planned into street rights-of-way and lot configurations; nevertheless, trails can be incorporated into a site's natural areas, except in instances where access would conflict with protected habitats.

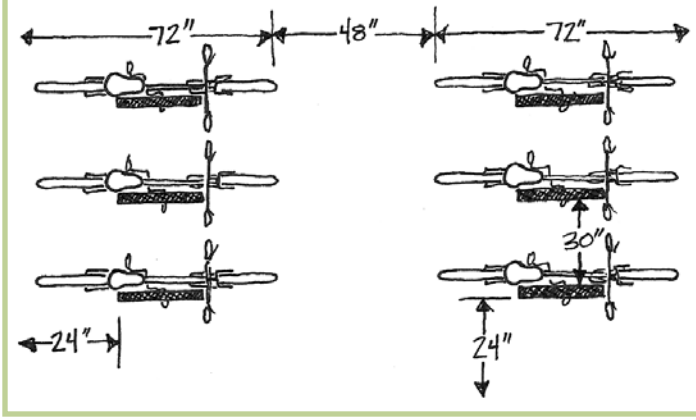
Wooden trail bridges allow for non-invasive enjoyment of the natural topography and setting. Trails should intersect roadways mid-block *(i.e., not at intersections)* whenever possible. Crossings should be well marked along both roadways and trails, and local jurisdictions may consider installing pedestrian activated lights where trails intersect major roadways. Sites should provide linkages between established trail networks within the region, and local communities should encourage multi-lot developments to develop trail systems that connect buildings to open areas within the site, as well as to regional trails when possible.

Bicycle lanes can be used to connect trail networks. Bicycle lanes could be incorporated into most local streets within the Grand Traverse Bay region; however, separate bicycle routes need to be established along heavily traveled roads.

KEY POINTS

- **Trails and bike lanes** provide both recreational opportunities and transportation options for area residents and visitors.
- **Recreation trails** eight (8) feet wide offer pedestrians, joggers, roller skaters, and bicyclists ample space on even the region's most frequented recreation trails.
- **Bike lanes** should be at least five (5) feet wide when adjacent to on-street parking areas and they should be provided along both sides of the street whenever possible.

Pavement Types
Variation in pavement types enhances a site's design, and the selection of materials depends largely on the intended use. For instance, brick or concrete pavers offer a distinctive option for sidewalks in areas of high usage, asphalt provides a seamless surface ideal for recreation trails, and crushed gravel provides a "green" alternative for parks and natural areas. When local jurisdictions encourage developers to choose pavement types that provide ease of access with impermeable surfaces, stormwater management is improved.



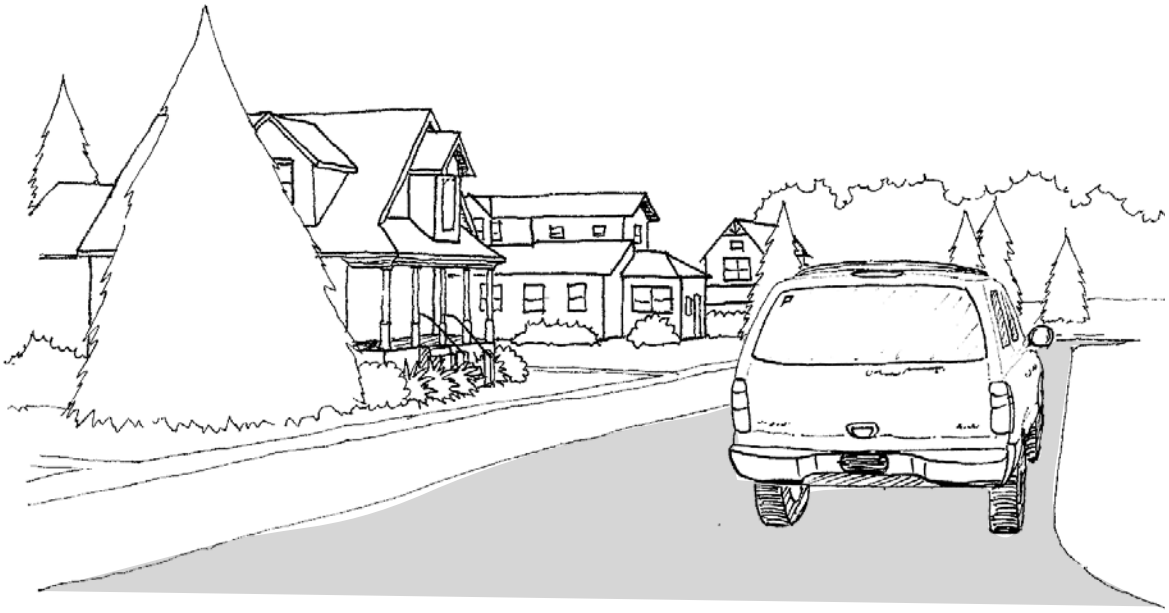
Bicycle Parking
The provision of secure bicycle parking areas encourages the use of alternative methods of transportation to access a site. Bike rack design should provide safe, easy access and be located near main building entrances. For large sites or multiple buildings, several smaller bicycle racks should be located throughout the site.

- **When designing pedestrian and bike circulation consider:** lane width and surfacing materials, crosswalks and pedestrian bridges, ADA accessibility, signage and directional maps, benches and seating areas, landscaping and lighting, drainage and snow storage, bicycle parking areas, and pedestrian crossing signals in high traffic areas.
- **Utilize pavement types** to enhance a site's aesthetic appeal.
- **Provide bicycle parking** in visible, easily accessible areas. Locate racks within fifty (50) to one hundred twenty (120) feet of a major building entrance.

Elements of Site Design

Roadways

When designing roadways within developments, a determination should be made whether streets will be dedicated to the local jurisdiction *(e.g., municipality, county)* and therefore be designed to comply with road commission or municipal engineer standards or whether the roads will remain private. In both cases, local jurisdictions should encourage the use of the narrowest roads possible that still meet local health and safety requirements.



Narrow street in the New Neighborhood, Empire, Leelanau County

Benefits of Narrow Streets

Employing narrower streets provides a variety of advantages to project developers and future residents, as well as community members. These include creation of human-scaled neighborhoods, slower traffic speeds, lower construction and maintenance costs, more compact use of land, and reduced stormwater runoff volume.

Roadways vary throughout the Grand Traverse Bay region, and one-size road standards do not necessarily apply in all situations. Many local road and zoning standards require wide residential streets – even in rural areas. To preserve the regional character, as well as minimize stormwater runoff by reducing the amount of impervious surfaces, local jurisdictions and road commissions should consider revising current road standards to provide more flexibility when designing street widths and establishing rights-of-way.

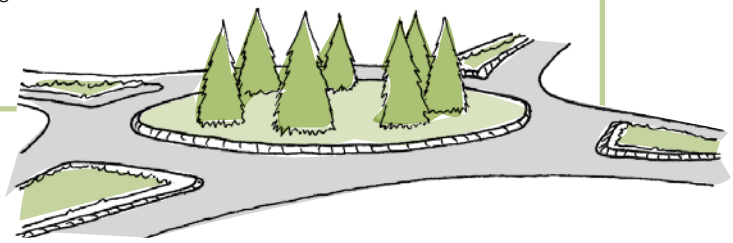
KEY POINTS

- **Reduce road widths to reduce runoff and slow vehicle speed** and downsize rights-of-way to minimize the impact on the natural landscape while still permitting safe, efficient vehicular and pedestrian circulation and sufficient emergency vehicle access.
- **Vary rights-of-way** for different streets with the widest for arterials and the narrowest for quiet residential streets.

Streets & Street Networks

Streets should be designed to complement a site's natural topography and facilitate ingress and egress. Although traditional town grids make efficient use of limited land resources and can be easily integrated into an existing road system, alternative circulation patterns may prove useful for sites with significant topographic changes or other distinctive natural features. These include curvilinear, "T" *(i.e., a visual termination at a key structure or landscape element)*, crossroads *(i.e., two intersecting roads)*, common *(i.e., a square in the middle)*, modified grid *(i.e., combination of "T" and crossroads)*, and composite *(i.e., a hodge-podge of all the street designs).*

Design roadways to provide for current and estimated traffic flows without over-building. The incorporation of roundabouts *(i.e., circles)* in lieu of stop signs or traffic lights whenever possible facilitates traffic flow. Streets should also include bicycle lanes or a separate trail if a network already exists: their design should include street trees and other elements. Refer to **Critical Design Practices:** *Streetscape* for additional information.



Cul-de-sac at Grayhawk, Garfield Township, Grand Traverse County

Cul-de-sacs *(i.e., courts)* & Turnarounds

A site's design should minimize the use of cul-de-sacs since they increase travel times and concentrate traffic flow at a single point. Cul-de-sacs nonetheless offer a design option for low-density sites with unique natural landscape features or for cluster developments. Whenever possible, cul-de-sacs and turnarounds should have landscaped islands.

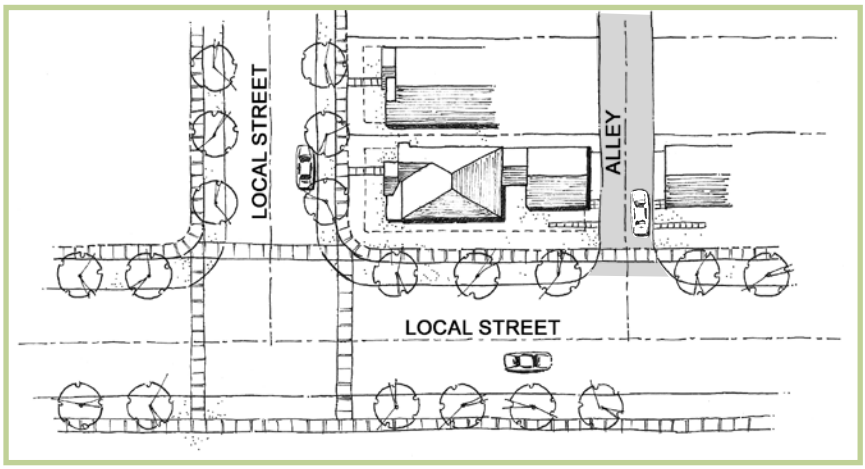
- **Street networks** designed with multiple connections and relatively direct routes allow for emergency service access and shorter vehicular trips.
- **Block length** should be approximately two hundred (200) to four hundred (400) feet; block depth depends on the proposed land use and whether a mid-block alley will provide additional access.
- **Through streets** should be no more than a half mile apart.
- **A cul-de-sac's maximum length** should be four hundred (400) feet with a minimum turning radius of thirty (30) feet. If local emergency vehicles require larger turn-around radius, alternatives *(e.g., loop roads)* should be employed.

Elements of Site Design

Roadways *continued*

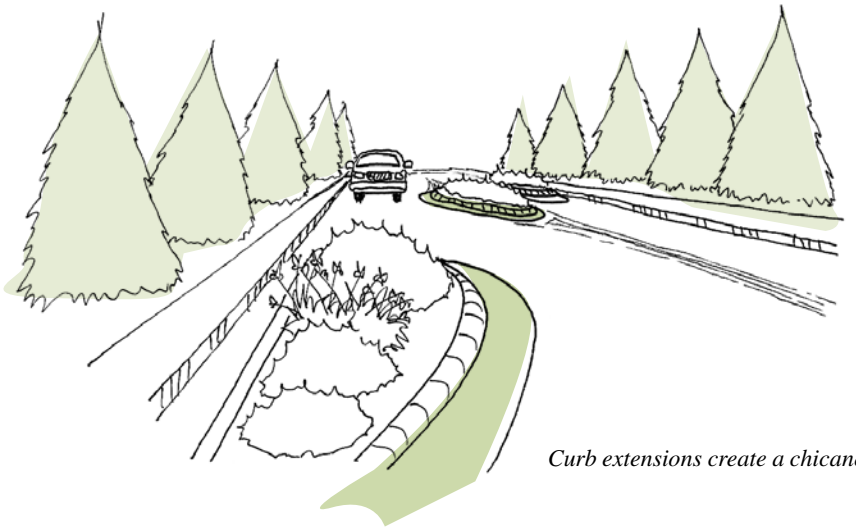
Alleys
Alleyways are important elements in several of the region's communities. They foster a positive neighborhood space by providing services, parking, and utilities in a narrow width. Not only do alleys minimize the impact of driveways and garages on streetscapes, they provide additional on-street parking where driveway entrances would ordinarily be located. Alleys offer safer areas for children to play street games, as well as keep streets clear for snowplowing, emergency access, deliveries, waste collection, and other wide vehicles.

Unpaved alley in Mancelona, Antrim County



KEY POINTS

- Local jurisdictions should **encourage the use of alleys** in new small-lot single family houses, town houses, and multi-lot developments.
- Recommended **alley rights-of-way** are twenty (20) to thirty (30) feet with a ten (10) to eighteen (18) foot pavement width.
- Design alleys to have two (2) or three (3) **access points** for emergency vehicle ingress and egress.
- **Establish building setbacks** a minimum of five (5) feet from an alley, and locate utilities underground.
- Use **alleys to provide access** to driveways, garages, and parking areas.



Curb extensions create a chicane

Traffic Calming Devices
Incorporate various traffic calming elements into the design of local streets to encourage slower speeds. Options include: chicanes, chokers, neckdowns, raised crosswalks, center island narrowings, and textured pavements. Refer to **Appendix:** *Glossary* for specifics on each technique.

Boulevard strip slows traffic at The Homestead, Leelanau County

- **Chicanes:** alternating curb extensions form S-shaped curves that slow traffic.
- **Chokers:** mid-block curb extensions that narrow a roadway by widening a sidewalk or planting area.
- **Neckdowns:** curb extensions at intersections that reduce roadway width and shorten pedestrian crossing distance.
- **Raised crosswalks:** speed tables that provide pedestrians with a level street crossing.
- **Textured pavements:** surfacing materials that emphasize pedestrian crossings and intersections.

Elements of Site Design

Streetscape

The design of streetscapes is essential to creating safe, appealing environments that engender pedestrian activity. Many factors contribute to a streetscape including: building height to street width ratio, front yards and building entrances, continuous sidewalks, street trees and plantings, street furniture, pedestrian-scaled lighting, clearly marked pedestrian crossings, and the location and placement of driveways and garages. Appropriately designed streetscapes enhance the character of the communities within the Grand Traverse Bay region.

Rural streetscape, Grand Traverse County

Wide paved shoulder accommodates bicycles on rural Leelanau County road

Rural Streetscapes

Much of the Grand Traverse Bay region has a rural character, and the design of streetscapes in these areas should augment the natural landscape. As much as possible, developments should retain existing vegetation by limiting pre-construction clearing, protecting vegetation during construction, and planting herbaceous vegetation and other naturally occurring species following construction. These approaches retain natural character and lower construction and maintenance costs along rural roadways.

Landscaping along rural streets should consist of shrubs, trees, or grasses - at least twenty (20) to fifty (50) foot strips - that complement the region's native vegetation. Infrequently mowed tall grasses between the shoulder of the road and the centerline of adjacent roadside drainage ways promotes adequate drainage and visibility (refer to **Critical Design Practices:** *Stormwater Control & Detention* for additional information). Natural shrub and meadow plantings can also be used beyond roadside drains to retain natural character while reducing construction and maintenance costs.

Unlike streets with high traffic volumes, which should have separate pedestrian and vehicular zones, rural roadways can include a wide, paved shoulder – approximately five (5) feet wide – to accommodate pedestrian and bicycle use. Pedestrians, bicycles, and vehicles can also share travel lanes on low-volume streets. Encouraging consolidation of signs *(e.g., one sign for multiple buildings)* also helps protect rural streetscapes.

KEY POINTS

- **Rural streetscapes** can be integrated into all but the most urban developments.
- **Retain native vegetation** in the public right-of-way.
- **Limit pre-constuction clearing and preserve mature trees and existing vegetation** to screen new developments or incompatible uses from roadways.
- Whenever possible, **use swales with native vegetation** or raised-edged roadways for stormwater management instead of curbs.
- **Improvement of streetscapes on existing sites** is possible by consolidating driveways, moving parking behind buildings, creating parking lot islands with landscaping, and planting trees.

Elk Rapids streetscape, Antrim County

Urban Streetscapes

Just as the developed areas in the five-county region vary, so do the urban streetscapes. Attractive urban streetscapes – whether in residential or commercial areas – are designed for pedestrians and motorists. They include a landscaping strip between street and sidewalk to provide a good buffer between pedestrians and vehicular traffic, as well as pedestrian amenities such as conveniently placed benches, drinking fountains, recycling and trash receptacles, landscape planters, attractive signage, pedestrian-scaled lighting, and walkways and crosswalks incorporating different colors, textures, and materials. Including building entrances, porches, balconies, decks and seating can aid the development of streets that encourage pedestrian activity, as these elements contribute to street vitality and safety. In commercial areas, windows, canopies, and signs can enhance the vitality of the street.

Urban plaza in downtown Frankfort, Benzie County

- **Provide seating areas** in a variety of places, depending on the circumstances and environment, such as along trails and near frequently used public areas.
- **Construct benches** approximately seventeen (17) inches high and at least thirty-six (36) inches long from wood, steel, or recycled materials.
- **Provide appropriate street lighting** in frequently traversed areas to increase actual and perceived personal safety.
- **Screening blank walls** with landscaping *(e.g., trellises with vines and other native vegetation)*, architectural features *(e.g., decorative tile, masonry),* or art *(e.g., murals, sculptures, relief on wall surfaces)* can enhance urban streetscapes.

Elements of Site Design

Streetscape *continued*

Pedestrian – Vehicular Crossings
Pedestrian and vehicular intersections should be clearly marked and streetscape elements *(e.g., landscaping, lighting, signage)* located to ensure visibility of both pedestrians and motorists. Whenever possible, pedestrians should have priority over vehicular traffic at crossings. To increase pedestrian safety, local jurisdictions should encourage the design of streetscapes that provide pedestrians with the shortest distance to cross streets *(e.g., bump-outs).*

Unified Streets
Designing streets and neighborhoods that form a cohesive environment is essential to establishing pleasing streetscapes for both pedestrians and motorists. On unified streets, buildings on opposite sides of the street have similar landscaping, setbacks, building character *(e.g., mass, scale),* and compatible uses. When changes in use occur within a block it allows for a transition instead of an abrupt shift at an intersection. Above all, streets should connect the various areas within the five counties instead of creating boundaries between them.

Street tree placement, roadway width, and sidewalks contribute to streetscape continuity and therefore pleasing environments for pedestrians. Sidewalk design is a key component. Incorporating special paving elements reinforces the pedestrian area and, at intersections, designates the point where drivers must yield the road to pedestrians (refer to **Critical Design Practices:** *Pedestrian & Bike Circulation* for additional information). Including landscaping and pedestrian amenities *(e.g., benches, trash cans, lighting, pedestrian furniture)* encourages pedestrian activity.

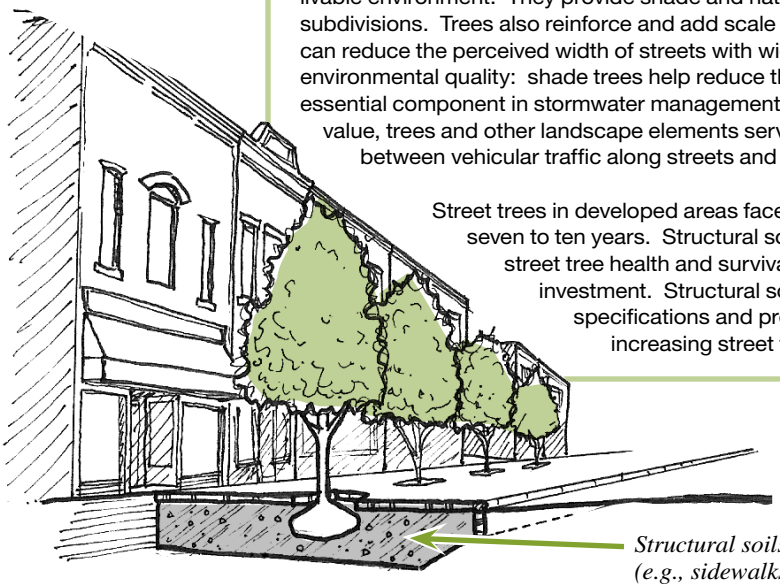
KEY POINTS

- **Locate streetscape elements** to maintain pedestrian and motorist visibility *(i.e., sight triangles, sight distances).* Trees should be fifteen (15) feet from crossings and pruned to allow sight lines three (3) to eight (8) feet above the ground.
- **To enhance pedestrian safety** in high traffic areas, local jurisdictions may consider restricting right-on-red turns.
- **Streetscapes that incorporate similar design elements** throughout blocks and across roadways possess transitions between uses, and sidewalk continuity tends to be more pleasing for pedestrians. These areas, therefore, are more frequented. Streetscapes with similar plant materials and trees, landscaping elements, building massing and scale, and pedestrian elements reinforce the landscape character of communities and the region.

Street Trees / Street Tree Survival

Street trees contribute to the character of our region's communities. Street trees promote a livable environment. They provide shade and natural elements in urban areas, villages, and rural subdivisions. Trees also reinforce and add scale to street edges, and those with large canopies can reduce the perceived width of streets with wide rights-of-way. Trees enhance our region's environmental quality: shade trees help reduce the urban heat island effect, as well as serve as an essential component in stormwater management. In addition to their aesthetic and environmental value, trees and other landscape elements serve a practical purpose: they can provide a buffer between vehicular traffic along streets and pedestrians on sidewalks.

Street trees in developed areas face harsh growing conditions and live on average seven to ten years. Structural soil is an innovative technique that can enhance street tree health and survival and thereby maximize a community's investment. Structural soil is a subsurface that meets pavement design specifications and provides for sustainable root growth, thereby increasing street tree health and longevity.



Structural soils provide the foundation for paved surfaces (e.g., sidewalks, streets) while providing an environment conducive to long term growth

Benefits of Street Trees

Planting trees provides local jurisdictions a method for enhancing the visual quality of the community, as well as the environmental health of the region. Trees also contribute to the real estate value of an area.

Well-placed trees can help reduce annual air-conditioning and heating costs by up to thirty (30) percent and twenty-five (25) percent respectively (USDA Forest Service).

Methods to Improve Street Tree Health

Street trees need two (2) cubic feet of soil for every square foot of crown projection *(i.e., the areas under the drip line).*

Replace soil in the entire future root zone and mound slightly for increased volume and drainage. This approach insures vigorous root growth and long plant life.

Boring, instead of digging a trench, minimizes the impact burying utilities has on a site's natural vegetation, especially trees. It also provides a means of burying utilities on sites with existing infrastructure.

- **Provide street trees** on both sides of a roadway whenever possible.
- While uniform tree rows are common along major roadways in developed areas, **varying species type and spacing** is encouraged. Varying tree spacing and species selection provides for healthier, more diverse ecosystems, as well as visually interesting streetscapes.
- Although **typical spacing** is between twenty (20) and thirty (30) feet depending on the species, consult a local forester, nursery person, or landscape architect to determine the best plant species and spacing for a specific site.
- When necessary, **alternate on-street parking with tree planting beds** to enhance the streetscape while addressing parking needs.

Elements of Site Design

Parking

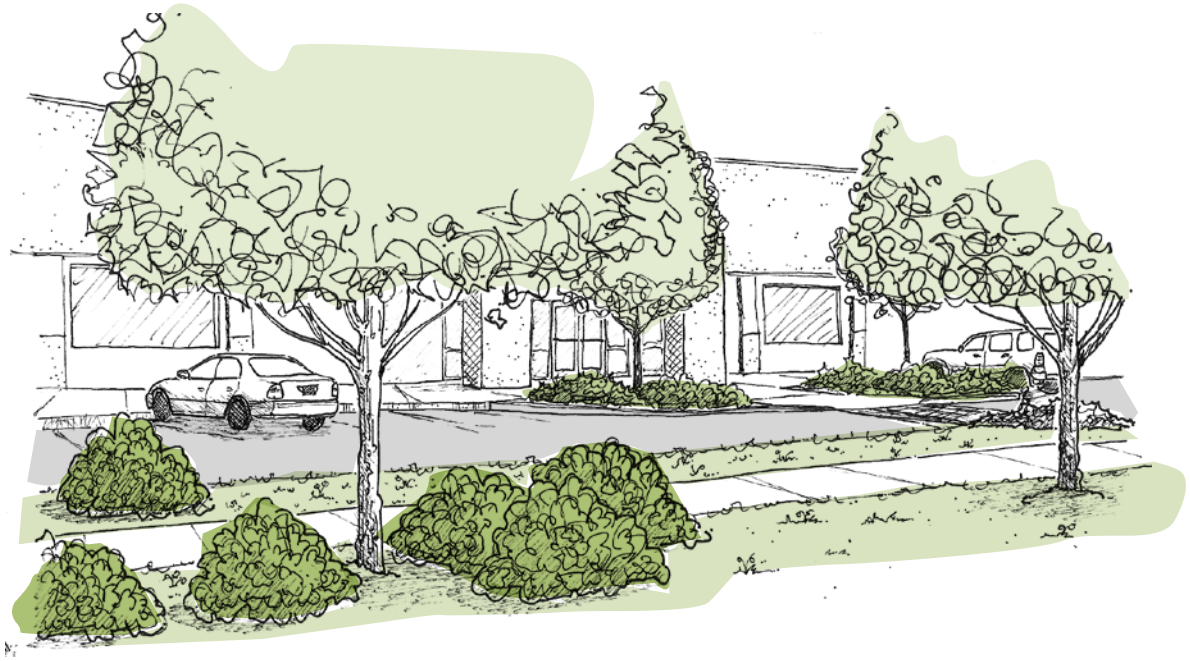
In our region's developed areas, space for parking is often limited; however, it can be provided on streets or in compact lots facing alleys and screened from other properties. Parking lots should be located to minimize their impact on the streetscape and pedestrian areas, and entrances should facilitate safe, easy access. Whenever possible, parking lots should be designed to provide multiple functions *(e.g., parking cars and a basketball court after hours)*. Shared parking and alternative paving offer ways of minimizing the environmental impact of parking areas on our region's natural resources.

On-Street Parking
Parallel or angled parking should be considered on streets, particularly in front of commercial, mixed-use, and higher-density residential buildings in developed areas. On-street parking affords easy access to street-oriented establishments and, since it can be included as part of the total parking requirement, it reduces the surface parking lot area required. The presence of parked cars also provides a physical barrier between traffic lanes and sidewalks, thereby lessening the impact of moving traffic on pedestrians.

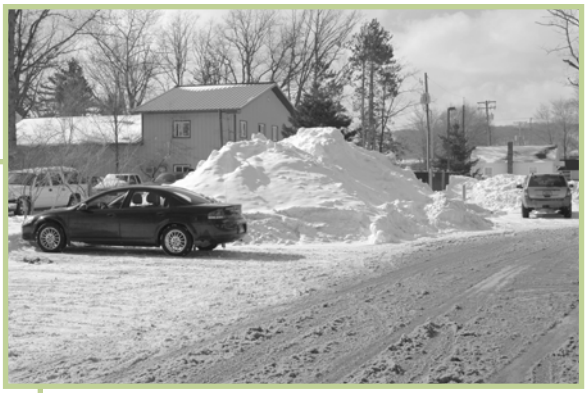
Parallel and angled parking, Frankfort, Benzie County

KEY POINTS

- While local ordinances specify parking space size, the **recommended size of spaces** is eight (8) to nine (9) feet wide with an effective length of eighteen (18) to twenty (20) feet.
- **Delineate on-street parking spaces** *(e.g., painted or otherwise marked)* and provide curb bump-outs, especially at corners where pedestrians cross streets.



Designing Parking Lots
A well-designed parking lot is integrated into a site's overall design, topography, and natural features and provides safe ingress and egress. Local jurisdictions within the region establish parking lot specifications based on the intended use of the facility it serves. In addition to local requirements, parking lot design should include landscaping, drainage and filtration elements, open spaces, appropriate lighting, snow storage areas, pedestrian and barrier-free circulation, multiple uses, and efficient parking accommodation.

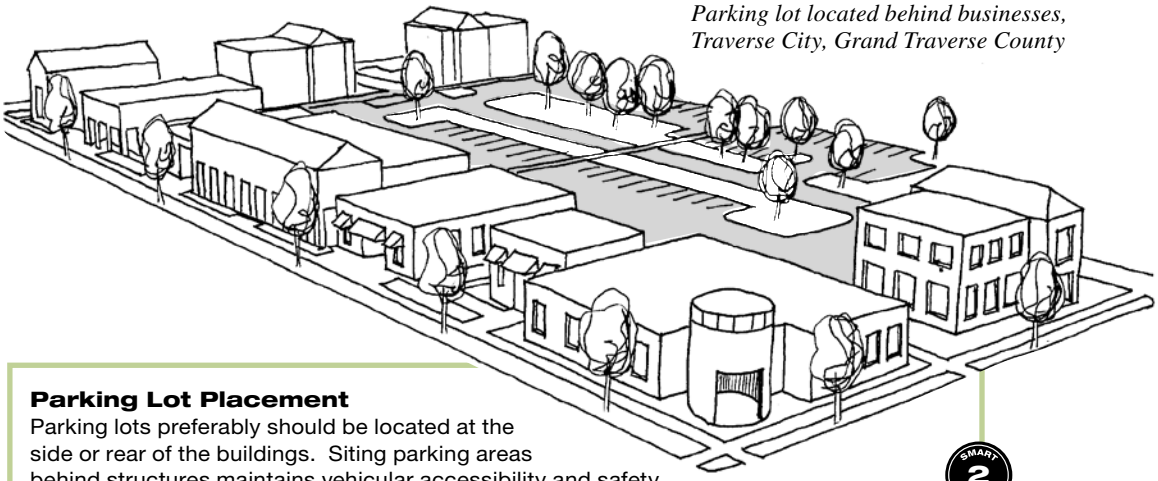


Snow Removal
When designing parking lots include areas for snow storage away from sidewalks, access drives, entries, and exits. Planting beds intended for snow storage sites should be wide enough to accommodate snow piles without damage to plants or use plants that will not be damaged by piled snow.

- **Improvement of existing parking areas** is possible by consolidating driveways, moving parking behind buildings when space permits, creating landscaped parking lot islands, and screening parking areas with low walls and shrubs.
- Provide for **safe, efficient snow storage** in parking lot design.

Elements of Site Design

Parking *continued*



Parking lot located behind businesses, Traverse City, Grand Traverse County

Parking Lot Placement

Parking lots preferably should be located at the side or rear of the buildings. Siting parking areas behind structures maintains vehicular accessibility and safety while improving pedestrian access, circulation, and safety by reducing the number of driveways crossing sidewalks. It also enhances the streetscape and building views: streets are lined by buildings not asphalt parking areas.

SMART GROWTH 2

SMART GROWTH 4

Unless a site's topography or natural landscape features offer no other alternative, parking areas should not be sited adjacent to roadways. Instead, site parking areas to reduce their visual impact from roadways and adjacent properties (refer to **Critical Design Practices:** *Landscaping* for additional information). Whenever possible, parking areas should be integrated with and/or linked to parking areas on neighboring properties.

Given the region's rolling topography, incorporating sub-grade parking should be encouraged. Multi-story parking structures can be cost prohibitive for some developments; however, parking areas below buildings but accessed from a lower grade level can mitigate the visual impact of parked cars for a reasonable cost. This also provides sheltered parking during the winter months. For local examples, refer to **Residential:** *High-Density Residential* and **Commercial:** *Office*.

KEY POINTS

- **When designing parking areas consider:** natural features and topography; shared entrances and access drives; surface scale and materials; pedestrian and handicap accessibility; bicycle parking areas; safety and security; lighting; landscaping and planting islands; stormwater management; snow storage areas; loading, solid waste, and recycling service areas; shared parking opportunities; subgrade or multi-story parking; buffering and screening; and shopping cart storage.
- **Place parking away from the street**, preferably in the side or rear yard, to create a human-scale entry to the building and ease the appearance of congestion while providing more space for streetside landscaping.

Entrance & Circulation

Ingress and egress to parking areas should come from side streets, alleys, or access roads whenever possible. If access is off a main road, shared drives and/or linked parking areas facilitate movement between adjacent properties with a minimum disruption of roadway traffic. Landscaping at entrances can be more elaborate to attract the attention of passing traffic. The design and location of parking entrances should complement – not interfere with or subordinate – pedestrian access and circulation (refer to **Critical Design Practices:** *Pedestrian & Bike Circulation* for additional information). Sidewalk material should carry through parking lot entrance drives to facilitate safer pedestrian access.

Within parking areas, the layout and shape of drives should guide traffic flow in a simple, efficient manner. Tasteful signs and landscape elements can be used to reinforce intended traffic patterns. Although one-way traffic limits choices, it reduces paved area, enhances safety, and provides more space for landscaping and on-site stormwater management. In addition to vehicular circulation, parking area design should provide for appropriately located pedestrian circulation either separated from or included in the parking areas, especially through larger lots.

Multiple Uses of Parking Lots

Parking areas are more efficient when they serve multiple uses in addition to parking vehicles. Local jurisdictions should encourage the development of parking areas which also serve as spaces for public gathering *(e.g., farmers market)*, recreation *(e.g., basketball courts),* and stormwater detention.

Multiple-use parking lot, Traverse City, Grand Traverse County

Shared Parking

The size of parking areas may be reduced through shared parking agreements between adjacent properties. Shared parking can involve businesses or uses with different hours of service *(e.g., a church and a bank)* or neighboring businesses with a shared parking area *(e.g., people will park once and walk to multiple establishments).* Local jurisdictions are encouraged to reduce or consolidate parking requirements. This allows for a reduction in the total space devoted to parking, and thereby minimizes its visual and ecological impact.

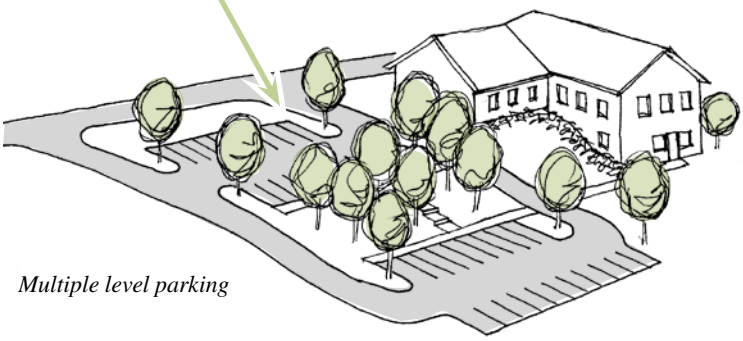
- **Provide safe access to parking areas,** preferably from side streets and alleys.
- **Utilize alternative surfacing materials** to establish pedestrian walkways in parking areas.
- Design parking areas to **accommodate multiple uses**.
- Communities are encouraged to promote **shared parking** by applying reduced parking standards where appropriate.

Elements of Site Design

Parking *continued*

Hedge and fence screen parking lot, Traverse City, Grand Traverse County

Surface Parking Scale
To help retain the small-town character of communities throughout the region, surface parking areas should be kept to a minimum. When a larger capacity is required, several smaller lots that help break up the mass of the parking surface are preferable to one large lot. Advantages of multiple smaller lots are they are more readily incorporated into sites with significant grade changes and they provide access meeting ADA standards for multiple-level buildings.



Multiple level parking

Landscaping
Landscaping – including exterior buffers and interior planting islands – is critical to the design of parking areas. Trees can soften appearance, shade parking lots, reduce summertime heat and glare build-up, and reduce the perceived size of parking areas. Including landscaping design features also relieves the congested look, minimizes pedestrian/vehicular conflicts, and allows greener, more natural-appearing open spaces. Whenever possible, incorporate pedestrian circulation through well-designed landscaped areas.

KEY POINTS

- Parking capacity can be met by **several smaller, interconnected lots.**
- Reduce car encroachment on landscaping areas by installing **wheel stops or extended curbs.**
- Approximately **one (1) tree should be planted for each seven (7) parking spaces.**
- **Planting islands** should be about two (2) parking stalls wide (approximately twenty (20) x forty (40) feet) for adequate root growth and to provide room for storage of plowed snow without damaging vegetation. Islands should provide adequate spacing to allow for future growth of plants.

Buffering & Screening

Buffering parking areas reduces their impact on adjacent properties, as well as enhances the streetscape. Attractive screens incorporate vegetation with durable materials, and they facilitate, not inhibit, safe pedestrian circulation within and around the parking lot. Buildings, low walls, berms, and landscape perimeter plantings provide ways to screen parking areas from roadways and neighboring properties.

Communities could offer incentives to encourage local establishments to upgrade existing sites to reflect guidebook principles and enhance the overall aesthetic and environmental quality of the region. Adding landscaping and screening dramatically reduces the impact of parking areas and improves streetscapes.

Screening is also critical around multi-level parking structures. Berming, landscaping, and architectural features can help minimize the impact of these structures on the streetscape and adjacent properties. Whenever possible, pedestrian-oriented uses should be incorporated at street level. Refer to **Mixed-Use Developments** for additional information.

Munson Medical Center parking deck, Grand Traverse County

- **Perimeter plantings** with shade trees soften and screen parking lots. Choose vegetation that is hardy and drought resistant.
- **Plan tree locations, lights, and utilities together** to maintain light levels after trees reach maturity.
- **Include buffering and screening** in the design of new parking areas and when existing lots are upgraded, typically when properties are redeveloped.
- **Screen parking lots** with vertical visual barriers *(e.g., fences with trellises and/or grill work for climbing vegetation, low walls in planting beds, dense evergreen hedge)* at least four feet in height. Barriers should be not more than seventy (70) percent solid to provide safe ingress and egress of the parking area.

Elements of Site Design

Parking *continued*

Options for Overflow Parking
By definition, overflow parking areas are infrequently used. While the spaces may be filled with cars only a few days each year, the impact of the spaces is actually quite significant as they contribute to stormwater runoff year round. Every time it rains or when the snow melts, runoff from overflow parking lots – including fluids from vehicles, sand, salt – washes into storm sewers, as well as our region's bays, lakes, rivers, and streams. To minimize the environmental impact of overflow parking areas, local jurisdictions should encourage the use of alternative paving for these spaces.

Grass pavers used for overflow parking, Leelanau County

Alternative Pavement Surfaces
Paved areas deprive the soil of sunlight and moisture, and contribute to soil erosion and water pollution caused by wind and stormwater runoff. Unlike impervious surfaces such as asphalt and concrete, alternative paving allows water to seep into the ground, which reduces the total amount of runoff from a site, as well as assists in groundwater recharge. Since protecting groundwater resources is essential to our region's ecological and economic health, local jurisdictions are encouraged to revise their ordinances to allow alternative surfaces be used for overflow parking areas, as well as parking lots, driveways, and sidewalks whenever possible.

KEY POINTS

- **Parking blocks** *(i.e., cement or plastic grids with grass or gravel inside)* and other **alternative paving** are ideal options for overflow parking areas. The installation cost can be offset by reduced stormwater facilities *(i.e., stormwater piping, detention basins)* needed for conventional paved parking lots and reduced maintenance costs.
- **Alternative paving** includes brick, cobbles, gravel and crushed stone, natural stone *(e.g., flagstone, limestone)*, grass pavers, turf blocks, wood mulch, pervious concrete, and porous paving-blocks and asphalt. They allow for varying degrees of infiltration. Brick, stone, gravel, and cobbles provide good alternative surfaces for driveways and parking areas. While installation and maintenance costs vary depending on the alternative pavers selected and site conditions, these surfaces can enhance the overall site design and value.

Stone riprap leading to vegetated stormwater basin, Elk Rapids, Antrim County

Stormwater Control & Detention
Including bioretention areas assists in managing parking surface runoff. Bioretention islands include soil and vegetation to treat parking lot runoff by channeling water through filter strips into landscaped areas. The stormwater then percolates into the soil or collects in a retention basin for discharge into another water body *(e.g., stream, lake).* Bioretention islands, like retention basins, can be attractively integrated into landscaped areas.

Excessive Parking Lot Runoff
Parking lots contribute to the amount of impervious surfaces in the region. Limiting the amount of impervious surfaces *(i.e., reducing size of parking stalls and lots, creating more efficient overall designs, utilizing alternative pavement options)* can lower construction and maintenance costs, provide more functional open space amenities, and require a smaller stormwater system.

- **Minimizing the size of parking lots** reduces the amount of stormwater runoff and improves the aesthetic character of the region.
- Parking areas graded to **bioretention** islands facilitate the capture and treatment of parking lot runoff. Through storing, filtering, and infiltrating stormwater, bioretention islands help improve water quality in parking areas, surfaces that contribute to non-point source pollution.
- **Local jurisdictions are encouraged to review their local ordinances** to allow for the inclusion of smaller parking spaces *(i.e., segregate parking by car size and corresponding stall size),* decrease total parking spaces required *(e.g., shared parking),* allow on-street parking, utilize alternative pavement options, and incorporate on-site stormwater management and infiltration techniques *(e.g., rain gardens, bioretention, filter strips).*

Elements of Site Design

Stormwater Control & Detention

Stormwater control is an important aspect of site design. Stormwater is naturally gathered, channeled, detained, absorbed or dispersed, and recycled through the watershed. Site development *(e.g., the introduction of large expanses of buildings or impervious pavement, as well as topographic changes)* impacts this cycle by interrupting or altering the water's natural course. Effective stormwater control strategies can work with the site's natural ecosystem, aiding in the return of stormwater from developed areas to its natural course of flow. Stormwater is efficiently channeled and dispersed, while pollutants are filtered, isolated, and disposed of responsibly. Good stormwater control measures result in less soil erosion, standing water, and impervious ground covering *(e.g., large parking areas)*. These methods frequently result in lower development costs.

Natural drainage pattern, Central Lake, Antrim County

Natural Drainage Patterns
Maintaining natural drainage patterns and minimizing disturbances to a site's vegetation can reduce the total runoff volume. Stormwater management techniques can incorporate natural features and designed systems to retain and manage stormwater on-site. Retaining existing vegetation, especially near wetlands and water bodies, helps minimize runoff; natural vegetation can also be used to filter stormwater on-site, making it available for reuse *(e.g., irrigation).*

Restored stream, Garfield Township, Grand Taverse County

KEY POINTS

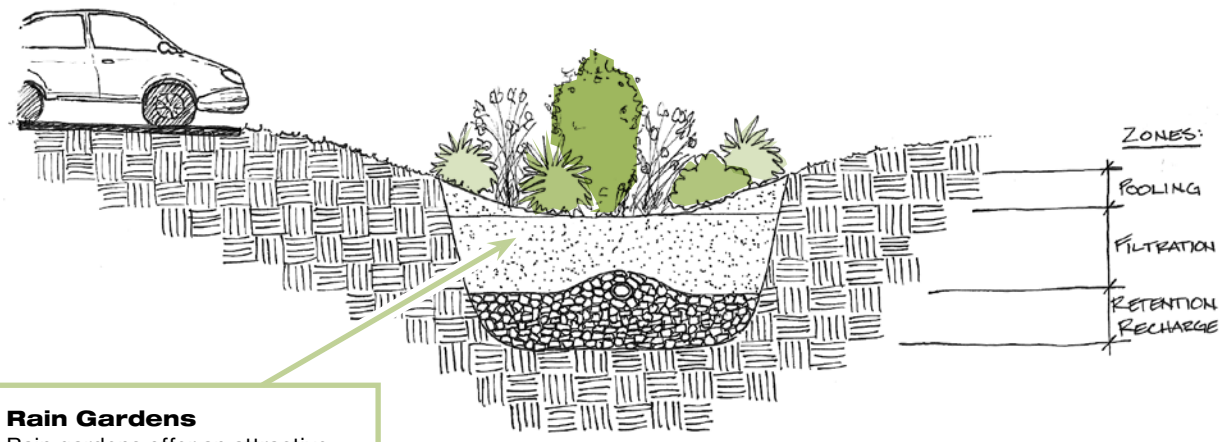
- **Retain wetlands and existing drainage patterns** as part of a natural stormwater and open space system to accommodate the natural flow of water. This will help reduce infrastructure costs and flooding frequency, as well as increase open space and wildlife habitat.
- **Incorporate natural stormwater control systems** to reduce development costs.

Stormwater Runoff Reduction, Retention, & Reuse

Site design should include elements to reduce, retain, and reuse stormwater runoff on-site. This helps prevent flooding, as well as contributes to more affordable development costs and lower taxpayer contributions to stormwater system maintenance. Attractively landscaped, shallow basins retain stormwater and can be aesthetic assets to a site.

To reduce stormwater runoff, developments can incorporate natural drainage patterns, minimize impervious surfaces including roads and parking, and whenever possible include porous asphalt, pervious concrete, or other alternative paving. Since trees with large canopies catch ninety (90) percent of rainwater before it reaches the ground, preserving a site's existing vegetation – especially mature trees – contributes significantly to a reduction in stormwater runoff. Refer to **Critical Design Practices:** *Natural Landscape Character* and *Water Resource Protection* for more information.

Methods for retaining stormwater include sedimentation basins, rain gardens, rain barrels, and engineered systems.



Rain Gardens

Rain gardens offer an attractive, low-maintenance method for collecting and filtering water, and they can be sized to fit a site's specific conditions. Rain gardens are constructed with special soils and planted with native species that flourish in wetland conditions. Excess water from roofs, sidewalks, yards, streets, and parking areas is directed to the rain garden where the water seeps through the soil, and pollutants are filtered out.

Sedimentation Basins

Sedimentation basins can be used to retain stormwater runoff. Following a rainstorm, stormwater enters the basin – allowing the sediment to sink to the bottom of the standing water. If enough stormwater enters the basin, the "clean" water flows out via a drain. Otherwise, the water will percolate through the soil.

- **Reduce the total amount of impervious surfaces and increase areas of vegetation.** Driveways and parking areas should be designed to be as small as possible and constructed with alternative paving whenever possible.
- **Select a method for retaining stormwater** based on a site's natural characteristics and intended usage.

Elements of Site Design

Stormwater Control & Detention *continued*

Plaza with pervious paving, Elk Rapids, Antrim County

Infiltration Techniques

Incorporating infiltration techniques into a site design minimizes stormwater runoff and assists in maintaining the natural drainage of a site. Infiltration techniques include swales, pervious paving (refer to **Critical Design Practices:** *Parking* for additional information), strategic grading, and bioretention islands.

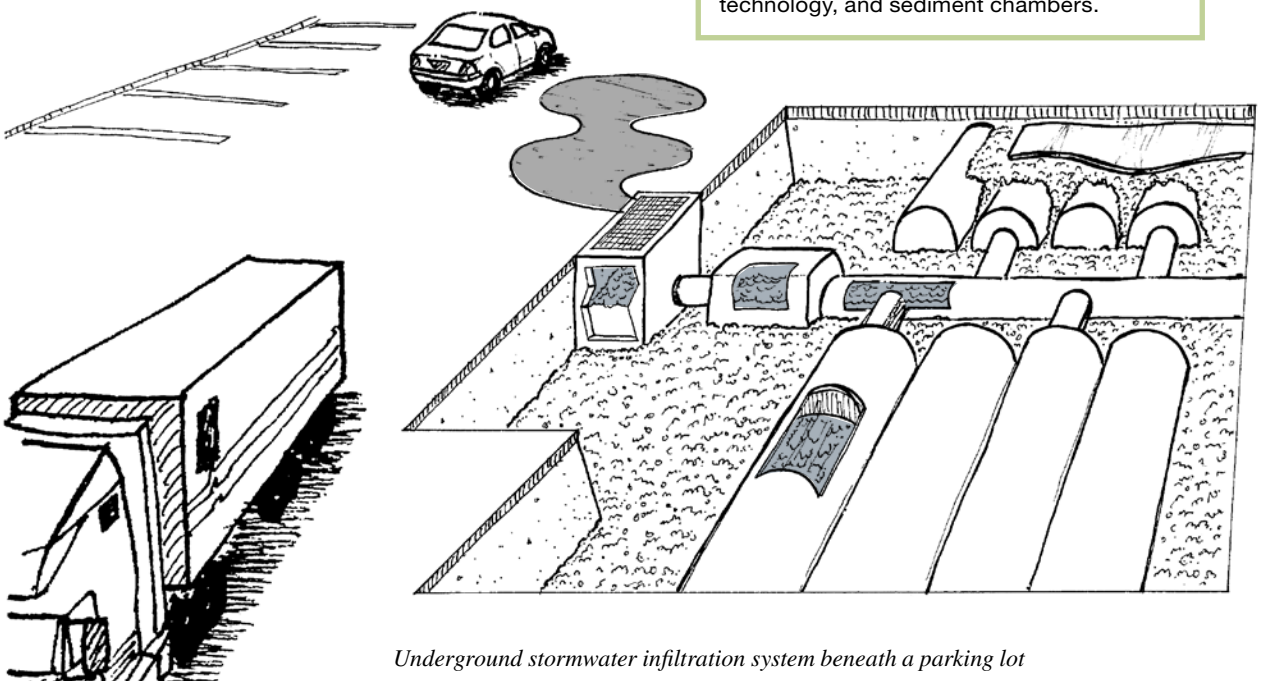
Swales are open, vegetated channels which temporarily store water and allow pollutants to settle out, especially sediment. Depending on the site, they can be lined with vegetation or rocks, wet or dry. Swale design can include check dams to reduce the speed and thus the erosion potential of stormwater runoff, as well as enhance infiltration into the soil.

Bioretention uses plants and soils to capture, filter, and infiltrate stormwater runoff on-site at the source. Bioretention methods include specially designed parking lot islands, rain gardens, large vegetated retention areas, and small stormwater planters. Incorporating bioretention techniques improves water quality on- and off-site, something of critical importance to our region.

KEY POINTS

- **Include on-site detention** and infiltration of stormwater runoff.
- **Rainwater should be allowed to infiltrate** into the ground as near as possible to where it falls.
- **Include proper infiltration measures in site design.** Swales channel stormwater above ground and facilitate stormwater infiltration on-site. Similarly, bioretention areas are both environmentally beneficial and aesthetically pleasing. Trees, shrubs, perennials, and grasses combined with different filtering layers *(e.g., soil, sand, gravel)* can enhance on-site stormwater infiltration.

Filtration Techniques
In some instances, removing particles from stormwater is necessary and a site should incorporate methods for treating stormwater runoff on-site before it enters a storm sewer system or local watershed. Techniques include perimeter filters around paving areas, surface and underground sand filters, swirl technology, and sediment chambers.



Underground stormwater infiltration system beneath a parking lot

Engineered Systems
On larger sites or those with unique characteristics, engineered systems can be designed for below-ground stormwater runoff storage, infiltration, or both. Engineered systems can be more costly than traditional retention basins; however, they can reduce the space required for stormwater infrastructure and provide more buildable space on a site.

- **Incorporate filtration techniques** to treat stormwater runoff on-site.

Elements of Site Design

Landscaping

Landscaping contributes to the environmental quality, aesthetic appeal, and financial value of a site. Preserving existing vegetation and incorporating native species into new landscape elements can minimize the visual and physical impact of buildings, drives, and parking areas. Landscape buffers, screens, and plantings enhance the visual variety and appeal of a site.

Existing vegetation preserved in rural subdivision, Grand Traverse County

Consideration of Existing Vegetation

Consideration of the existing vegetation and significant trees is an essential component of a landscape design that helps maintain and enhance the visual character of a site and the region. Retaining not only large, mature trees but their undergrowth as well helps preserve natural species diversity, minimize the area of disturbance, and decrease surface water runoff and potential soil erosion. Preserving existing vegetation can also reduce landscaping and maintenance costs, as well as enhance the value of properties.

To determine which vegetated species should be retained, conduct an inventory to determine species type, location, size, health, disease susceptibility, and whether it is native or introduced.

KEY POINTS

- Preserve the regional landscape character by **retaining naturally occurring vegetation** to the maximum extent possible and avoiding extensive clearing and the introduction of exotic plants.
- **Retain existing vegetation** which buffers sensitive areas *(e.g., wetlands)* to reduce stormwater runoff and potential soil erosion.
- Work with a landscape architect, arborist, horticulturalist or conservation district forester to **conduct a site survey to determine which species to protect.**
- **When existing vegetation must be removed to accommodate development,** contact a local plant rescue group to relocate whatever can be saved.

Low-Maintenance Landscaping
When revegetating disturbed areas, plant perennial grasses, herbaceous plants, and native trees and shrubs to enhance the natural landscape character. Since native plants are adapted to the region's climate and conditions, they generally require less irrigation and maintenance than traditional lawns or introduced ornamental species. Furthermore, using native species enhances the biological diversity and integrity of a site and contributes to stormwater management by filtering runoff and providing for groundwater recharge.

Hillside re-vegetated with native plants, Oleson's Plaza West, Grand Traverse County

- **Landscape a site with indigenous and water-efficient plants whenever possible.** Native plants require the same care and attention as non-natives for the first few years but once established are self-sustaining. Installation and maintenance costs for native plants are frequently lower than for traditional landscapes with turf grasses and ornamental species.

Elements of Site Design

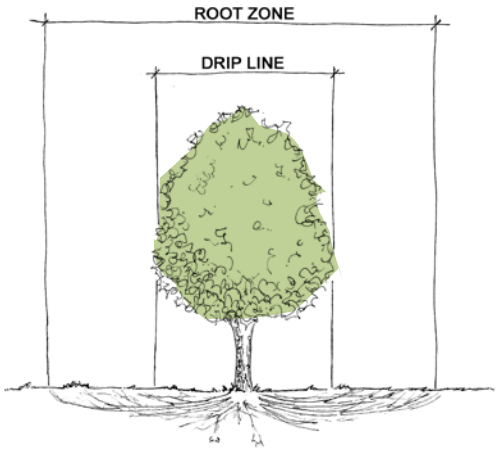
Landscaping *continued*

Tree Root Buffer Zones
Given the prevalence of trees throughout the five-county region, protecting significant trees and stands of trees when developing sites aids in the preservation of the Grand Traverse Bay region's character. Protecting significant trees requires locating buildings, roads, and sidewalks in areas of the site which will minimize tree destruction, as well as establishing Protected Root Zones *(i.e., tree root buffer zones)* to protect vegetation during road widening, sidewalk construction, and cut-and-fill activities. A Protected Root Zone is an area surrounding the tree approximately 1 to 1 ½ feet in radius for every inch of the tree trunk's diameter; this typically is an area greater than the spread of its branches.

Whenever possible, trees should be retained in stands or clusters as this increases their chances of survival and preserves larger habitat areas. Special care should be taken to protect trees and groundcover along lakes and other shorelines, creeks, streams, and wetland areas. For additional information, refer to **Critical Design Practices:** *Water Resource Protection*.

If compliance with local ordinance specifications necessitates construction within root zones, the following steps should be taken to mitigate the impact on existing vegetation: (1) protect trees during construction to reduce damage to limbs, trunks, and roots; and (2) prohibit grading, mechanical equipment operation, and material storage within protected root zones.

Protected tree root zone, Central Lake, Antrim County

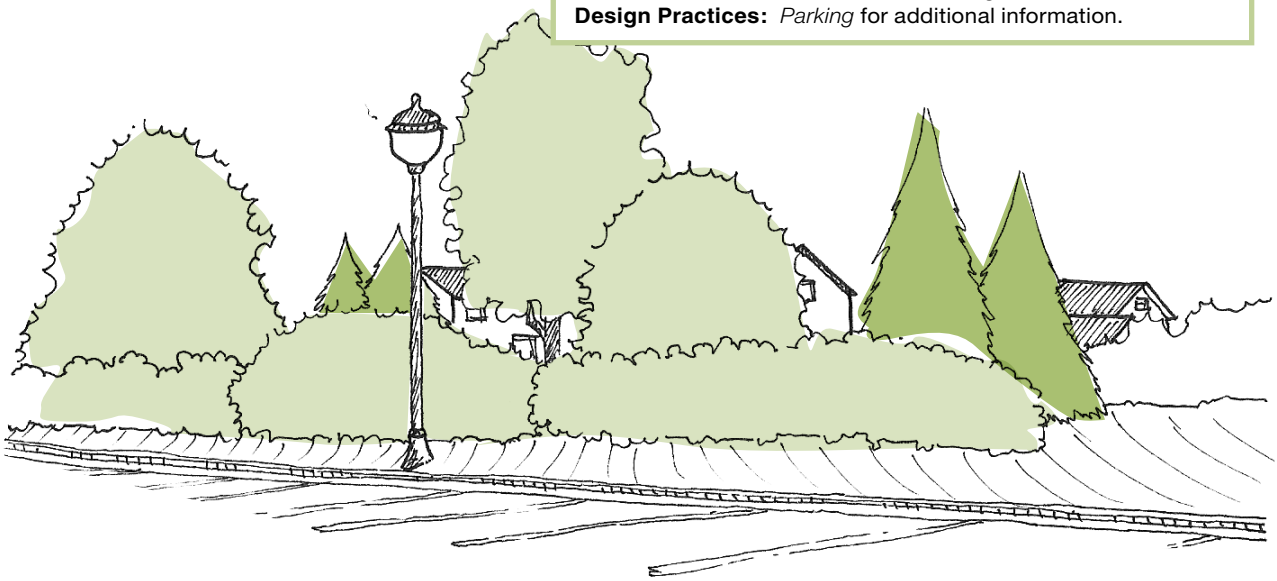


KEY POINTS

- **Maintaining positive drainage** away from trees and protecting roots from damage and compaction are essential to preserving trees.
- **Root zones** typically extend out from tree trunks two (2) to three (3) times the distance of the tips of the branches, and approximately ninety (90) to ninety-five (95) percent of tree root systems are in the top three (3) feet of soil with more than fifty (50) percent in the top foot.
- **Avoid construction activities in close proximity to mature vegetation**, especially sugar maple and beech trees, which are especially sensitive to root damage. This will protect significant trees from inadvertent harm that could cause their decline and possible death, thereby necessitating costly revegetation.

Buffering & Screening

Landscaping offers an effective method of separating pedestrian and outdoor living spaces from frequently trafficked areas, as well as providing a transition between different portions of a site *(e.g., public, private)* and different land use zones *(e.g., residential, commercial, industrial)*. Visual screening incorporated into a landscaping plan can conceal service and parking areas, while emphasizing public façades and entrances. The judicious placement of buildings, walls, and plantings can mitigate the impacts of unattractive views and noises without sacrificing the functional necessities of a site. Landscape buffers can provide windbreaks and aid in stormwater management. Refer to **Critical Design Practices:** *Parking* for additional information.



Landscaping Design Principles

Select native species and varieties, especially for planting areas visible from roads and adjacent properties. Group plants of similar care requirements to reduce the need for irrigation. Consult a landscape architect or nursery person for specific advice.

Maintain landscaping by watering, organic fertilizing, pruning, pest control, and removal of diseased or damaged materials as necessary.

Landscaping materials should be durable, easily maintained, and complement other site structures for years to come.

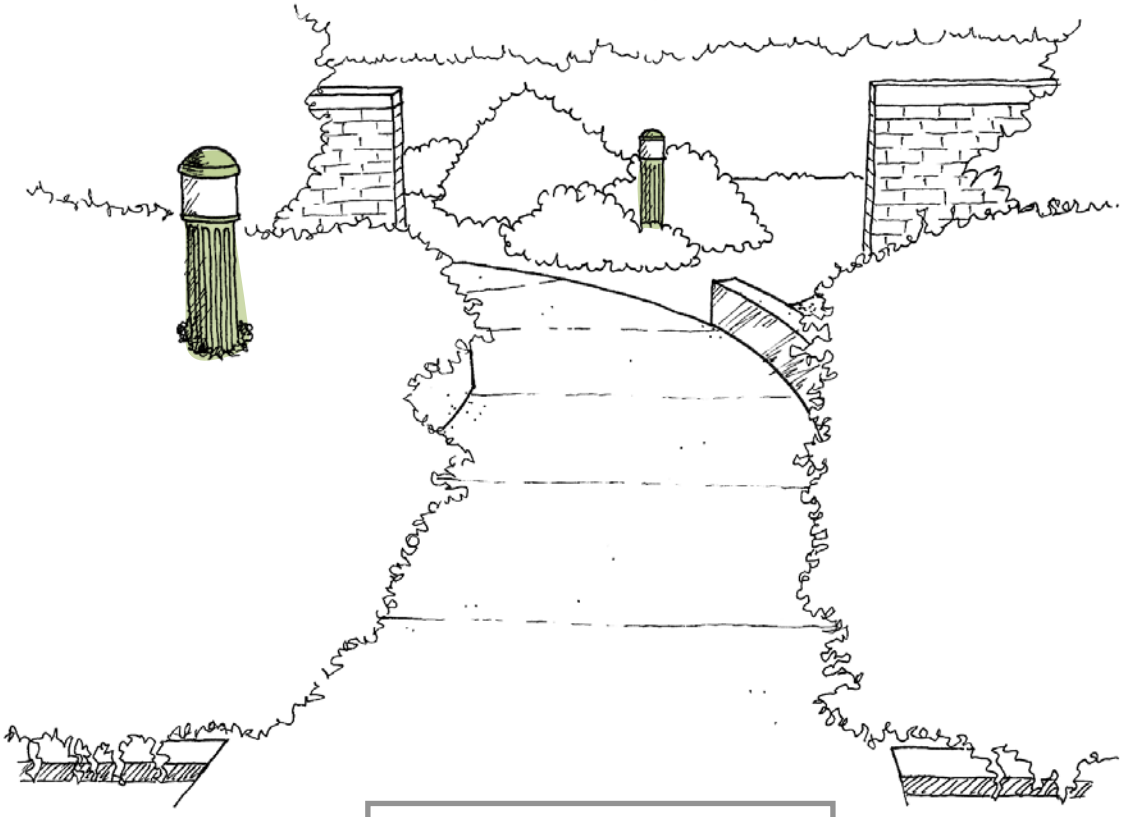
The materials for retaining walls should minimize their perceived size *(e.g., brick, stone)*. Incorporating terraces with climbing vegetation can soften the overall appearance of walls.

- **Screen** incompatible land uses with a mixture of trees and shrubs, primarily of native species where most visible.
- **Include attractive landscaping and courtyard walls** to buffer and define architectural space along walkways, streets, and parking areas. Masonry walls provide privacy and security while screening parking areas.
- **Screen blank walls** with trellises and climbing plants.

Elements of Site Design

Site Lighting & Utilities

Although necessary parts of developments, lighting and site utilities need not dominate or detract from the overall site design. Lighting should facilitate safe pedestrian and vehicular access and circulation with a minimum level of illumination. Whenever possible, utilities should be below grade, and new and re-development projects should incorporate a comprehensive shared utility system for multiple buildings and properties.



Recommended Lighting Levels
(in footcandles)

Building entries	4.0
Sidewalks	1.0 - 3.0
Pedestrian paths	1.0
Parking lots	0.5

KEY POINTS

- **Use light fixtures designed to focus light down** on a site rather than on adjacent properties or roadways.
- **Shielded globe lighting or bollards** that light walkways without exposing the light source should be used in pedestrian areas.

Attractive lighting fixtures, Leelanau County

Lighting Design

Exterior lighting is an integral part of the architectural and landscape design of a project. Fixture style and design should complement building design while providing a minimum level of illumination. The amount of lighting required depends, in part, on the land use. Lights placed at regular intervals may be necessary in frequently used areas while lights just at intersections and crosswalks may be sufficient in residential districts. Regardless of the land use, appropriate site lighting will address safety concerns without contributing to light pollution or disturbing neighboring properties. Lights should indicate key site elements *(e.g., vehicular and pedestrian intersections, pedestrian pathways, building entrances, essential signage)*, yet they should be shielded to reduce glare to adjacent roads and properties.

Lighting should be scaled for a specific use. Using pedestrian-scaled lighting *(i.e., lighting with nine (9) to twelve (12) foot pole heights and/or three (3) to four (4) foot bollards)* contributes to the formation of pedestrian-oriented streetscapes and pathways, as well as minimizes glare and light pollution associated with tall street lights. The style and height of lights in parking areas is equally important: select light fixtures that meet Dark Sky Lighting standards.

Establishing the appropriate amount of lighting in our region's hamlets and villages requires careful consideration. Many of our older communities are minimally lit, and new ones should follow this pattern. Lights should provide sufficient illumination to allow pedestrians and vehicles safe site access; however, too much lighting can alter community and regional character. Many of the region's communities have implemented dark sky ordinances and can serve as a reference for other jurisdictions looking to establish their own.

- **Set timers on lights** to turn off after a certain time on all but essential locations for safety.
- **Use motion-triggered lights** around the side and rear of buildings instead of lights that are continually on all night.

Elements of Site Design

Site Lighting & Utilities *continued*

Utilities above ground

Utilities below ground

Bury Utility Lines

Views along roadways should be pleasing, and burying utilities or routing them away from the streets can help maintain our region's scenic views. Road commissions and utility companies that utilize the same rights-of-way and easements can minimize the destruction of the region's natural character.

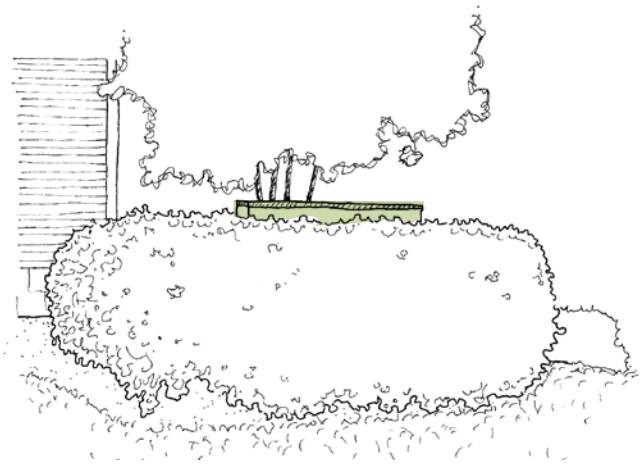
Burying utilities lessens maintenance, weather-related repair, and service disruption costs. Most ordinances ensure utilities are buried on new developments within the Grand Traverse Bay region; however, local communities should encourage it be done whenever infrastructure improvements are made on sites within their jurisdiction. Utility meters, electrical boxes, and other service lines should also be located such that they are not visible from streets. When a project includes multiple buildings, shared utility systems should be encouraged in lieu of individual wells, septic, heating fuel tanks, as well as mechanical facilities and dumpsters.

KEY POINTS

- **Place utilities** under roadways, immediately next to pavement, or in separate corridors away from natural vegetation *(e.g., a tree line)* to avoid root damage to trees when repairs are made.
- **Boring** – instead of digging a trench – minimizes the impact of burying utilities on a site's natural vegetation, especially trees. It also provides a means of burying utilities on a site with existing infrastructure.
- **Incorporate comprehensive shared utility systems** for multiple buildings and properties into new and re-development projects whenever possible. These systems can be linked with nearby municipal utility networks in the future for additional cost savings and environmental protection.
- **Encourage the consolidation of road rights-of-way and utility easements.**

Service Elements

In a well-designed project, service elements *(i.e., dumpsters and recycling bins, mechanical facilities, mail box clusters, utility meters, delivery areas)* are located to minimize their visual and physical impact on the site, as well as on adjacent properties. Service elements should be separated from pedestrian circulation and screened from view. Their location should also facilitate easy access for maintenance and/or trucks with minimal disturbance. Whenever possible, they should be combined and located in enclosed areas off alleys, side drives, or within a parking area.



Screened electrical box

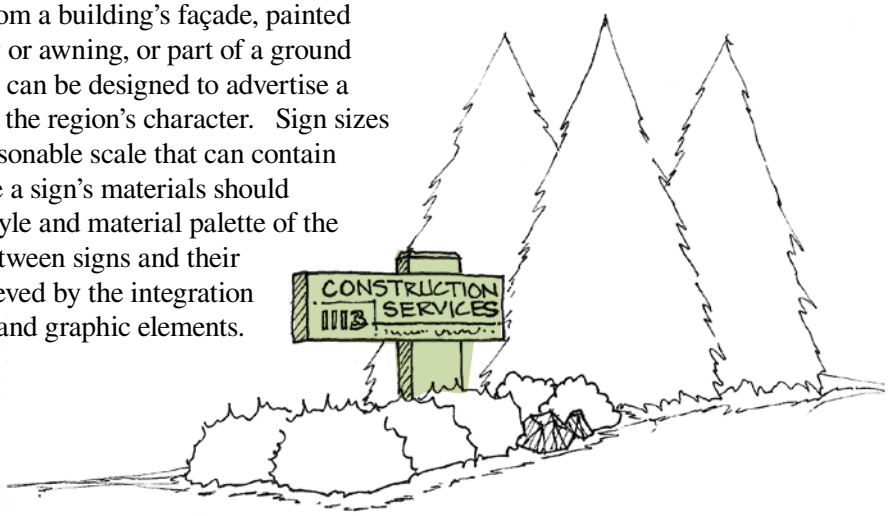
Well-designed and screened service elements

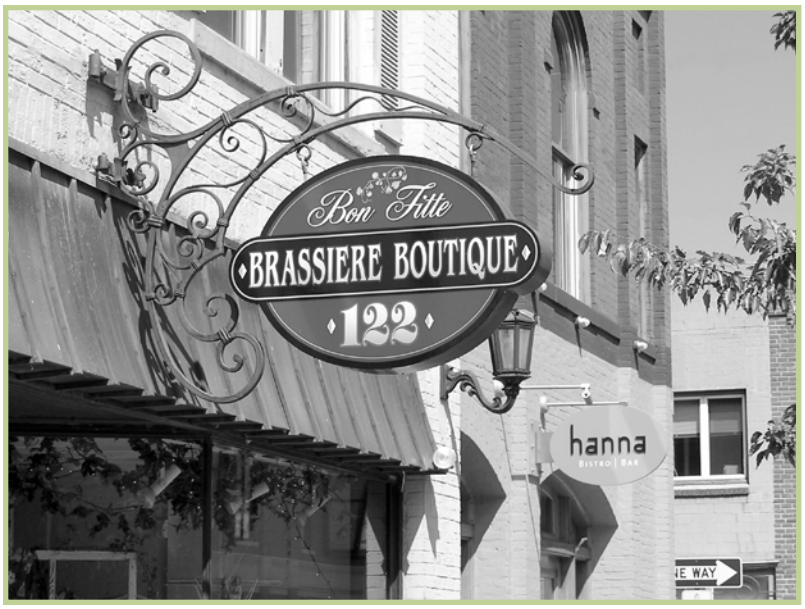
- Place **service elements and delivery areas** at the rear of buildings or parking areas or in an enclosed area to minimize their impact on a site. Service elements should be screened from view.
- Use **surfacing materials** designed to withstand repeated pick-up and drop-off of waste containers.
- **Screen service elements** with a durable, attractive structure and planting beds with hardy, native vegetation of which at least fifty (50) percent is non-deciduous. Refer to **Critical Design Practices:** *Screening* for additional information.

Elements of Site Design

Sign Design & Placement

In our region's small towns and developed areas, signs can enhance building character as well as the pedestrian experience. Signs should be small, simple, and readable whether they are attached to or hang from a building's façade, painted on the inside of a window or awning, or part of a ground level planting bed. Signs can be designed to advertise a business and complement the region's character. Sign sizes should be limited to a reasonable scale that can contain a readable message, while a sign's materials should reflect the architectural style and material palette of the building. Visual unity between signs and their surroundings can be achieved by the integration of landscaping, building, and graphic elements.





Attractive, pedestrian-scaled signs, downtown Traverse City, Grand Traverse County

KEY POINTS

- **Allow for the unique needs of local establishments while avoiding excessive signage** in order to preserve the region's scenic views, natural landscapes, and community character.
- **Design ground level signs to partially blend into the natural landscape,** and provide a planted backdrop incorporating native plants and landscaping elements, whenever possible, to make signs easier to see.
- Permit signs of sufficient height to be **seen above the snow**.
- **Limit size and number of signs** to help preserve the region's natural character.
- Jurisdictions which have not already done so are encouraged to **develop a local sign ordinance.**

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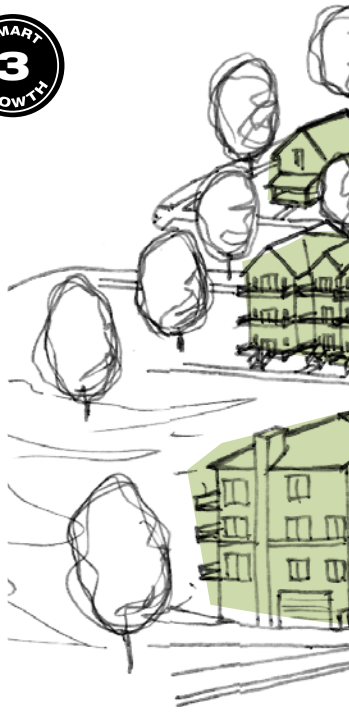
Design Guidelines

Section 2 Residential

Introduction

The density of residential development varies throughout the Grand Traverse Bay region, as well as within its townships, villages, hamlets, and cities. This spectrum of low, medium, and high densities provides residents a full range of housing options to accommodate their changing preferences and needs. As the area continues to grow, new housing will be needed. Designating land areas for higher-density residential development can accommodate growth, maximize infrastructure investment, and create neighborhoods while protecting the region's valuable agricultural and wooded lands. Local jurisdictions which recognize this and determine the most desirable locations for the full range of housing needs *(i.e., low- to high-density developments)* are more likely to avoid urban sprawl as well as the associated environmental and financial costs.



Communities are advised to determine where a higher density of residential development makes sense *(i.e., next to established areas where extension of existing infrastructure is appropriate and/or where future establishment will be possible at the least expense to taxpayers),* as well as opportunities to develop more land-efficient projects *(e.g., cluster or infill developments)*. Today's efforts help ensure future residential developments will complement regional character and protect natural resources.

Low-Density Residential
Carefully designed developments provide opportunities for rural living without detracting from the area's character.

Medium-Density Residential
Developments within or adjacent to communities make efficient use of existing infrastructure and protect rural lands.

High-Density Residential
Well-designed developments can meet a growing market demand and provide desirable amenities not possible at lower densities.

Density Methods & Tools

Conservation Planning

SMART GROWTH 2 SMART GROWTH 4 SMART GROWTH 5 SMART GROWTH 6

Conservation planning concentrates development in smaller areas to preserve tracts of natural open space over the remainder of the site. Several techniques exist to help retain usable open space, extend trail networks, and protect natural resources, while offering attractive and valuable building sites for development. In rural, suburban, and urban environments, the division and use of lands should include natural boundaries as well as those that are created. Refer to **Critical Design Practices:** *Conservation Planning* for detailed information on the components of this method.

Conservation Planning on a Regional Scale

Local jurisdictions are encouraged to identifiy and protect conservation areas within the Grand Traverse Bay region. Adjacent communities can plan conservation networks by incorporating maps of potential conservation areas as part of their master plans. Ideally these areas should interweave to form a contiguous network of open spaces. Documentation of conservation areas should be accompanied by updated zoning and subdivision ordinances.

Areas Most Suited for Conservation Planning Techniques

Existing large parcel areas
Prime agricultural areas
Parcels within viewsheds
Ecologically sensitive lands
Remaining large woodland areas
Stream corridors and greenways

Areas Most Suited to High-Density Development

Areas with existing infrastructure
Areas where existing public infrastructure can be easily extended
Areas where development will not adversely impact significant natural systems
Areas where existing community character will not be adversely impacted

Density Calculations

The method communities use to calculate density can dramatically impact development patterns. For instance, while densely arranged homes on one portion of a large parcel would have the same gross density as the same number of homes spread out evenly over the parcel, the two developments have substantially different net densities. Hence lot size and building arrangement can result in very different residential densities.

When revising ordinances, local jurisdictions should take into consideration the implications inherent with the different methods of calculating density. Net density produces a more visually recognizable density for the developed portion of the site, while gross density allows for more flexibility in developing sites *(e.g., cluster developments, PUDs)* as well as projects evaluated in the context of average density of adjacent developments *(i.e., a development fitting within a density continuum).*

Calculating Density: Gross vs. Net

Gross density =
Total residential units / total development land area

Net density =
Total residential units / total residential land area (excludes roads, open spaces, and other uses)

Transfer of Development Rights

Jurisdictions wishing to achieve a balance between preserving natural areas and developing housing are advised to establish a Transfer of Development Rights (TDR) program. TDR programs redirect residential development to areas appropriate for higher densities. Refer to State of Michigan Public Act 228 of 2003 for specifics.

Density Bonuses

Offering density bonuses is one way local jurisdictions can facilitate the creation of unique, environmentally sensitive developments. To be effective, local jurisdictions should establish the parameters for density bonuses *(i.e., under what conditions and how much)* and local ordinances should include a detailed schedule indicating specific bonus housing units for various amenities *(e.g., affordable housing; senior housing; parks, open space, and recreation; historic preservation; innovative stormwater management; pedestrian amenities).* Granting bonuses for the most unique and exceptional projects can encourage better development in local communities throughout the Grand Traverse Bay region.

Low-Density Residential

The Grand Traverse Bay region is characterized by small towns and settled crossroads interspersed among expansive fields and forests. The demand for low-density residential housing has and continues to spur developments throughout the five counties. Communities which pursue development patterns that enhance the rural visual character and protect the natural environment can produce thoughtful, quality designed low-density residential developments which contribute to the region's economic and environmental vitality.

When Designing Low-Density Residential:

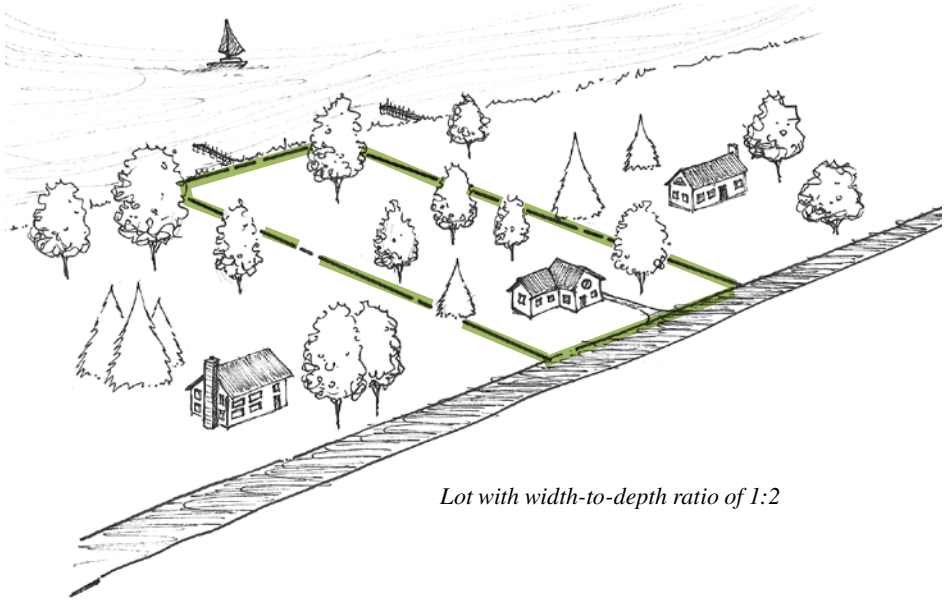
- Conduct site assessment
- Retain existing vegetation and other natural resources
- Determine building location and establish build-to lines
- Minimize stormwater runoff through roadway location, design, and reduced widths
- Promote connections within and between developments for both vehicles and pedestrians
- Locate parking to the rear or side of residences
- Incorporate alternative surfacing materials
- Locate and design quality open spaces
- Include buffering and screening
- Incorporate low-maintenance landscaping
- Control and recycle stormwater runoff
- Scale signage appropriately
- Assess trash and recycling service needs

Land Division *(i.e., lot splits)*

Demand for low-density residential housing often prompts land division *(i.e., lot splits)* in rural residential areas. While Michigan's Land Division Act, Public Act 288 of 1967 as amended in 1996 provides private land owners the right to subdivide their land, local jurisdictions can minimize the impact of land division by revising zoning ordinances to establish width-to-depth ratios which promote better utilization of land while maintaining the rural character. This can reduce sprawling, fragmented development that often results from the division of large parcels of land.

Lot width-to-depth ratio regulates lot depth in relation to road or lake frontage. A minimum lot width-to-depth ratio prevents the creation of long and narrow lots, as well as the crowding of buildings along access roads while leaving the land behind buildings vacant and unserviceable. Except in critical areas *(e.g., parcels with steep slopes, shorelines with a high risk of erosion, sensitive natural ecosystems)* lots should not exceed a 1:4 ratio.

Local jurisdictions are responsible for verifying that newly created parcels meet the applicable zoning district's minimum standards regarding lot setbacks, road frontage, and size requirements. Furthermore, local jurisdictions should look for opportunities to promote infill development in established hamlets and villages, as well as support projects which include conservation planning techniques. Refer to **Critical Design Practices**: *Conservation Planning* for additional information.



Lot with width-to-depth ratio of 1:2

Directing Development
Market demand for low-density residential housing will continue to produce new developments throughout the five-county region. Local jurisdictions are encouraged to implement Transfer of Development Rights (TDR) programs as a means of protecting the region's rural areas for agricultural and forestry uses by focusing residential developments in areas which will support higher densities *(i.e., adjacent to established areas).* Refer to **Critical Design Practices:** *Open Space Protection Tools* for more information.

Low-Density Residential

Designing Low-Density Developments

Site assessment and thoughtful, quality design are critical to successful integration of low-density housing within the predominantly rural five-county region. Low-density residential development design and location should accommodate a site's topography, natural features, and sensitive areas. Structures should also be clustered whenever possible to minimize their environmental and aesthetic impact on surrounding areas. Local jurisdictions are encouraged to promote development patterns and revise zoning ordinances to facilitate developments which complement the rural visual character and protect natural resources.

Incorporating the following guidelines can assist in the formation of new or improvement of existing low-density developments: site assessment, access management, building placement, landscaping, roadways, and signage. For detailed information on specific techniques refer to the **Critical Design Practices** section.

Site Assessment
Conduct a site inventory and analysis, including a soil survey, to determine a parcel's most valuable natural resources and the portions of the site which should be preserved. Refer to **Critical Design Practices:** *Natural Resources Protection* for additional information.

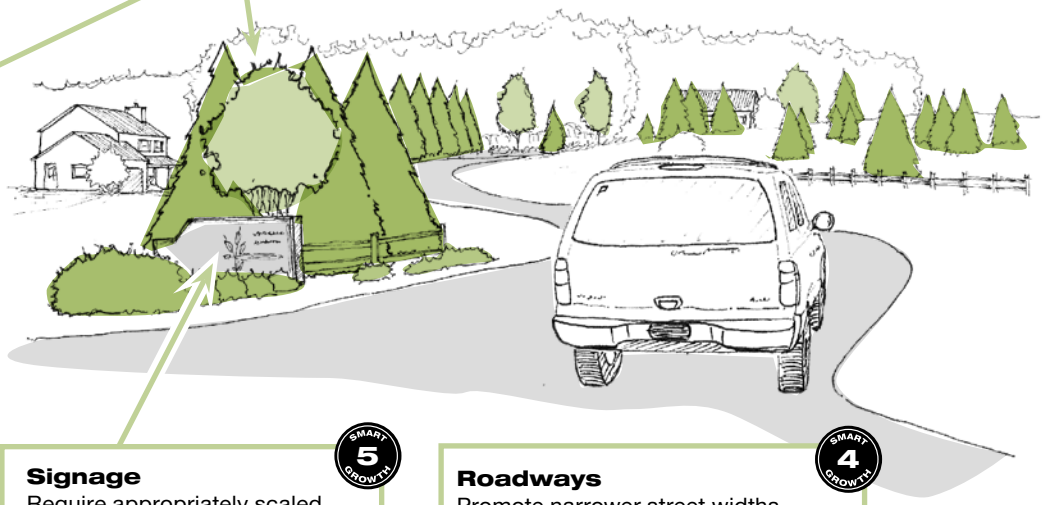
Building Placement
Locate buildings on the portion of the site with the least visual or environmental value, as well as below prominent ridge and tree lines. Existing rural structures and features *(e.g., farm buildings and fencing of historic or architectural significance)* should be preserved where feasible. Establish build-to lines – with larger variation than commonly allowed in areas of greater density – to enhance rural streetscapes. Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility,* and *Building Revitalization & Reuse* for additional information.

Landscaping & Natural Features SMART GROWTH 5

Retain existing natural features *(e.g., hills, fields, streams)* and vegetation – especially along ridgelines and road corridors – to enhance a site's environmental and market value. Limit pre-construction clearing, protect vegetation during construction, and incorporate low-maintenance and native/naturalized vegetation in landscaping following construction. Require buffering, screening, and landscaping between roadways and developed areas. Refer to **Critical Design Practices:** *Landscaping* and *Stormwater Control & Detention* for additional information.

Lighting

Preserve rural character and dark skies by minimizing outdoor lighting. Refer to **Critical Design Practices:** *Site Lighting* for specific information.

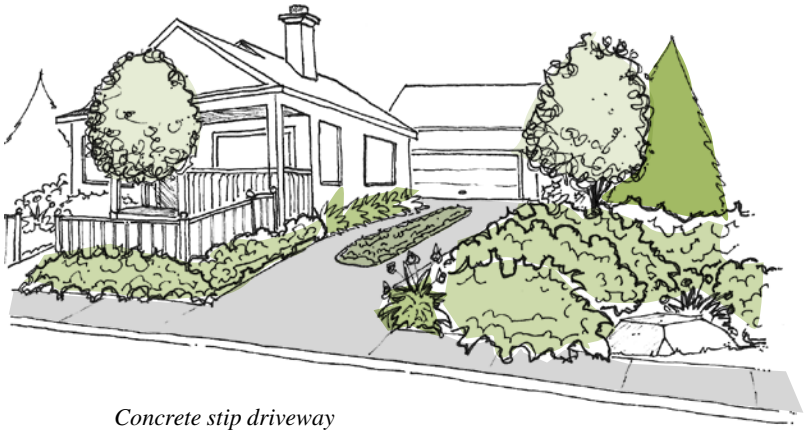


Signage SMART GROWTH 5

Require appropriately scaled signs and minimize gateway and other on-site development identification signs to maintain a consistent rural character. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Roadways SMART GROWTH 4

Promote narrower street widths, especially in cluster developments, and encourage connections between developments to facilitate pedestrian and vehicular circulation. Refer to **Critical Design Practices:** *Site Access* and *Roadways* for additional information.



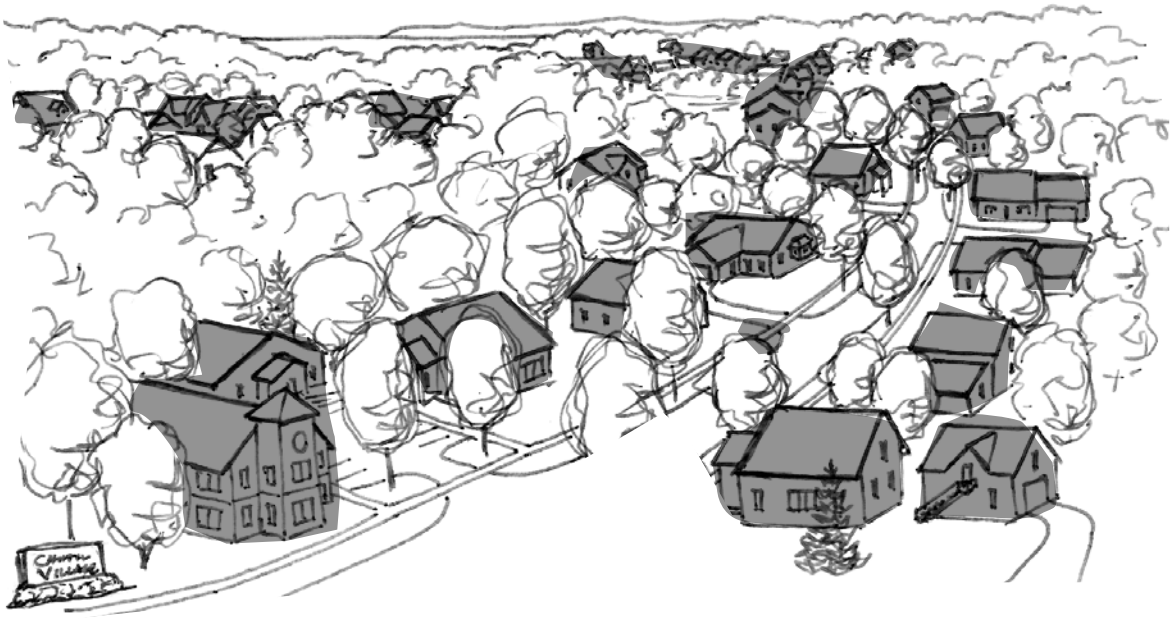
Concrete stip driveway

Access & Parking SMART GROWTH 4

Using gravel, brick, concrete strips, or other pervious surfaces can aid in the reduction of stormwater runoff. Combined driveways also reduce the amount of paved area, as well as enhance safety and aesthetics by minimizing curb-cuts *(i.e., driveways, access points)*. Refer to **Critical Design Practices:** *Site Access* and *Parking* for additional information.

Medium-Density Residential

Most small towns and developments in the Grand Traverse Bay region are characterized by residential-scaled homes along tree-lined streets. A substantial number of historic structures contribute to both community and regional character. To obtain new residences which enhance the region's aesthetic character and environmental health, local jurisdictions are encouraged to promote medium-density developments adjacent to or within unbuilt areas of their community and revise zoning ordinances to facilitate their creation. Expanding existing communities through construction of medium-density residential developments can minimize the cost of infrastructure extension and services, as well as assist in the formation of walkable communities where residents are not solely dependent on vehicular transportation. This development pattern meets a demand for a particular residential environment while enhancing the region's aesthetic character and environmental health.



Residential neighborhood in Chartwell Village, East Bay Township, Grand Traverse County

When Designing Medium-Density Residential:

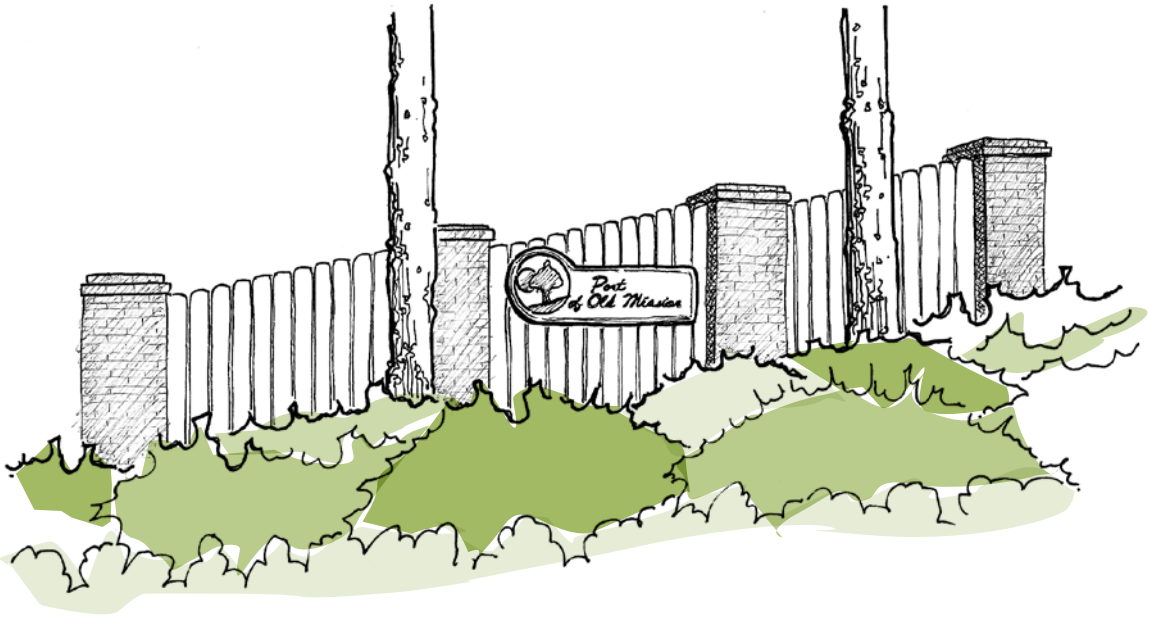
- Conduct site assessment
- Retain existing vegetation and other natural resources
- Determine building location and establish build-to lines
- Minimize stormwater runoff and impact on natural areas through roadway location, design, and reduced widths
- Encourage joint driveways, alternate access, alleys, and/or shared parking
- Locate parking to the rear or side of residences
- Promote connections within and between developments for both vehicles and pedestrians
- Incorporate alternative surfacing materials
- Locate and design quality open spaces
- Include buffering and screening
- Incorporate low-maintenance landscaping
- Control and recycle stormwater runoff
- Control signage size and lighting
- Minimize outdoor lighting
- Appropriately locate and screen storage facilities
- Determine infrastructure needs *(e.g., water and sewer vs. well and septic)*
- Assess trash and recycling service needs

Medium-Density Residential

Designing Medium-Density Developments

Site design, an essential component of any project, takes on greater importance as density increases. Developing residences complementary to both a site's natural features and a community's character facilitates successful integration of medium-density housing within our region's communities.

Design of or revision to medium-density residential developments can benefit from the inclusion of the following elements: smaller lot size, building placement, access management, parking, landscaping, buffering and screening, roadways, and signage. For detailed information on specific techniques, refer to the **Critical Design Practices** section.



Landscaping
Retain existing natural features *(e.g., hills, fields, wetlands, streams)* and vegetation – especially along ridgelines and road corridors – to enhance a site's environmental and market value. Limit pre-construction clearing, protect vegetation during construction, and incorporate low-maintenance and native/naturalized vegetation in landscaping following construction. Require buffering, screening, and landscaping between roadways and developed areas. Refer to **Critical Design Practices:** *Landscaping* and *Stormwater Control & Detention* for additional information.

Signage
Require appropriately scaled signs to maintain the visual quality of the region. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Lighting
Design site lighting to accommodate safe vehicular and pedestrian access without contributing to light pollution or disturbing neighboring properties. Refer to **Critical Design Practices:** *Site Lighting & Utilities* for additional information.

Recently constructed homes at Morgan Farms, Leelanau County

Lot Size
Smaller lot sizes within medium-density residential areas facilitate the formation of walkable neighborhoods, as well as provide opportunities for developments with combined utility systems. Note: Minimum lot size is determined in part by size requirements for septic fields in locations without public infrastructure or community systems *(i.e., hamlets).* Refer to **Critical Design Practices:** *Pedestrian Circulation, Site Lighting & Utilities,* and *Conservation Planning* for additional information.

Building Placement
Residential buildings should be located close to the street and incorporate front porches and/or balconies to create vibrant neighborhoods by connecting residents to sidewalk activities. Local jurisdictions are encouraged to revise their zoning ordinances to include build-to lines – with larger variances than in urban areas – in order to establish pleasing streetscapes. Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility, Building Design & Materials,* and *Streetscape* for additional information.

Medium-Density Residential

Designing Medium-Density Developments *continued*

Newly-built neighborhood, Traverse City, Grand Traverse County

Roadways

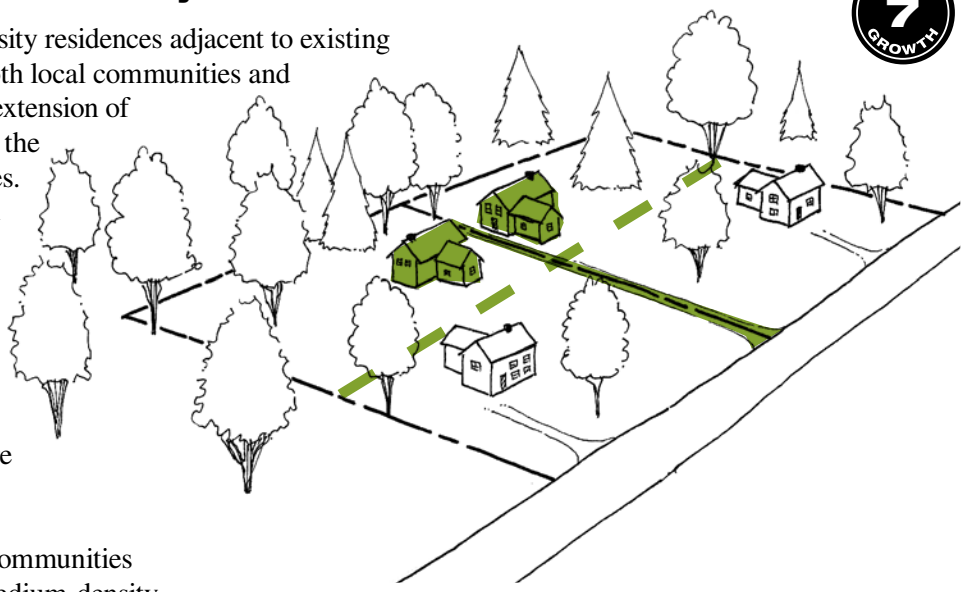
Gridded street networks provide shorter vehicular trips and are more pedestrian friendly. Street networks should facilitate connectivity with adjacent properties through roadways and trail systems. Reduced roadway widths and short blocks calm traffic – essential in creating walkable medium-density areas – and help reduce stormwater runoff. Incorporate herbaceous vegetation between the shoulder of the road and the centerline of adjacent roadside drainage ways to facilitate drainage and visibility while retaining the region's natural character. Refer to **Critical Design Practices:** *Roadways* and *Stormwater Control & Detention* for additional information.

Access & Parking

Locate garages or car ports behind residences *(i.e., a few feet from rear property lines)* whenever possible to minimize their visual impact. For buildings with front-loaded garages, the incorporation of architectural elements *(e.g., balconies, overhangs)* can minimize the prominence of garage doors. Combine drives and provide access from alleys to enhance the safety and aesthetics of streetscapes. Refer to **Critical Design Practices:** *Site Access* and *Streetscape* for additional information.

Provide on-street parking in front of medium-density residences to minimize the size of on-site parking areas, as well as establish a physical barrier between traffic lanes and sidewalks to minimize the impact of moving traffic on pedestrians. Refer to **Critical Design Practices:** *Parking* for more information.

Locating Medium-Density Residences



Developing medium-density residences adjacent to existing developments benefits both local communities and the region. It facilitates extension of existing infrastructure in the region's villages and cities. In hamlets and crossroad developments without public water and sewer, the construction of medium-density residences may create the critical mass necessary to justify future infrastructure provision.

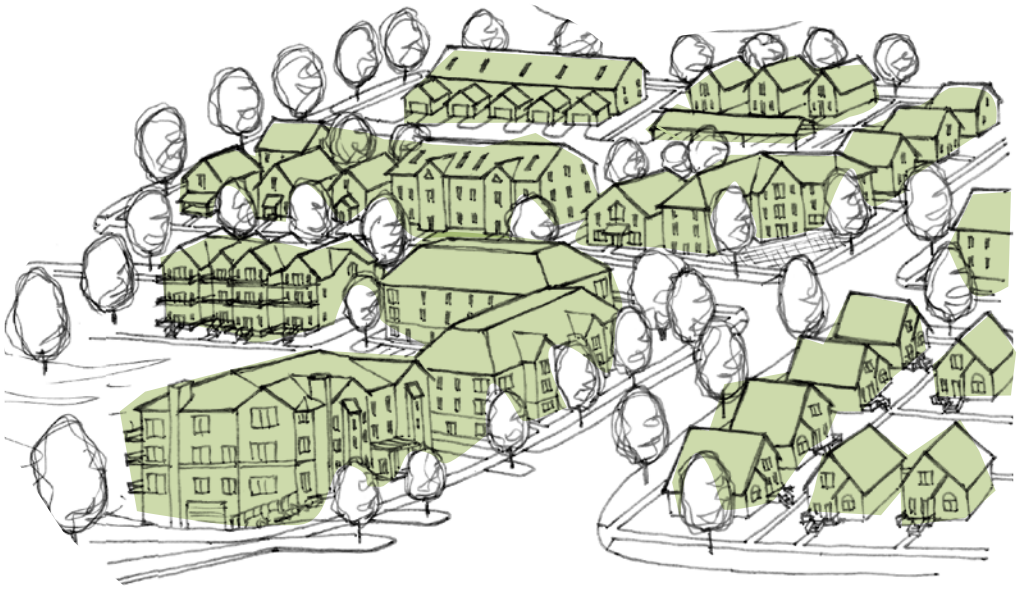
In many of the region's communities opportunities exist for medium-density residential infill projects. Local jurisdictions are advised to consider providing opportunities for dividing and/or reconfiguring large parcels to allow for increased density. This not only concentrates residences in established areas which can minimize greenfield development, it may also help justify future infrastructure service provision. Within these districts, accessory dwelling units offer another option for increased density.

Medium-Density through Mixed-Use PUDs

Planned Unit Developments (PUD) can provide a mixture of uses within medium-density residential development projects. Providing residents the opportunity to walk or bike to local businesses can facilitate a reduction in vehicular trips throughout the region. Local jurisdictions are encouraged to revise their ordinances to allow for the creation of appropriately scaled mixed uses within residential areas, and neighborhood centers in existing subdivisions. Refer to **Mixed-Use Developments** and **Commercial:** *Neighborhood Center* for additional information.

High-Density Residential

Interspersed among the Grand Traverse Bay region's predominantly rural areas are pockets of high-density development. While portions of a city are high-density compared with a village, that same village is high-density compared with the surrounding township. Although the actual density of high-density developments varies considerably throughout the five-county region, existing and new high-density residential areas are essential if communities want to protect natural areas and agricultural lands. Some rural townships may not have high-density residential districts today; however, a continuation of current development patterns will result in areas of high-density residential areas throughout the region – even if they are only high-density compared with current levels. This is all the more reason for communities to determine today which areas should be preserved and which can support high-density development.



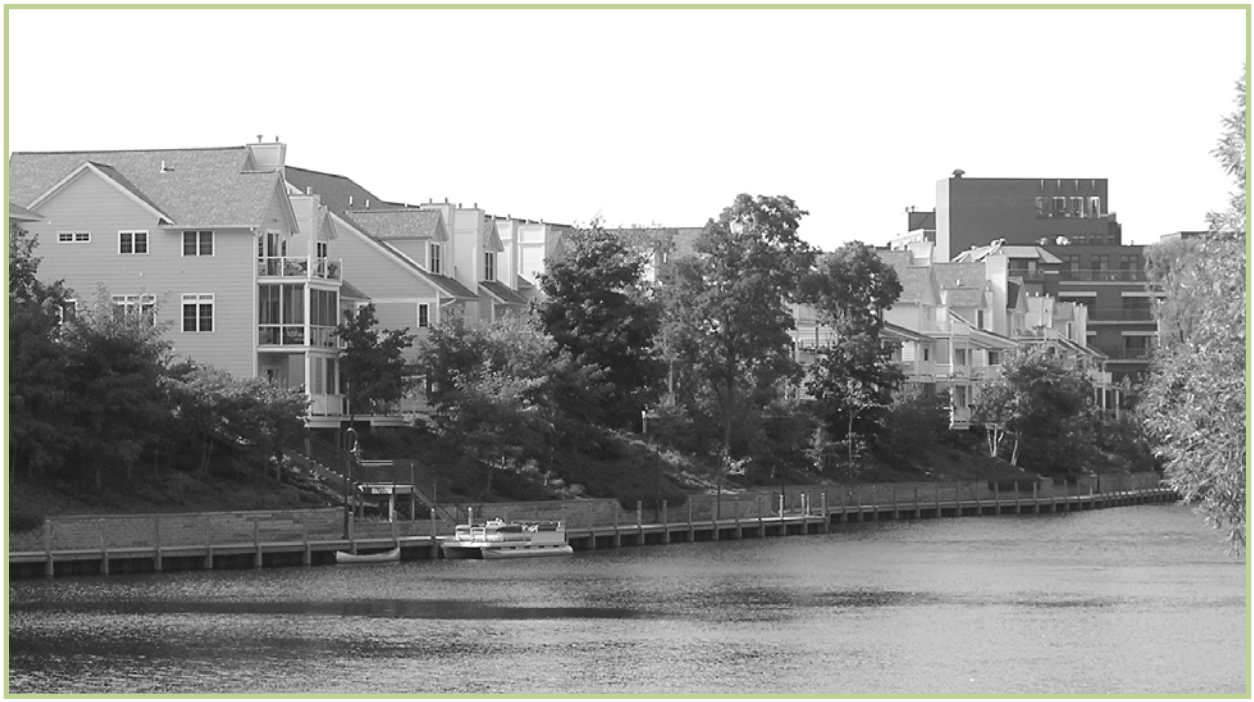
When Designing High-Density Residential:

- Conduct site assessment
- Determine building location and establish build-to lines
- Locate and design quality open spaces
- Include buffering, screening, and low-maintenance landscaping
- Retain existing vegetation and other natural resources
- Control and recycle stormwater runoff
- Encourage joint driveways, alternate access, and alleys
- Utilize shared, on-street, and below-grade parking
- Locate parking to the rear or side of residences
- Minimize stormwater runoff and impact on natural areas through roadway location, design, and reduced widths
- Incorporate alternative surfacing materials, pedestrian signage, lighting, screened storage and service elements
- Promote connections within and between developments for both vehicles and pedestrians
- Encourage adaptive reuse and redevelopment of existing properties
- Consider Transfer of Development Rights opportunities
- Assess trash and recycling service needs

Locating High-Density Residences

Location is critical when creating a high-density residential development. It should be located within or adjacent to established areas *(e.g., the Bay View Phase II in Suttons Bay is a logical extension of existing infrastructure by tying a new development into the existing pattern)*. In urban settings, pre-existing patterns of land division and building provide a framework for infill development as well as the extension of infrastructure to adjacent parcels. This location also facilitates the inclusion of mixed uses within the development because there is a sufficient number of residents to support business establishments. Refer to **Mixed-Use Developments** for additional information.

Whenever possible, local jurisdictions should encourage the renovation of existing structures for high-density residential use. Adapting and reusing the built environment *(e.g., strip malls, office buildings)* helps preserve the character of communities by reviving under-utilized areas, and protecting open space on the urban fringe and beyond. It also helps reduce sprawl, traffic, and congestion by encouraging development in areas with convenient and safe public transportation and bike lanes. Refer to **Critical Design Practices** for additional information.



Midtown and River's Edge, Traverse City, Grand Traverse County

High-Density Residential

Locating High-Density Residences *continued*

Infill high-density residential development, Traverse City, Grand Traverse County

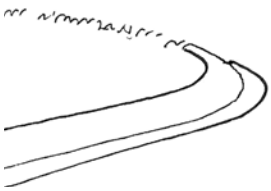
Advantages of Density

In addition to meeting a growing market demand, high-density developments offer economic, environmental, and aesthetic advantages to communities within the region. High-density developments offer more efficient provision of public services *(i.e., utilities, emergency services)*. High-density developments also help protect our region's natural areas, as well as minimize the encroachment of development on farms, forests, and ecologically sensitive environments. Creating and/or sustaining high-density areas through infill projects contributes to vital, dynamic communities where residents enjoy spending time *(i.e., minimize urban decline)*. New developments and revitalization projects can include desirable amenities which may not be possible or sustainable at lower densities *(e.g., mixed uses, public transit)*.

Local jurisdictions should encourage development of sites where utility services with sufficient capacity are already in place. This reduces construction costs and environmental impacts. Encouraging infill projects also avoids open space and environmental fragmentation, as well as potential incompatibility of uses *(e.g., residences adjacent to agricultural operations)*.

Designing High-Density Developments

Good site and building design *(e.g., integrating a site's natural features and neighborhood character)* assists in the creation of high-density developments which complement an established neighborhood in a predominantly rural region. Design of new or revision to existing high-density residential developments should include the following elements: a range of housing, building placement, building design, access management, parking, roadways, landscaping, signage, and mixed uses. For detailed information on specific techniques, refer to the **Critical Design Practices** section.



Access & Circulation
Combine drives and provide alternative access *(i.e., alleys)* to parking areas to enhance the safety and aesthetics of streetscapes. Provide safe pedestrian access, as well as a connection to local and regional recreation trails. Locate high-density residential areas within reasonable walking distance of commercial centers, schools, and parks, and integrate public transit linkages into developments. Refer to **Critical Design Practices:** *Site Access* for additional information.

Parking
Locate parking areas behind, beside, or below residences to minimize their visual impact, and include landscaping and screening in parking lot design. Provide on-street parking to reduce the size of on-site parking areas and to establish a physical barrier between traffic lanes and sidewalks to lessen the impact of moving traffic on pedestrians. Refer to **Critical Design Practices:** *Site Access, Parking,* and *Landscaping* for additional information.

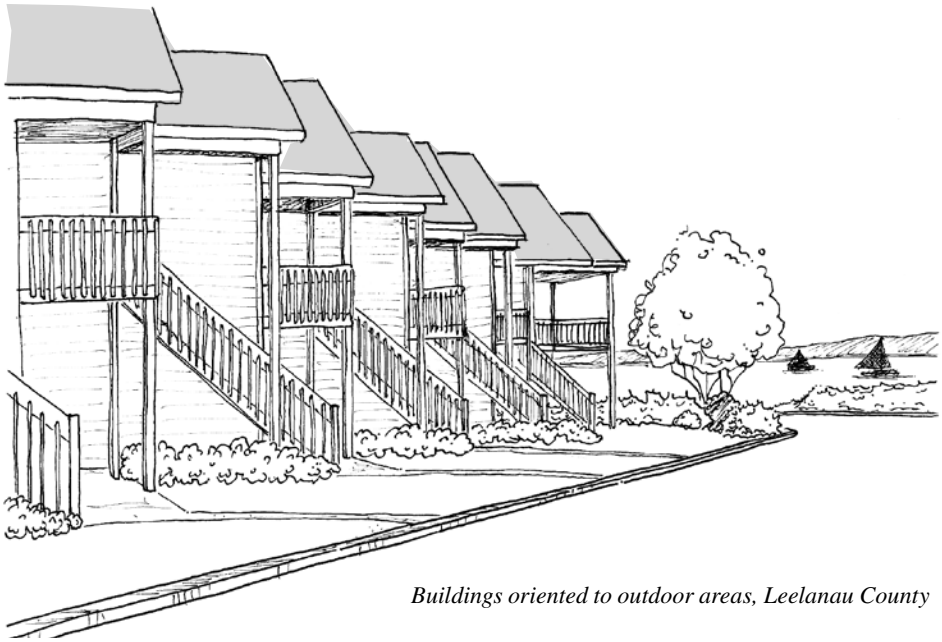
High-Density Residential

Designing High-Density Developments *continued*

Building Placement
Site buildings close to the street. Local jurisdictions are encouraged to revise their zoning ordinances to include build-to lines in order to establish pleasing streetscapes. Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility, Streetscape,* and *Conservation Planning* for additional information.

Building Design & Materials
Orient buildings to streets and open spaces by incorporating balconies, courtyards, well-designed outdoor areas and streetscapes. Local jurisdictions are advised to establish architectural standards which facilitate the creation of high-density developments with aesthetically pleasing architecture and quality building materials. Refer to **Critical Design Practices:** *Building Design & Materials, Streetscape,* and *Creating Usable Open Space* for additional information.

Clustered cottages, Traverse City, Grand Traverse County



Buildings oriented to outdoor areas, Leelanau County

Range of Housing
Include a diversity of housing types and offer a full range of housing options *(e.g., apartments, townhouses).* A full spectrum of housing opportunities within an area allows people to remain in a neighborhood even as their lifestyle needs change.

Service Elements
Service elements *(e.g., recycling, dumpsters, loading areas)* should be located and screened to minimize their impact on adjacent properties. Refer to **Critical Design Practice:** *Service Elements* for additional information.

Lighting
Design site lighting to address safety concerns without contributing to light pollution or disturbing neighboring properties. Refer to **Critical Design Practices:** *Site Lighting & Utilities* for additional information.

Residential development adjacent to the TART Trail, Traverse City, Grand Traverse County

Roadways
Gridded street networks provide shorter vehicular trips and are more pedestrian friendly. Street networks should facilitate connectivity with adjacent properties. Reduce roadway and alley widths for traffic calming and stormwater runoff reduction. Incorporate herbaceous vegetation between the shoulder of the road and the centerline of adjacent roadside drainage ways to facilitate drainage and visibility while retaining the region's natural character. Refer to **Critical Design Practices:** *Roadways* and *Stormwater Control & Detention* for additional information.

High-Density Residential

Designing High-Density Developments *continued*

Mixed Uses
Incorporate mixed-use developments with neighborhood-oriented business establishments which provide opportunities to live, work, and recreate within walking distance of local services. Refer to **Mixed-Use Developments** for additional information.

Signage
Require pedestrian scale signage and minimize on-site development identification signs to maintain the visual quality of the region. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Landscaping
Retain existing natural features *(e.g., hills, fields, streams)* and vegetation, especially along ridgelines and road corridors, to enhance a site's environmental and market value. Require buffering, screening, and landscaping between roadways and developed areas. Limit pre-construction clearing, protect vegetation during construction, and incorporate low-maintenance and native/naturalized vegetation in landscaping following construction. Refer to **Critical Design Practices:** *Landscaping* and *Stormwater Control & Detention* for additional information.

High-density housing utilizing existing topography at The Homestead, Leelanau County

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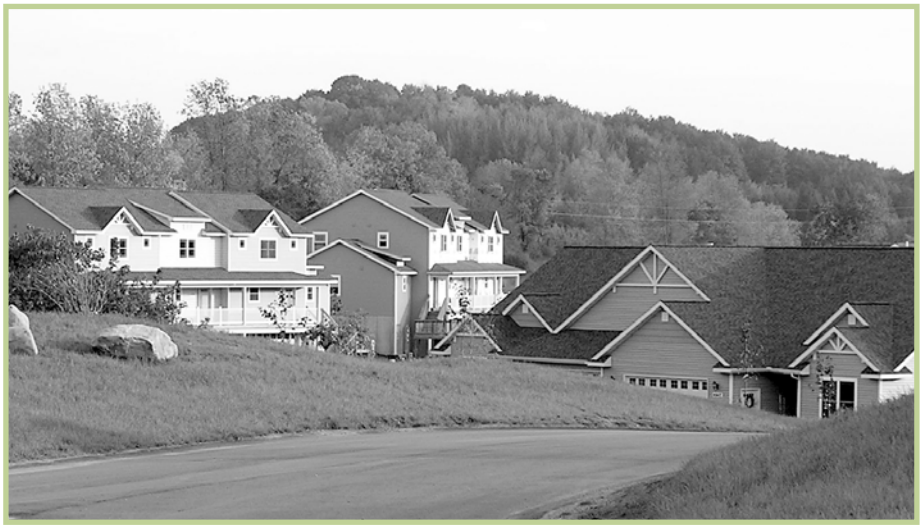
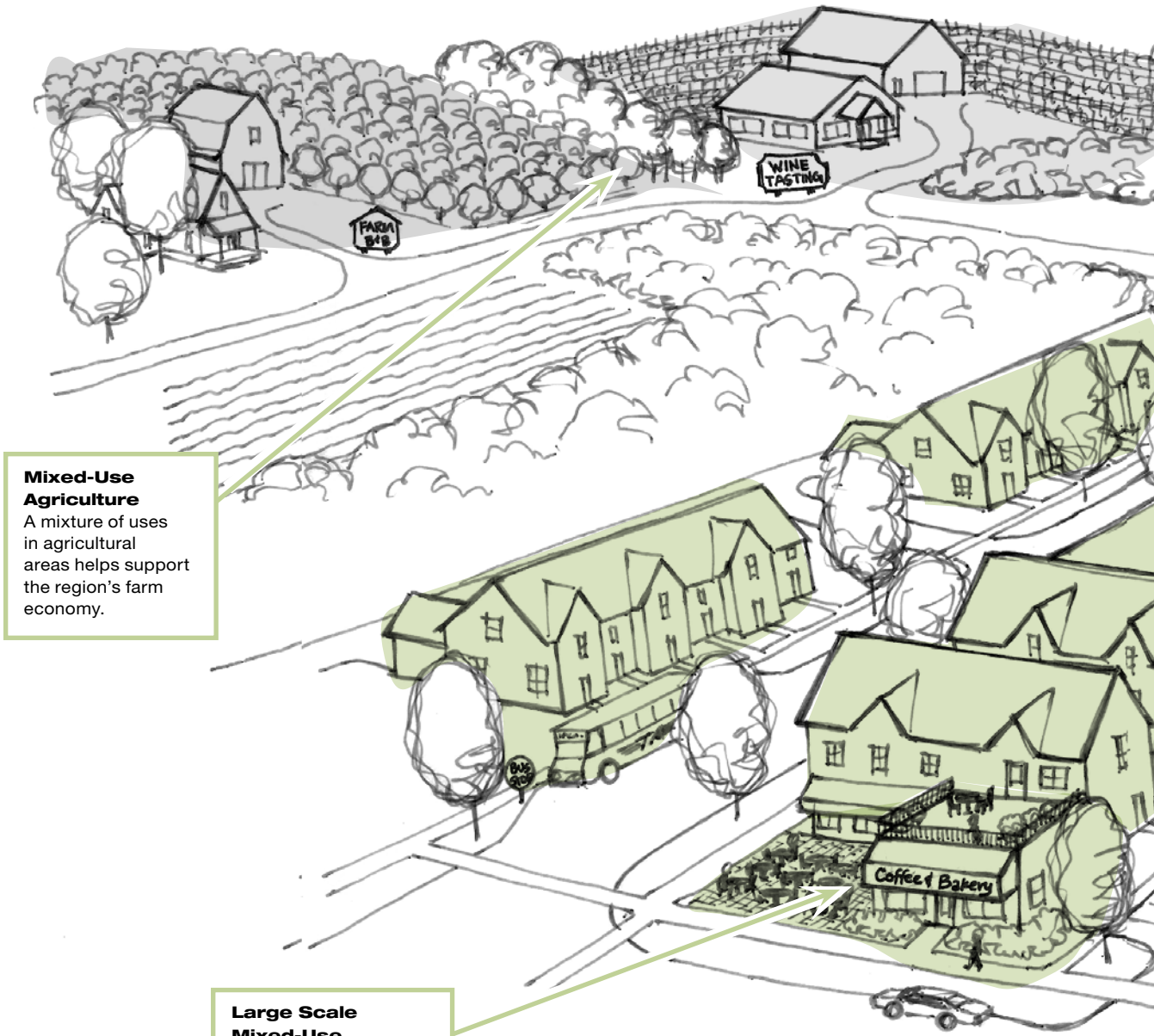


Design Guidelines

Section 3

Mixed-Use Developments

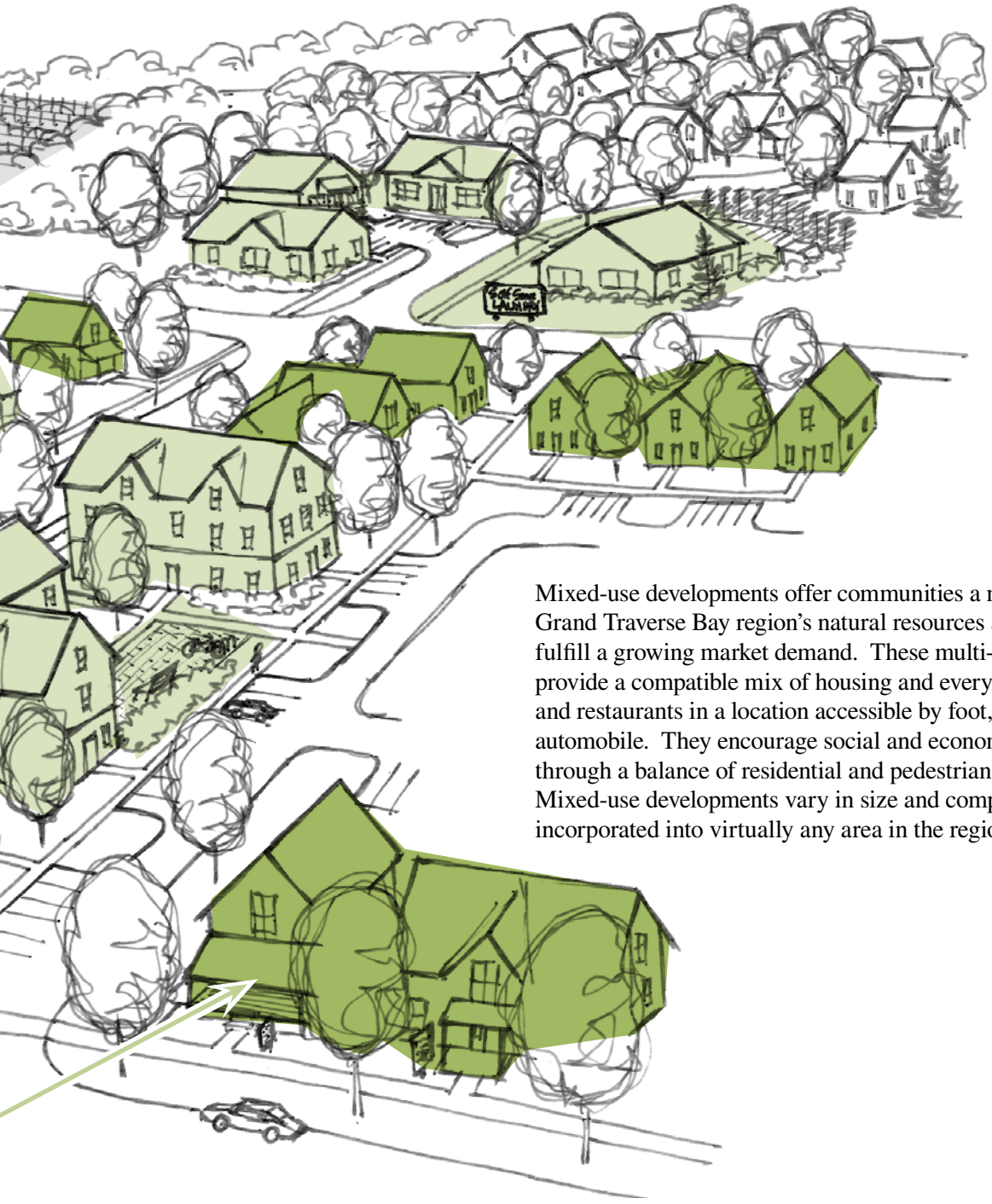
Introduction



Mixed-Use Agriculture
A mixture of uses in agricultural areas helps support the region's farm economy.

Large Scale Mixed-Use
Larger mixed-use developments provide an assortment of retail, office, and residential uses.

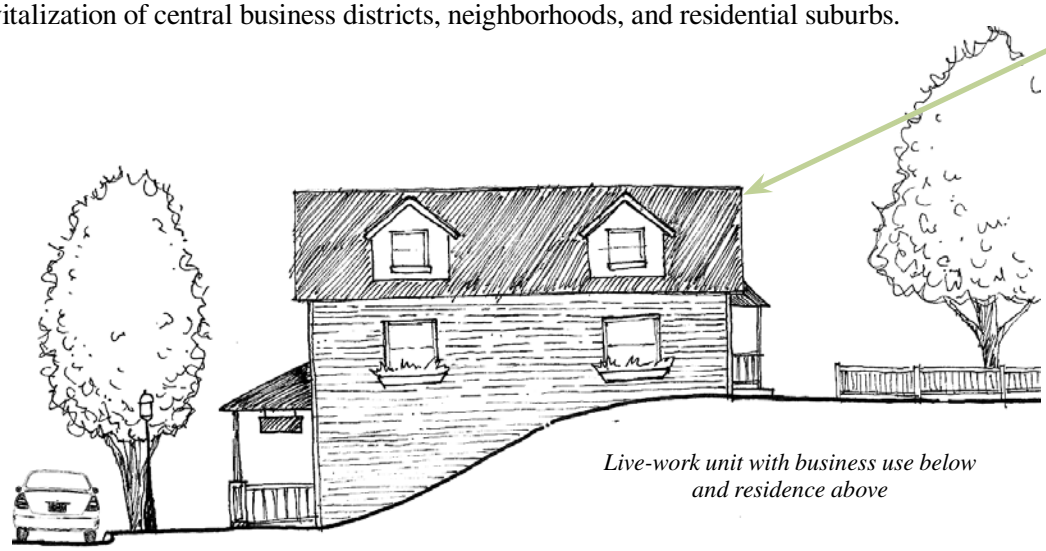
Residential Scaled Mixed-Use
New or existing buildings provide business and housing needs while fitting into existing neighborhoods.



Mixed-use developments offer communities a method for protecting the Grand Traverse Bay region's natural resources and character, as well as fulfill a growing market demand. These multi-use buildings or complexes provide a compatible mix of housing and everyday shopping, services, and restaurants in a location accessible by foot, bicycle, public transit, or automobile. They encourage social and economic neighborhood activity through a balance of residential and pedestrian-oriented commercial uses. Mixed-use developments vary in size and composition – making them easily incorporated into virtually any area in the region's communities.

Overview of Mixed-Use Developments

Mixed-use developments offer communities throughout the Grand Traverse Bay region a way to use land more efficiently, expand market opportunities, and redevelop underutilized properties, all within convenient walking distance of residences. Mixed-use developments range from a single building with two or more uses to a large-scale development with an assortment of office, retail, service, residential, recreational, and occasionally industrial uses. These developments are a response to market demand for places that provide everyday shopping and lifestyle needs in a location accessible by foot, bicycle, public transit, or automobile. By prompting an increase in economic vitality, mixed-use developments contribute to the revitalization of central business districts, neighborhoods, and residential suburbs.



Live-work unit with business use below and residence above

Elements of Mixed-Use Developments

Location and the mix of uses are critical to a development's success. Siting buildings adjacent to or within walking distance of residential areas facilitates residents' use of transit alternatives; this can contribute to a reduction in vehicular traffic. While on-site residents are potential users of mixed-use establishments, commercial uses should also complement the larger community's needs. Local retail within walking distance can be an economically viable alternative for local businesses, as well as beneficial to the community. Mixed-use developments increase usage throughout the day: residents and customers use facilities at different times for different purposes. This generates increased customer traffic for businesses by other occupants and users of the development. Studies demonstrate retail *(e.g., bookstores, fast-casual dining, bakeries, coffee shops, boutiques)*, service businesses *(e.g., dry cleaners, banks)*, small professional offices, and home businesses are essential elements. A balance of commercial and residential uses contributes to a development's success, as well as supports the local economy. Local jurisdictions should consider revising their zoning ordinances to include mixed-use and live-work codes which permit structures – typically multi-story buildings – with retail, service, or office space on the ground floor and residences above.

Housing Alternatives

Mixed-use developments provide a wide range of housing alternatives within the Grand Traverse Bay region. Demographic shifts and market demand support construction of condos and apartments within walking distance of retail and support services, as well as live-work units which provide living space above a ground-floor shop, art studio, or office. Live-work units provide an alternative housing and business option which can be adapted to different uses over time with one mortgage. Refer to **Commercial:** *Home Offices & Services* for additional information.

River's Edge and Midtown, Traverese City, Grand Traverse County

Role of Local Jurisdictions

Mixed-use projects offer local jurisdictions a development option which can sustain long-term economic stability through strengthening the tax base, job market, and commercial and residential opportunities. These developments, however, often necessitate changes to zoning ordinances. The creation of mixed-use zoning districts adjacent to established areas *(e.g., hamlets, villages, cities)* directs higher-density, pedestrian-oriented developments next to existing neighborhoods. This allows for the logical expansion of existing infrastructure and circulation patterns, as well as the mixed-use development's support of established neighborhoods.

Local jurisdictions are encouraged to revise and/or establish zoning ordinances to provide more flexibility for locating mixed-use developments which complement existing neighborhoods. Ordinances should address site connectivity, building façade and orientation, sidewalk location and pavement width, streetscape features, and revised parking standards which permit shared and curbside parking.

Local jurisdictions are also encouraged to revise zoning ordinances, particularly Planned Unit Development sections, to allow for greater flexibility when permitting multiple uses, as well as those ordinances relating to street, parking, building design, and landscaping standards. Planned Unit Developments should include mixed uses which serve the development and adjoining neighborhoods on a limited scale.

The Money Behind Combining Uses

Studies demonstrate the monetary value of incorporating multiple uses in a single building or complex. A recent survey reveals office workers frequently shop on the way to and from work. Office worker shopping habits equate to approximately two (2) square feet of retail plus five (5) square feet of restaurant space per each office worker. ~ *New Urban News* July/August 2005 (24)

Site & Building Design

Since mixed-use developments support activity throughout the day and into the night, site design and building orientation is critical to establishing an environment which allows for a diversity of uses with minimal impact on other uses. Compatibility between residential units and commercial establishments can be achieved by including separate entrances and orienting residences to courtyards or gardens, as well as grouping buildings in larger developments. A site and/or building's design must address the various users' needs and different peak activity times *(e.g., placement and times for commercial trash pick should not inconvenience residences or vice versa)*.

Usable Open Space
Incorporating usable open spaces (*e.g., courtyards, balconies*) into the design of residential units along roadways encourages street activity, as well as provides a buffer for the residences.

Building Orientation
Buildings oriented towards streets and designed to include architectural elements (*e.g., large windows, awnings, signage*) enhance pedestrian-oriented streetscapes. Varied building footprints and architectural elevations add greater visual appeal. Refer to **Critical Design Practices:** *Building Orientation* for additional information.

Building Design
Mixed-use buildings should have commercial uses on the ground floor with residences above. Local jurisdictions should encourage ground-floor uses (*e.g., retail, restaurants, personal service businesses*) to help generate pedestrian traffic throughout the day and evening. Building design should incorporate fifty (50) to seventy (70) percent glass on the first floor to entice pedestrian activity (*e.g., window shopping*). Whenever possible, building design should include offices as a buffer between retail and residential areas. Refer to **Critical Design Practices:** *Building Orientation* and *Building Design & Materials* for additional information.

Hardy Parking Deck, Traverse City, Grand Traverse County

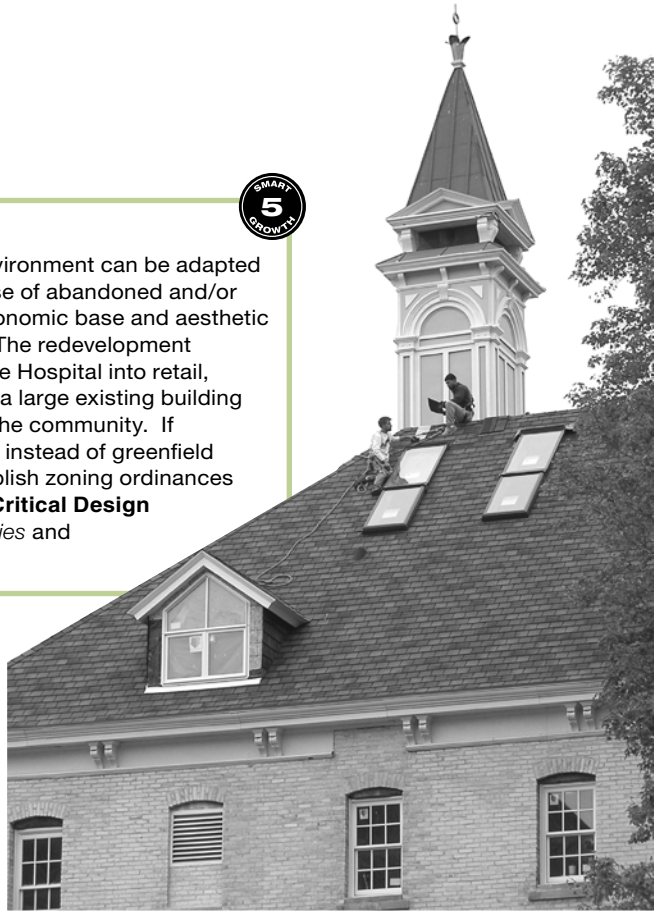
Access & Parking
The design of mixed-use developments should provide clear, safe pedestrian and bicycle access and circulation, bicycle parking areas, and public transit stops whenever possible.

In addition to on-street parking, parking lots should be located to the side and/or rear of buildings, and parking structures should incorporate pedestrian level uses *(e.g., retail, commercial uses)* whenever possible. In some instances, including drop off zones at the street edge may be beneficial. By incorporating a variety of uses with different peak activity times and encouraging access via alternative transportation *(e.g., foot, bicycle, public transit),* mixed-use developments frequently require less parking. Local jurisdictions should consider this when establishing parking standards. Refer to **Critical Design Practices:** *Parking, Site Access,* and *Pedestrian & Bike Circulation* for more information.

Service Elements
Service elements *(e.g., recycling, dumpsters, loading areas)* should be located and screened to minimize their impact on adjacent properties. Refer to **Critical Design Practice:** *Service Elements* for additional information.

Site & Building Design

Adaptive Reuse
Land use changes over time, and the built environment can be adapted to accommodate changes. The adaptive reuse of abandoned and/or underutilized structures contributes to the economic base and aesthetic appeal of a community and reduces sprawl. The redevelopment of Building 50 at the former Traverse City State Hospital into retail, residential, and office space is an example of a large existing building restored to a productive use and an asset to the community. If communities want empty buildings converted instead of greenfield development, local jurisdictions need to establish zoning ordinances to promote it. For more information, refer to **Critical Design Practices:** *Redevelopment of Existing Properties* and *Building Revitalization & Reuse.*



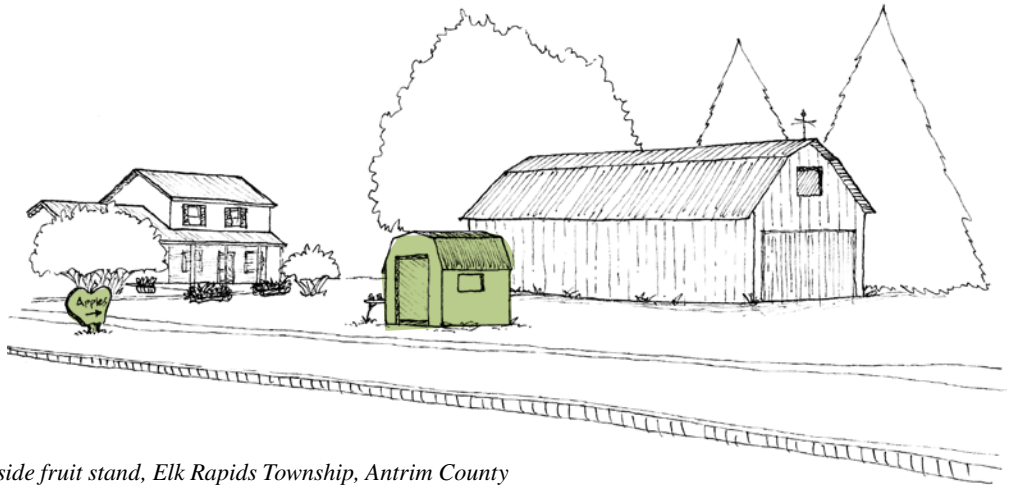
When Designing Mixed-Use Developments:

- Conduct site assessment
- Locate buildings to retain desirable existing vegetation and other natural features
- Incorporate architectural elements to complement community character
- Design parking areas to facilitate safe and efficient access
- Establish pedestrian pathways connecting building entrances and parking areas
- Place parking lots behind or beside buildings
- Screen parking areas, especially those between buildings and roadways
- Encourage shared parking and reduced parking standards
- Design landscaped islands to break up the mass of parking areas
- Promote alternative surfacing materials
- Combine and screen service elements
- Use low-maintenance landscaping
- Control and recycle stormwater runoff
- Incorporate context-appropriate signage
- Assess trash and recycling service needs

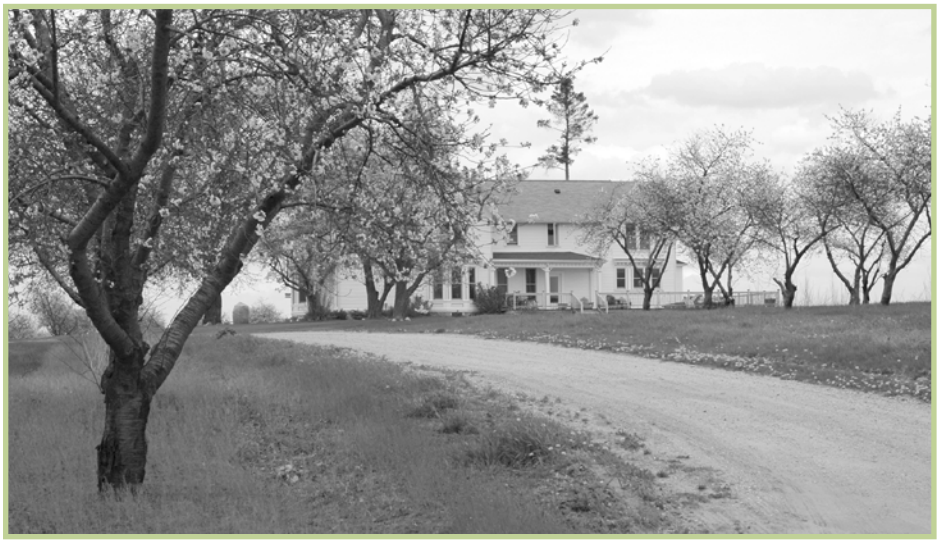
Mixed-Use Agriculture

Mixed-Use Agriculture

Agriculture has long been a vital part of the Grand Traverse Bay region's economy. As land values and pressures on agricultural areas increase, local jurisdictions should promote and permit mixed uses related to agriculture as methods of generating supplemental income necessary for agricultural businesses to remain viable. Possible mixed uses related to farming include wineries, Bed & Breakfasts, value-added processes *(i.e., producing saleable products from a crop such as jam from cherries),* farm tours, or roadside markets/ U-Pick. Local jurisdictions should consider permitting the reuse or expansion of existing agricultural buildings for alternative uses when buildings complement the rural character and the use poses no additional nuisance (*e.g., boat storage*).



Roadside fruit stand, Elk Rapids Township, Antrim County



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Design Guidelines

Section 4

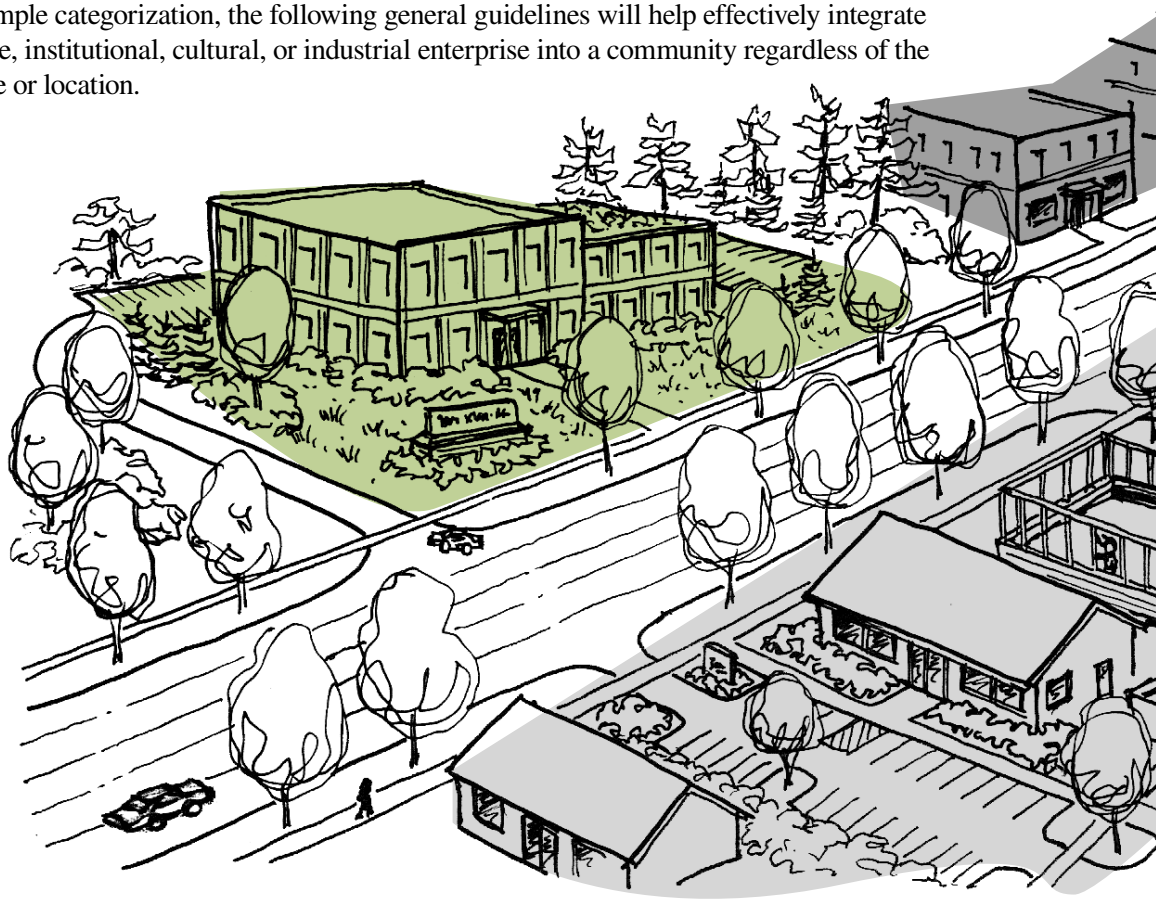
Commercial

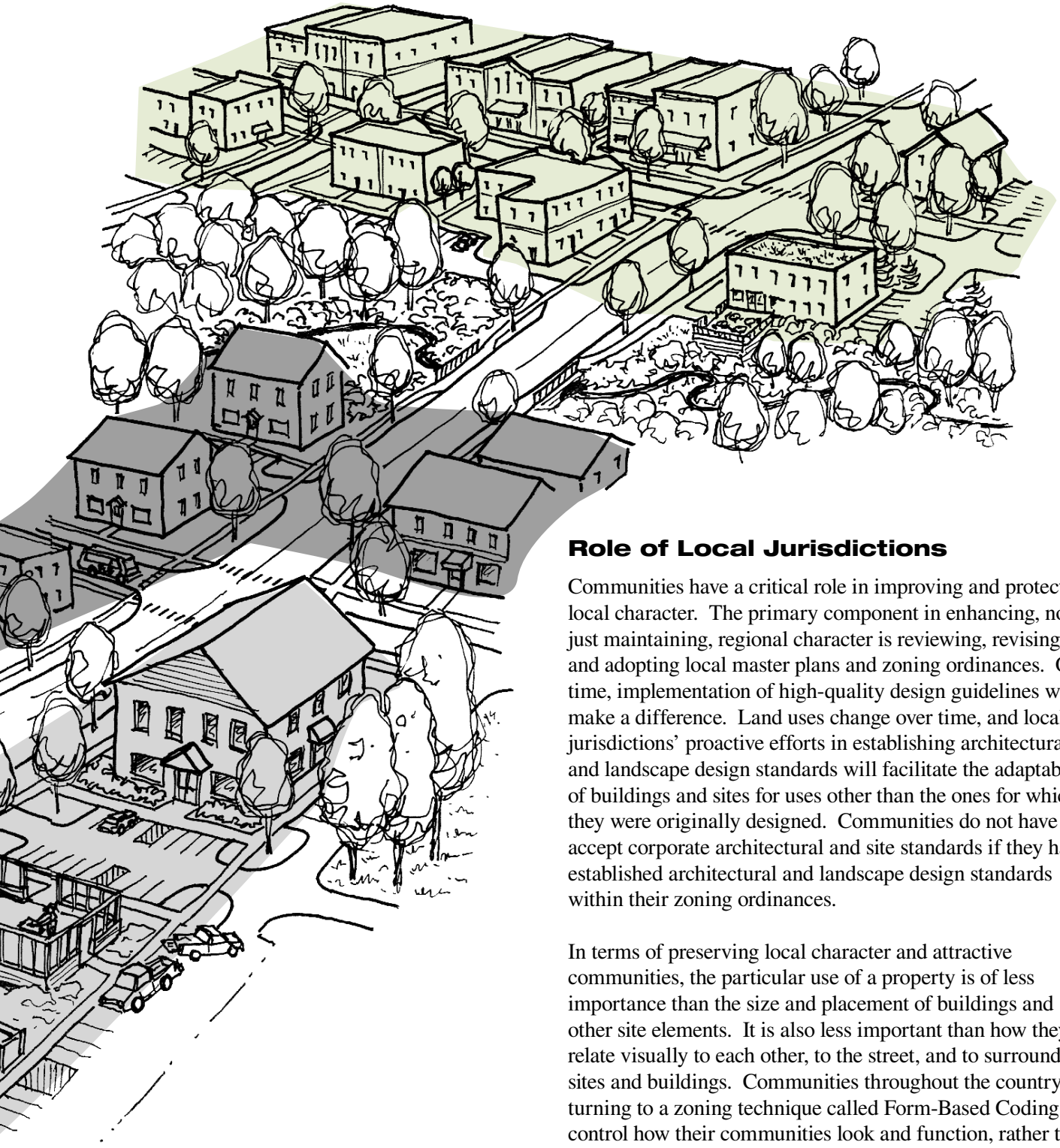
Introduction

In the Grand Traverse Bay region commercial developments vary greatly in size, service area, and activity: from corner stores to regional malls, from locally owned banks to international investment firms, from small-scale artisans to auto parts fabrication plants. Commerce is a vital part of the economy. Designing retail, office, industrial, and institutional buildings and sites to protect the region's natural resources and complement local and regional character is as important as providing for a business's unique needs.

For ease of use, the Commercial section of the Guidebook is divided into four subsections: Retail, Office, Institutional & Cultural, and Industrial. While not all institutional uses are commercial in nature, they share many similarities with the other categories in this section. Agriculture is a commercial activity that contributes greatly to the economy of our region but has its own section due to its unique site design issues and dependence on the characteristics of the land on which it is located.

Application of site design elements varies depending on a commercial establishment's size, location, use, and service area. At opposite ends of the retail spectrum, for example, are small, pedestrian-oriented neighborhood shops and large, vehicle-oriented regional complexes. In between are community centers which facilitate both pedestrian and vehicular access. This range of scales and service areas exists within each of the categories of the commercial section. In each category, smaller-scale facilities will be more adaptable and easier to fit in with other uses, while the largest facilities present a more challenging set of issues. Though the range of businesses within the five-county area defies a simple categorization, the following general guidelines will help effectively integrate any retail, office, institutional, cultural, or industrial enterprise into a community regardless of the enterprise's size or location.





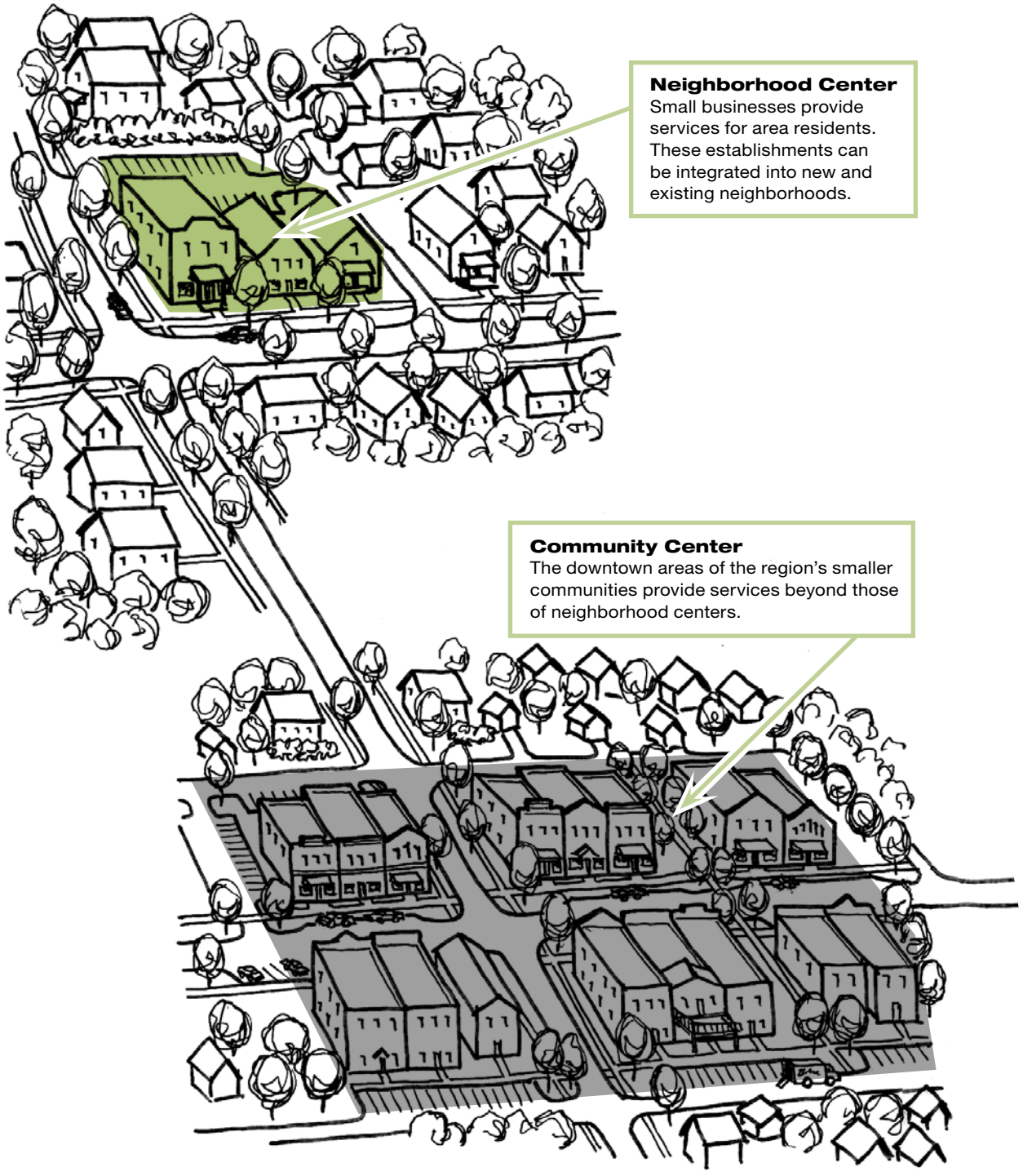
Role of Local Jurisdictions

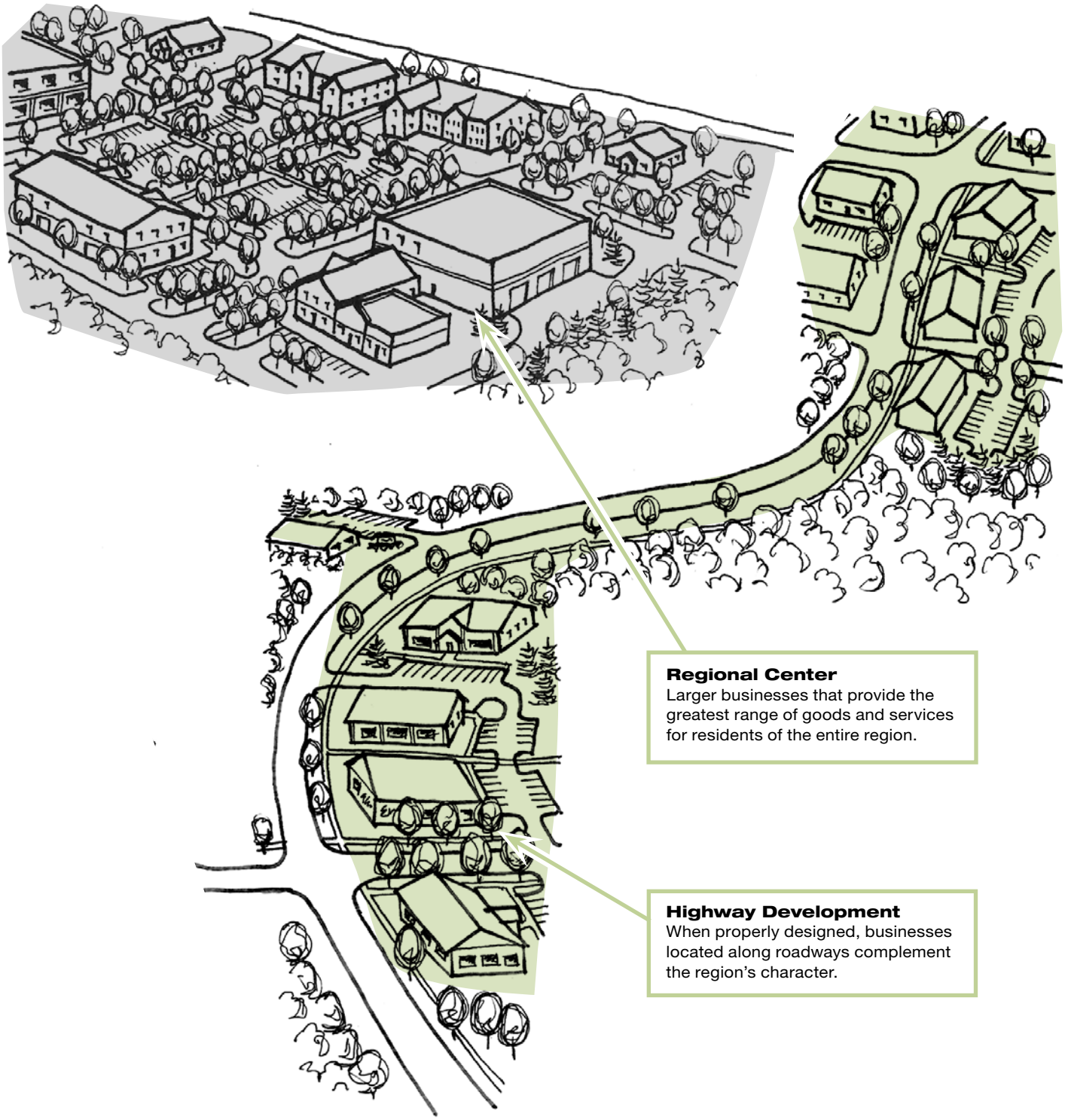
Communities have a critical role in improving and protecting local character. The primary component in enhancing, not just maintaining, regional character is reviewing, revising, and adopting local master plans and zoning ordinances. Over time, implementation of high-quality design guidelines will make a difference. Land uses change over time, and local jurisdictions' proactive efforts in establishing architectural and landscape design standards will facilitate the adaptability of buildings and sites for uses other than the ones for which they were originally designed. Communities do not have to accept corporate architectural and site standards if they have established architectural and landscape design standards within their zoning ordinances.

In terms of preserving local character and attractive communities, the particular use of a property is of less importance than the size and placement of buildings and other site elements. It is also less important than how they relate visually to each other, to the street, and to surrounding sites and buildings. Communities throughout the country are turning to a zoning technique called Form-Based Coding to control how their communities look and function, rather than focusing on separating different land uses.

Retail

Corner markets, downtown districts, and regional malls provide Grand Traverse Bay region residents and visitors a full range of goods and services. Whether offering convenience items or specialized services, retail establishments contribute to the region's economic vitality and sustainability. Well-designed retail buildings and complexes benefit both the neighborhoods they directly serve and the region as a whole.





Regional Center
Larger businesses that provide the greatest range of goods and services for residents of the entire region.

Highway Development
When properly designed, businesses located along roadways complement the region's character.

Neighborhood Center

Throughout the Grand Traverse Bay region, small neighborhood businesses are interspersed among homes in older neighborhoods and at important crossroads in rural areas. These establishments supply convenience goods *(e.g., groceries, household products)* and personal services *(e.g., dry cleaning, hair care, banking)* to residents of the surrounding neighborhood. Whether businesses are located in urbanized areas where residents can walk or in rural areas where greater distances may require biking or driving, the primary clientele of Neighborhood Centers are nearby residents. The Neighborhood Center's smaller scale typically allows it to fit into an existing neighborhood more inconspicuously than larger-scale retail establishments. Commercial establishments can also provide interest and focal points to predominantly residential or rural streetscapes. Whether a freestanding corner store *(e.g., Deering's Market in Traverse City, N.J.'s in Lake Leelanau, Francisco's Market and Deli on Silver Lake Road, Fieldstone Market and Deli on Long Lake Road)* or part of a commercial complex *(e.g., Old Towne and West Front Market in Traverse City),* Neighborhood Centers are valuable assets to both local and regional economies.

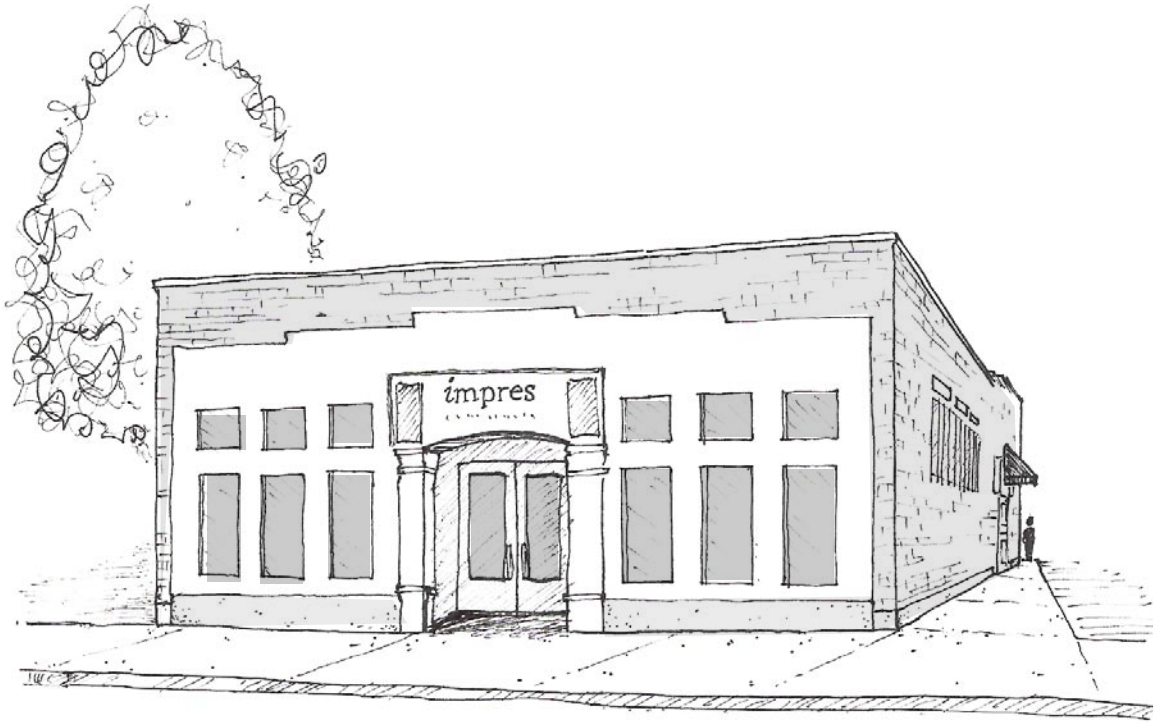
SMART GROWTH 4 SMART GROWTH 7 SMART GROWTH 8

Creating New Neighborhood Centers

Neighborhood services can enhance established areas by locating buildings on available, under-utilized land, currently undeveloped land adjacent to the established community, or within Planned Unit Developments (PUD). Local businesses that residents can access by foot or bike contribute to less traffic throughout the region. Local jurisdictions are encouraged to revise their local ordinances to allow for the creation of appropriately-scaled commercial uses within residential areas. Refer to **Mixed-Use Developments** for additional information.

Adaptive Reuse of Neighborhood Centers

Land uses change over time and the existing built environment can be adapted to accommodate these changes. Train depots can be converted into office space and former grocery stores can become spas. The adaptive reuse of structures helps revitalize neighborhood character through economic and community renewal. Additionally, changes in use offer local jurisdictions the opportunity to request design improvements. Form-based coding can be employed to improve a community's appearance and function over time. Refer to **Critical Design Practices**: *Redevelopment of Existing Properties, Building Revitalization & Reuse,* and *Building Design & Materials* for additional information.



When Designing Neighborhood Centers:

- Conduct site assessment
- Locate buildings to retain desirable existing vegetation and other natural features
- Incorporate architectural elements to complement community character
- Design parking areas to facilitate safe and efficient access
- Establish pedestrian pathways connecting building entrances and parking areas
- Place parking lots behind or beside buildings
- Screen parking areas, especially those between buildings and roadways
- Encourage shared parking and reduced parking standards
- Design landscaped islands to break up the mass of parking areas
- Promote alternative surfacing materials
- Combine and screen service elements
- Use low-maintenance landscaping
- Control and recycle stormwater runoff
- Incorporate context-appropriate signage
- Assess trash and recycling service needs

Neighborhood Center

Designing Neighborhood Businesses

When appropriately designed, neighborhood businesses can enhance local and regional character and be integrated into predominantly residential areas within the five-county region. By incorporating aesthetically pleasing architectural and site elements of nearby structures, a new or renovated building's design can complement an existing neighborhood *(i.e., architecture similar to older buildings in a historic neighborhood or similar to newer buildings in a new development)*. Form-based coding provides communities a method of determining a building's architectural character while accommodating changing uses over time. Regardless of the location, neighborhood sensitive site and building design are essential to accommodating a neighborhood business's needs with minimal disruption to surrounding properties.

While guidelines can facilitate integration of new businesses into an existing neighborhood, they are equally useful for remodeling existing establishments. Design of Neighborhood Centers includes the following elements: building design and orientation, pedestrian access, vehicular access and parking, signage, lighting, landscaping, buffering and screening, and mixed uses. For detailed information on specific techniques, refer to the **Critical Design Practices** section.

Landscaping
Preserving desirable existing vegetation and landscaping with native plants can enhance regional character and reduce maintenance costs, as well as augment the appearance and integration of buildings, drives, and parking areas. Attractive landscaping, site furniture, and lighting in courtyard and entry areas can enhance the aesthetic appeal of a Neighborhood Center. Screening and buffering incompatible land uses and blank walls with a mixture of trees and shrubs also adds to a development's attractiveness. Refer to **Critical Design Practices:** *Landscaping* and *Streetscape* for additional information.

Building Design & Orientation
Neighborhood businesses should be located near and oriented towards streets and sidewalks. Buildings should encourage and accommodate window shopping, heavy foot traffic in and out of stores, and people-watching from outdoor seating areas. Incorporating visual and architectural elements *(e.g., large windows, awnings, signage)* in their design enhances the pedestrian streetscape. Design and materials that reflect the character of the area and nearby structures improve compatibility and integration of new buildings into established communities. When presented with renovation projects, local jurisdictions should encourage rebuilding in a traditional pattern such as buildings close to streets and sidewalks, with parking behind. Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility*, and *Building Design & Materials* for additional information.

Mixed Uses

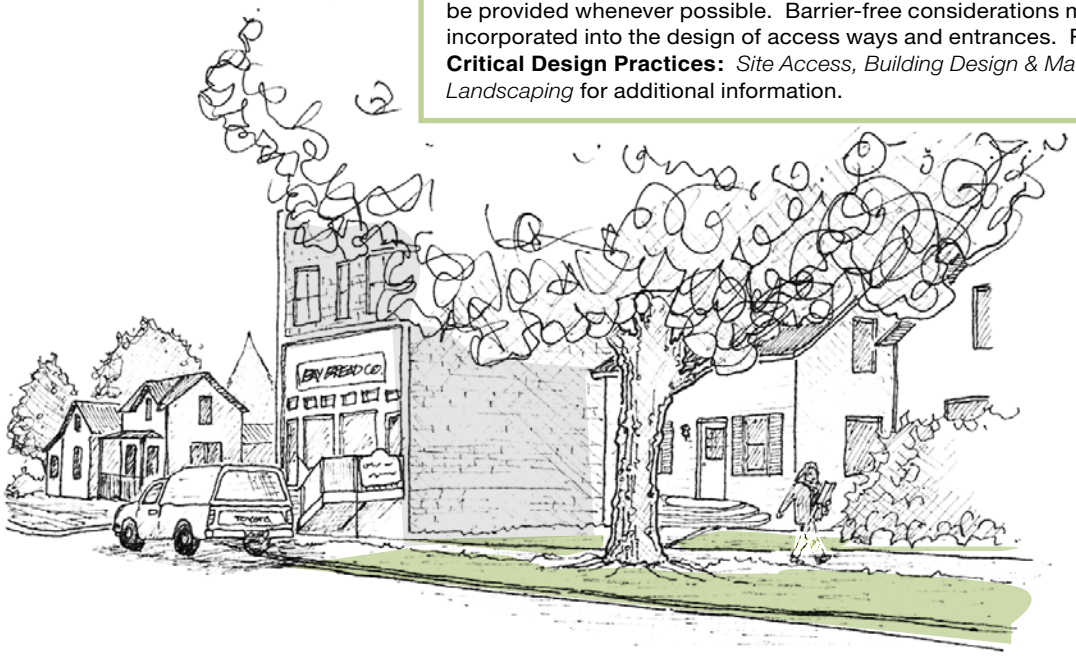
Multiple-story neighborhood commercial buildings offer the opportunity to mix uses either through additional businesses or residences on upper floors. Mixed-use structures can add to a neighborhood's vitality by generating activity throughout the day and evening. Separate entrances and other design elements can help ensure the privacy and security of residential units. Some of the options for mixed uses include:

- Retail on ground level with housing above
- Retail on ground level with offices above
- Retail on ground level with parking above
- Retail on ground level with parking below

Local jurisdictions can promote a mixture of uses by allowing an additional story for residential use *(e.g., first floor retail, second floor office, third floor residential).* Refer to **Mixed-Use Developments** for additional information.

Entries & Pedestrian Access

Primary entrances to Neighborhood Centers should be from the main street with secondary entries from adjacent parking areas located behind or beside the building(s). Architectural details and landscaping elements create identifiable, inviting, and accessible entrances. Since Neighborhood Centers primarily serve residents of surrounding neighborhoods, sidewalks should encourage pedestrian access, and bike parking areas should be provided whenever possible. Barrier-free considerations must be incorporated into the design of access ways and entrances. Refer to **Critical Design Practices:** *Site Access, Building Design & Materials,* and *Landscaping* for additional information.



Parking

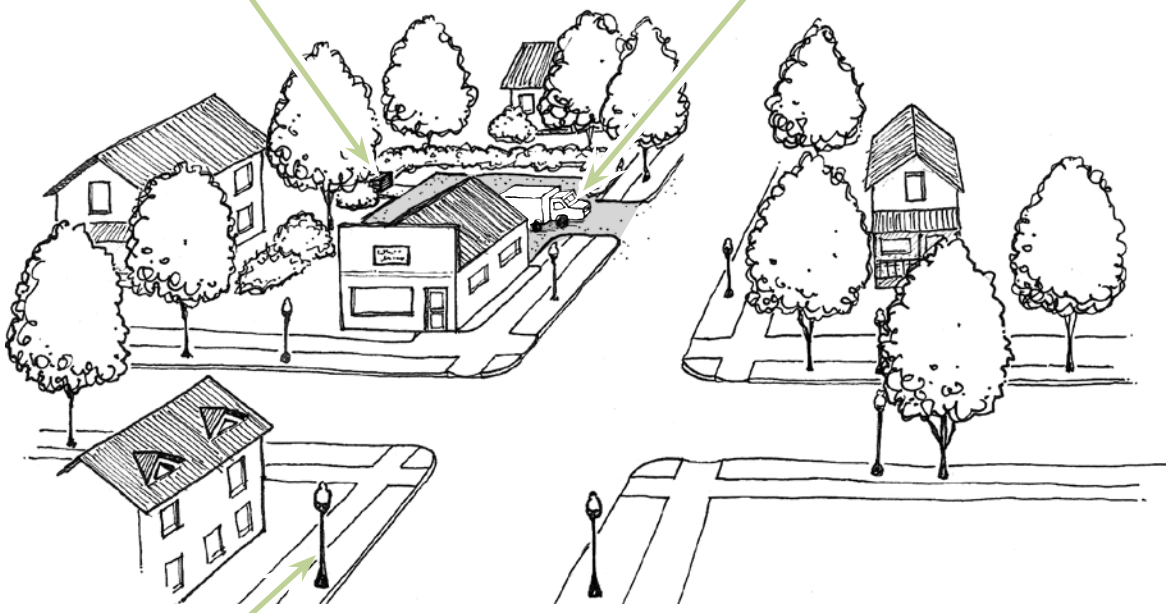
The smaller scale of neighborhood centers typically equate to smaller parking needs. On-street parking facilitates access to neighborhood businesses, while replacing or minimizing the need for parking lots. It also stimulates streetside activity. Parking lots may be shared by adjacent businesses, further reducing the amount of impervious surfaces. Locating small parking areas behind or beside buildings and accessing them from alleys and side streets contributes to the attractiveness of the streetscape. Parking lots should be screened to minimize their impact on adjacent properties while maintaining safe access. Refer to **Critical Design Practices:** *Parking* and *Building Orientation* for additional information.

Neighborhood Center

Designing Neighborhood Businesses *continued*

Service Elements
Service elements *(e.g., recycling, dumpsters, loading areas)* should be located and screened to minimize their impact on adjacent properties. Refer to **Critical Design Practices:** *Service Elements* for additional information.

Service Vehicle Access
A Neighborhood Center's site design should facilitate delivery and service vehicle access with minimal impact on adjacent properties. Incorporate side or rear access whenever possible. Refer to **Critical Design Practices:** *Site Access* and *Parking* for additional information.



Lighting
Exterior lighting should be designed and scaled to address safety concerns without disturbing adjacent properties or contributing to light pollution. Installing timed and/or motion triggered lights around the side and rear of buildings ensures that lights are on only when needed. Refer to **Critical Design Practices:** *Site Lighting & Utilities* and *Streetscape* for additional information.

Stormwater Control & Detention
Opportunities for control of on-site stormwater in Neighborhood Centers include minimizing the impervious service area by reducing the size of parking lots and/or using porous paving, landscaped rain gardens or other infiltration methods, or capturing rain water for reuse. Refer to **Critical Design Practices:** *Stormwater Control & Detention* for additional information.

Residences converted to businesses, Traverse City, Grand Traverse County

Signage SMART GROWTH 5

A Neighborhood Center's sign design should reflect the architectural style and materials of a building, as well as the character of the neighborhood. Local jurisdictions may consider varying sign size standards depending on location: in more urbanized areas, signage should be pedestrian-scaled *(i.e., small, simple, easily readable by passersby at slower speeds)* while in more rural areas, signs may need to be slightly larger to be visible from passing automobiles. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Access & Circulation SMART GROWTH 4 SMART GROWTH 8

The design of Neighborhood Centers should provide safe, easy access for pedestrians, bicycles, and automobiles. Refer to **Critical Design Practices:** *Site Access* for additional information.

Old Towne, Traverse City, Grand Traverse County

Streetscape SMART GROWTH 5

Streetscape elements *(e.g., street trees, benches, special paving)* highlight and bring attention to commercial establishments while enhancing the neighborhood. Clusters of shops have an opportunity to coordinate the design and implementation of streetscape elements to increase their curb appeal and usability. Refer to **Critical Design Practices:** *Streetscape* for additional information.

Community Center

If Neighborhood and Regional Centers are at opposite ends of a spectrum of commercial developments, Community Centers lie in between. They typically have a larger scale and service area than Neighborhood Centers, yet less variety of offerings or diversity of services than Regional Centers. Within the Grand Traverse Bay region, Community Centers generally are the downtown business districts of the area's communities *(e.g., Elk Rapids, Mancelona, Frankfort, Suttons Bay)*. Residents travel to Community Centers for services or products not available within their neighborhoods. Consequently, Community Centers have a wider service area and offer shopping and services to residents of the community and surrounding areas. Additionally, many of our region's Community Centers feature shops and services related to tourism. Offices, whether above retail or in separate smaller office buildings, provide a balance to shopping and residential uses.

Designing Community Centers

In the downtown areas of our region's Community Centers, a clear pattern of development provides a framework that helps residents and visitors understand how to get around and identifies uses and activities. These traditional patterns of development create a balance of symbiotic uses, as well as many options for vehicular and pedestrian access.

The region's Community Centers include a mixture of uses, often with two-story buildings offering office or residential space above retail. The best downtowns *(i.e. those that are most vibrant and withstand the test of time)* are compact, pedestrian-friendly, and highly walkable. Common architectural elements and styles give the whole district visual continuity, while each building may have a unique character.

Downtown Elk Rapids, Antrim County

Building Design & Orientation

Commercial buildings located on the edges of residential areas benefit from proximity to local customers, and other patrons can support the businesses without disrupting the neighborhood. Commercial buildings can also provide a transition between neighborhoods within a community. In mixed-use areas, thoughtful design accommodates both the needs of businesses and civic facilities *(e.g., delivery areas, public access)* as well as those of residents *(e.g., privacy, quiet).*

Build-to lines near streets help to establish a pedestrian scale and define the public realm of streets and urban open spaces. A close storefront encourages pedestrian activity and window shopping that enlivens commercial areas. For Community Centers, local jurisdictions should encourage building to the sidewalk or continuing the building edge visually through walls, fences, or landscaping. Larger setbacks *(e.g., no more than twenty (20) feet)* may be appropriate for multi-story buildings and pedestrian activity-generators such as outdoor cafes and patios. Stepping back upper levels of large buildings allows them to be placed closer to the street without compromising the pedestrian scale. With parking in the rear even grocery stores can have street access and retain the convenience of larger shopping centers.

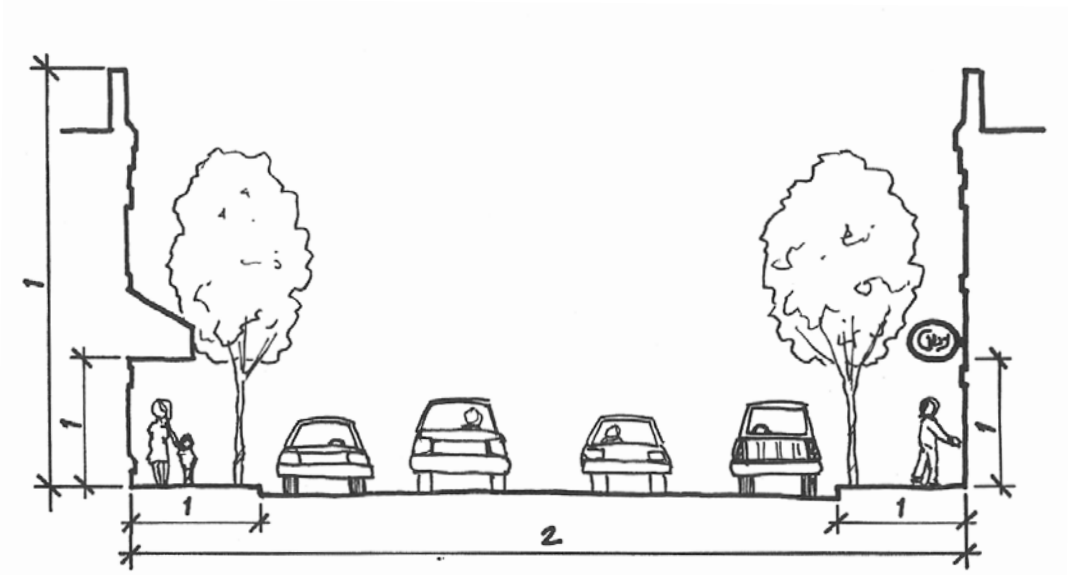
New commercial buildings within a Community Center should be compatible with but not identical to existing buildings. Careful attention to building design and materials results in harmonious building types with variations in styles; this creates interesting and appealing streetscapes. Refer to **Critical Design Practices:** *Building Orientation, Building Design & Materials,* and *Building Compatibility* for more details.

Designing Community Centers *continued*

Streetscape

The scale of streets, buildings, and walkways is critical to defining space and creating a pleasing environment in Community Centers. The relationship of the height of buildings (measured to the cornice or overhang) to the width between buildings on opposite sides of the street (pavement width plus building setbacks) defines the proportion of the street space. These dimensions determine the spatial enclosure created and whether or not a person will feel comfortable in the space. A ratio from 1:1 to 1:2 *(i.e., building wall height: street width)* is considered ideal for this space. For example, taller buildings benefit from wider streets and/or sidewalks. On each side of the street, the ratio of the height of the sidewalk elements *(e.g., walls, building façades, overhangs or awnings, street furniture, street lighting, parked cars, trees)* to the width of the sidewalk define the pedestrian realm. A ratio from 1:1 to 1:2 (height: width) is typically considered ideal.

A building's design, architectural elements, and location help establish the character and attractiveness of a streetscape. This includes height, scale and massing, building connectivity to adjacent structures, space between building and street, windows and entries, building materials, landscaping, and articulation and modulation. For a Community Center in transition, a well-designed, unified streetscape can be the connective thread that ties it together until the fabric is fully established. Refer to **Critical Design Practices:** *Streetscape, Building Orientation,* and *Building Design & Materials* for more details.



Streetscape ratios

Signage

Local jurisdictions can create and enforce ordinances that promote consistency in the size, design, and placement of signs in Community Centers, ensuring both a unified character and desirable variety without visual chaos. Seasonal or event-related banners, displays, decorations, and lighting contribute to an enjoyable experience for users. A changing and exciting visual milieu promotes visiting the Community Center again and again. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Access & Circulation

Successful Community Centers provide for a variety of modes of transportation. Vehicle access is as important as pedestrians and bicycles. Service vehicles and public transit can be accommodated without adversely affecting the pedestrian character of the Community Center. Amenities such as benches, trash cans, and bicycle racks add to the usefulness, appeal, and pedestrian scale of the area. Special paving is exceptionally effective in establishing a pedestrian zone and alerting motorists that they are approaching a crosswalk and need to yield the right-of-way. Refer to **Critical Design Practices:** *Site Access* and *Pedestrian & Bike Circulation* for more information.

Downtown Fife Lake, Grand Traverse County

Service Elements

Service elements *(e.g., recycling, dumpsters, loading areas)* should be located and screened to minimize their impact on adjacent properties and the streetscape. Refer to **Critical Design Practices:** *Service Elements* for additional information.

Public Transportation

Well-designed Community Centers include comfortable bus stops conveniently located near activity centers. The density of Community Centers makes it logical to connect them with bus service, as well as other types of public transit in the future. A variety of transportation options should be encouraged, planned for, and accommodated within and between Community Centers.

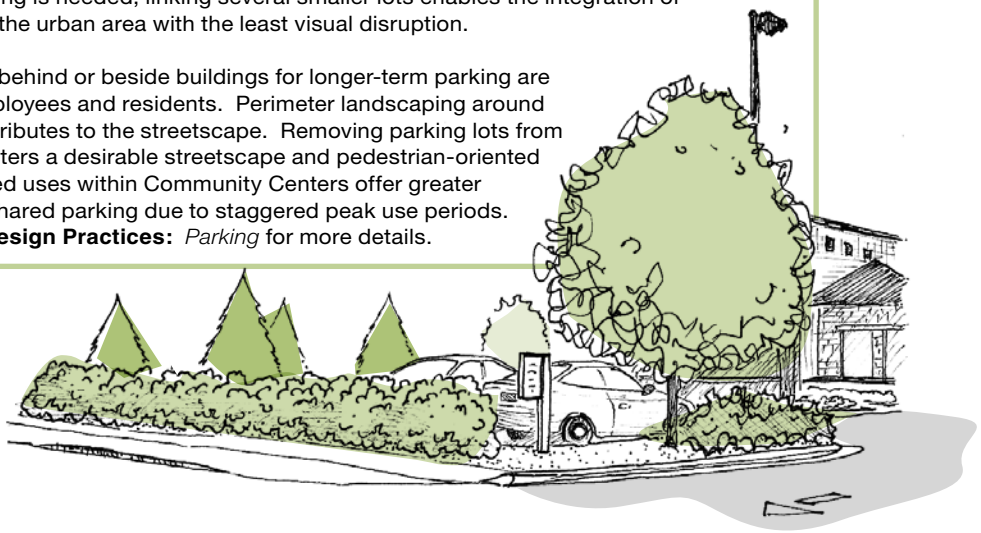
Public transportation in Old Towne, Traverse City, Grand Traverse County

Designing Community Centers *continued*

Parking

On-street parking is ideal for convenient short-term use and provides a barrier between pedestrians and the street. It also encourages more pedestrian activity around storefronts. People walking by a shop are more likely to pop-in than those driving by at forty-five miles an hour. If more parking is needed, linking several smaller lots enables the integration of parking areas into the urban area with the least visual disruption.

Small parking lots behind or beside buildings for longer-term parking are convenient for employees and residents. Perimeter landscaping around parking areas contributes to the streetscape. Removing parking lots from the street edge fosters a desirable streetscape and pedestrian-oriented environment. Mixed uses within Community Centers offer greater opportunities for shared parking due to staggered peak use periods. Refer to **Critical Design Practices:** *Parking* for more details.



Downtown Beulah, Benzie County

Landscaping

Preserving desirable existing vegetation and including native species in new landscaping improves the visual and physical impact of buildings, drives, and parking areas, as well as reduces installation and maintenance costs. Attractive landscaping, site furniture, and lighting enhances the aesthetic appeal of a Community Center. Screening and buffering incompatible land uses and blank walls with a mixture of trees and shrubs also adds to the overall aesthetics. Refer to **Critical Design Practices:** *Landscaping* and *Streetscape* for additional information.

Stormwater Control & Detention

The management of on-site stormwater in Community Centers can take many forms, including minimizing the impervious surface area by reducing the size of parking lots and/or using porous paving, installing landscaped rain gardens or other infiltration methods, or capturing rain water for reuse. Adjacent properties may cooperate in combined stormwater systems. Refer to **Critical Design Practices:** *Stormwater Control & Detention* and *Parking* for additional information.

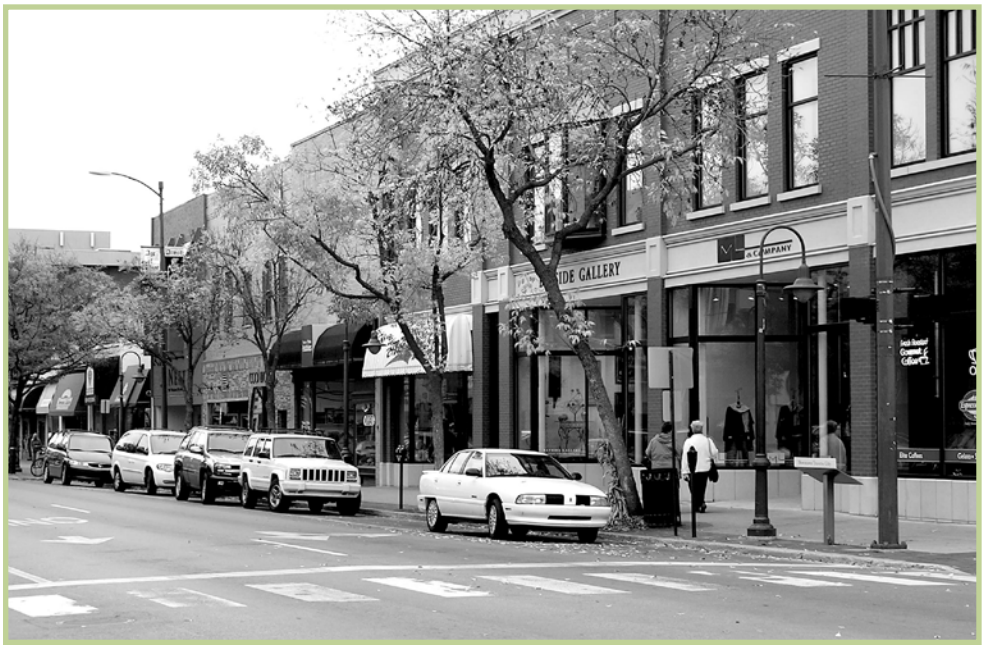
Pedestrian walkway, Kalkaska, Kalkaska County

Lighting
Exterior lighting should be designed and scaled to address safety concerns without disturbing adjacent properties or contributing to light pollution. Controlling lights with timers and motion sensors around the side and rear of buildings ensures that lights are on only when needed. Street lights should be pedestrian-scaled, attractive, and not contribute to light pollution. Refer to **Critical Design Practices:** *Site Lighting & Utilities* and *Streetscape* for specific information.

Creating Pedestrian-Friendly Areas
Communities that are redeveloping or adding new businesses to their Community Centers benefit from designing "people places" which foster street-level activity. Vibrant Community Centers are pedestrian friendly. Gathering places *(e.g., plazas, squares, parks)* create a more dynamic environment by increasing pedestrian activity. Refer to **Critical Design Practices:** *Open Space* for more information.

Regional Center

Regional Centers represent large-scale retail development and offer the greatest diversity of goods and services to shoppers. Within the five-county area they vary considerably in appearance, scale, and function, but all attract clientele from throughout the region as well as other areas of the state and country. Regional Centers can range in character from pedestrian-oriented areas such as downtown Traverse City to large, vehicle-oriented shopping malls. As the region's population continues to grow, communities will encounter increased pressure for additional Regional Centers. When appropriately located and well-designed, Regional Centers are valuable and appreciated economic assets to a community and region.

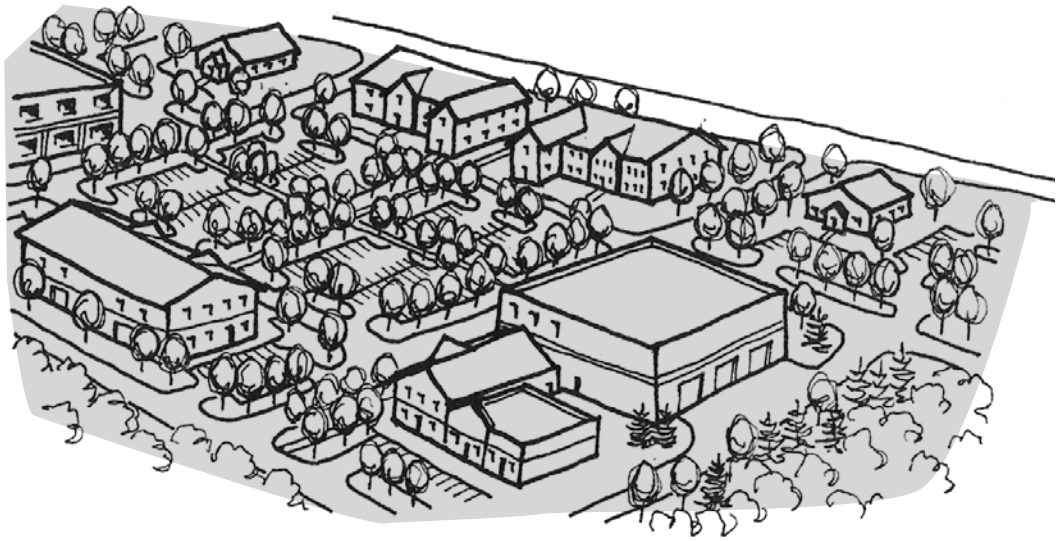


When Designing Regional Centers:

- Conduct site assessment
- Provide or extend insfrastructure
- Locate buildings to retain desirable existing vegetation and other natural features
- Incorporate architectural elements to break up building mass
- Provide joint driveways and alternate access
- Design parking areas to facilitate safe and efficient access
- Establish pedestrian pathways connecting building entrances, transit facilities, and parking areas
- Place parking lots behind or beside buildings
- Screen parking areas, especially those between buildings and roadways
- Encourage shared parking and reduced parking standards
- Design landscaped islands to break up the mass of parking areas
- Promote alternative surfacing materials, especially for overflow parking areas
- Establish buffers between Regional Center and adjacent properties
- Combine and screen service elements
- Use low-maintenance landscaping
- Control and recycle stormwater runoff
- Incorporate context-appropriate signage
- Assess trash and recycling service needs

Locating Regional Centers

Location is critical to integrating Regional Centers into the Grand Traverse Bay region. Regional Centers require substantial infrastructure *(e.g., roads, water, sanitary sewer)* and should be located in areas with established infrastructure or where it can be easily extended. Given the size and scope of these developments, local jurisdictions are encouraged to work together to determine the optimal locations – whether new or greyfield – and revise their local master plans and zoning ordinances to direct developments to these mutually beneficial areas.



Updating & Adaptive Reuse of Regional Centers

Local jurisdictions can enhance community and regional character by requiring that established Regional Centers incorporate site design guidelines as site improvements are made. Over time, these gradual changes result in an overall improvement of appearance and function. Local jurisdictions should revise their ordinances to require improvements to structures, parking areas, and open spaces, as well as to allow for the conversion of Regional Centers into other uses.

Land uses change over time and the existing built environment in suitable locations can be adapted to accommodate new Regional Centers. Communities should encourage this adaptive reuse to enhance the economic base and aesthetic appeal of an area. Local jurisdictions have not yet encountered the conversion of existing structures to a modern Regional Center; consequently, they are advised to consider successful projects in other communities. By establishing the appropriate zoning ordinances, local jurisdictions encourage the reuse of empty buildings instead of greenfield development. Refer to **Critical Design Practices:** *Redevelopment of Existing Properties* and *Building Revitalization & Reuse* for additional information.

Regional Center

Designing Regional Centers

A well-designed Regional Center complements local and regional character; however, site layout, building design, and landscaping design are critical given the typically large size of these developments. Site layout and buildings should be designed to minimize the perceived size of buildings – especially those with larger floor areas – as well as parking lots. Buildings should be oriented to facilitate safe pedestrian access among buildings, parking areas, public transit stops, and trail network connections. Building design should also reflect aesthetically pleasing community structures and local architectural character to increase the compatibility between the Regional Center and surrounding area.

To improve both new and existing Regional Centers incorporate the elements described below. For detailed information on specific techniques, refer to the **Critical Design Practices** section.

Building Design & Orientation

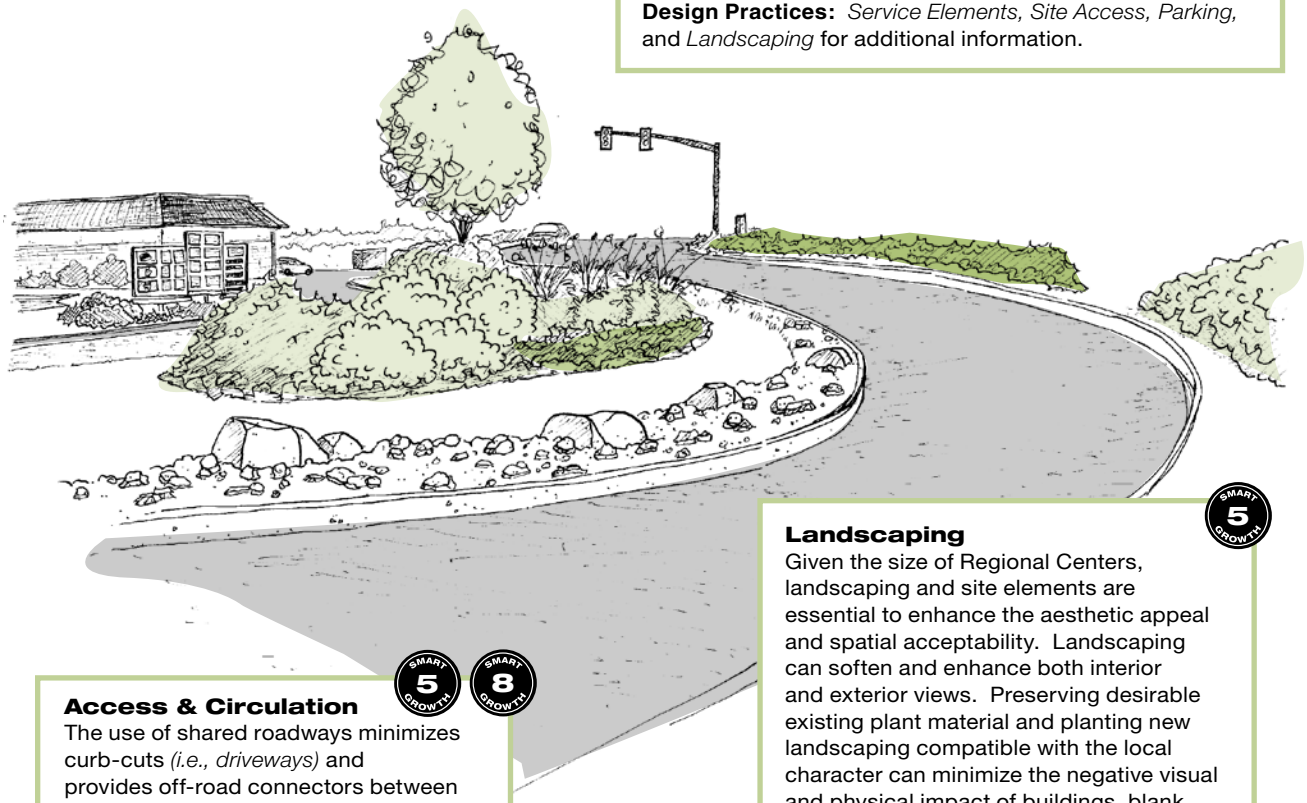
Regional Centers should be located in areas with existing or extendable infrastructure and oriented towards streets and transit stops as site conditions permit. Prominent, well-designed architecture can create focal points along circulation corridors – both vehicular and pedestrian – that contribute to local character and identity. Buildings should incorporate designs and materials that enhance the surrounding area. The design should include visual and architectural elements *(e.g., large windows, awnings, plazas)* to enhance aesthetic appeal. Communities can establish architectural and site design standards that reflect their local character better than national chain standards. When presented with renovation projects, local jurisdictions should encourage architectural and landscaping improvements to break up building and parking area size. Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility,* and *Building Design & Materials* for additional information.

Streetscape

Streetscape elements (*e.g., street trees, site furnishings, special paving)* can make a Regional Center more attractive and inviting. These elements should be incorporated both within the development and on the edges where it adjoins the surrounding community. Refer to **Critical Design Practices:** *Streetscape* for additional information.

Service Elements

Service elements *(e.g., recycling, dumpsters, loading areas)* should be combined whenever possible, as well as located and screened to minimize their visual and physical impact on adjacent properties and roadways. Refer to **Critical Design Practices:** *Service Elements, Site Access, Parking,* and *Landscaping* for additional information.



Landscaping

Given the size of Regional Centers, landscaping and site elements are essential to enhance the aesthetic appeal and spatial acceptability. Landscaping can soften and enhance both interior and exterior views. Preserving desirable existing plant material and planting new landscaping compatible with the local character can minimize the negative visual and physical impact of buildings, blank walls, drives, and parking areas. Refer to **Critical Design Practices:** *Landscaping* and *Streetscape* for additional information.

Access & Circulation

The use of shared roadways minimizes curb-cuts *(i.e., driveways)* and provides off-road connectors between developments for vehicular, pedestrian, and bicycle access. Regional centers can encourage transit use by including transit stops with benches, trash containers, lights, and well-maintained landscaping within 1,000 feet of frequented establishments.

Architectural details and landscaping elements create identifiable, inviting, and accessible entrances and walkways. Appropriately located, lit, landscaped, and marked walkways encourage pedestrian activity by connecting buildings, parking lots, transit stops, and trail networks. Pedestrian walkways, especially through parking areas, should be designated with alternative surface materials *(e.g., bricks, stamped concrete)* and landscaping. To support bicycle access, bicycle circulation should be considered and paths or lanes designed. Refer to **Critical Design Practices:** *Site Access* for additional information.

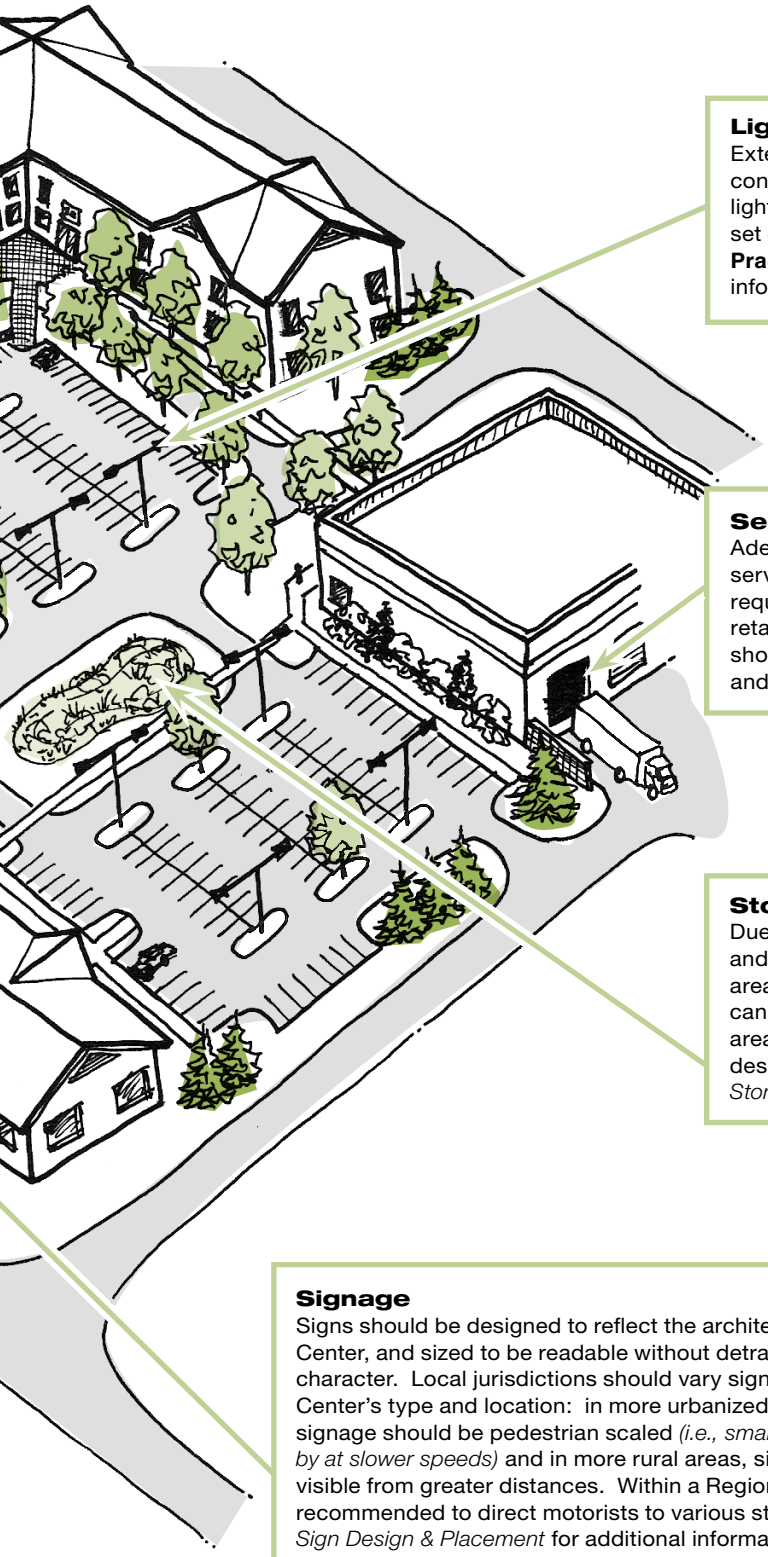
Designing Regional Centers *continued*

Parking

Given the potential for high vehicular traffic volume, the design of parking areas is essential to accommodating the users' needs while maintaining local character. Parking areas should be located to minimize their visual impact on adjacent properties. Multiple smaller, interconnected lots break up the surface scale, minimizing the overall visual impact, and parking structures may be an advantageous solution. Whenever possible establish roadway connections between adjacent properties to facilitate ease of access, increase efficiency in parking areas, and reduce the amount of paved area through shared parking.

Appropriately scaled parking areas are both a visual and environmental benefit to the region. To achieve this, local jurisdictions are encouraged to revise parking standards such that a developer must justify the number of requested spaces instead of meeting a required minimum number based on general standards. This fosters parking areas of sufficient size for a specific development and encourages shared parking areas. Local jurisdictions are also advised to promote the use of alternative surfacing, especially for overflow areas.

Regional Center parking areas should be appropriately screened from the view of passing motorists and adjacent land uses with a mixture of trees, shrubs, and berms. When site conditions necessitate parking areas between buildings and roadways, a substantial vegetative buffer can dramatically minimize the visual impact of the parking area. Bicycle parking should be provided, especially when developments are or will be connected to a trail network. Refer to **Critical Design Practices:** *Parking* and *Landscaping* for additional information.



Lighting
Exterior lighting should be designed and scaled to address safety concerns without disturbing adjacent properties or contributing to light pollution. Lights on the sides or rear of buildings should be set on timers or have motion sensors. Refer to **Critical Design Practices:** *Site Lighting & Utilities* and *Streetscape* for specific information.

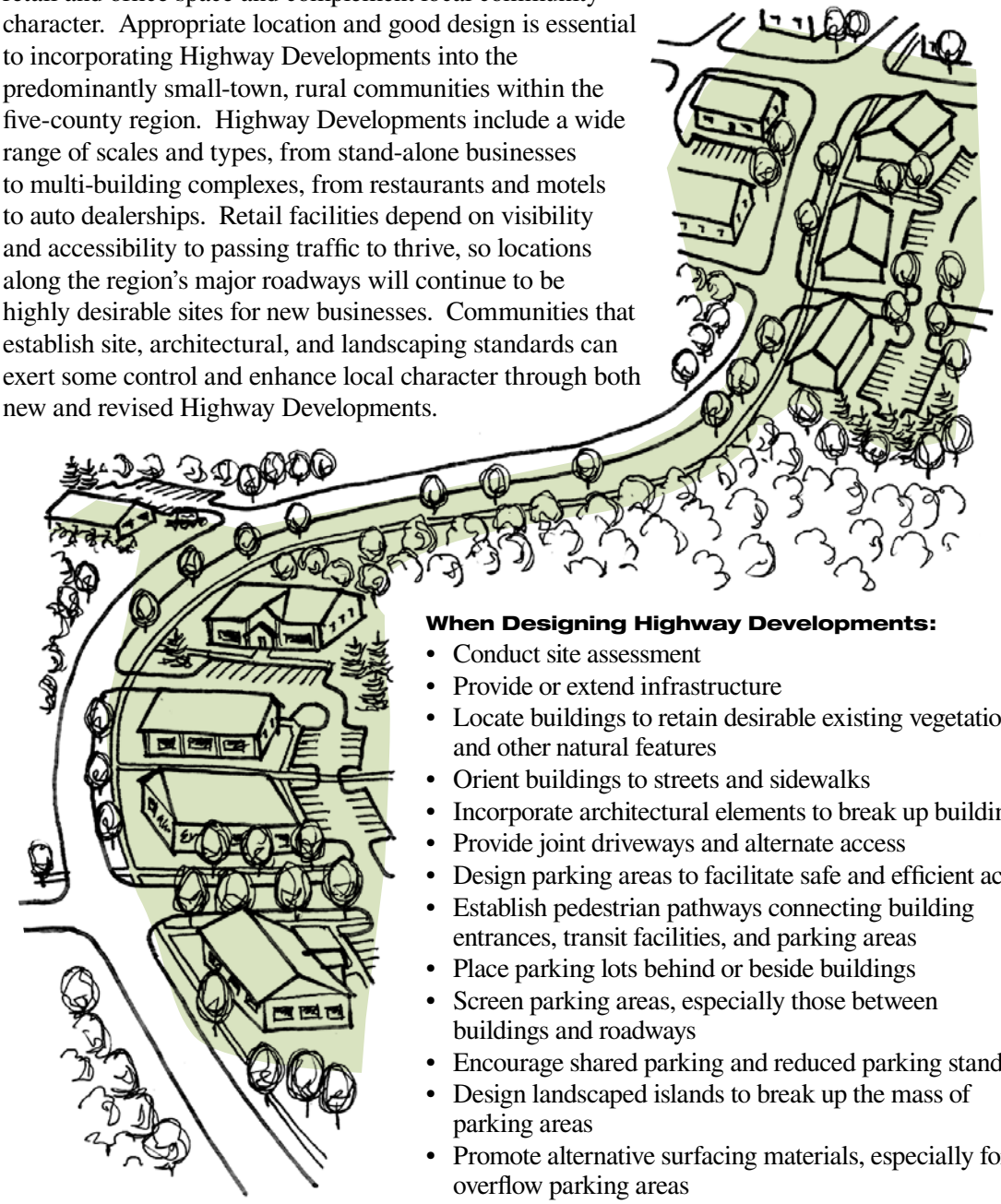
Service Vehicle Access
Adequate space and driveways must be provided on the site for service vehicle access. Large-scale Regional Centers typically require a greater number and larger delivery vehicles than other retail uses. Delivery access, loading docks, and waste containers should be sited to minimize the impact on adjoining properties and public areas.

Stormwater Control & Detention
Due to their larger scale, Regional Centers present both challenges and opportunities for stormwater management. Keeping parking areas to the minimum necessary and/or using porous paving can reduce the amount of runoff. Where stormwater detention areas are needed, they should be attractively landscaped and designed to be site amenities. Refer to **Critical Design Practices:** *Stormwater Control & Detention* for more information.

Signage
Signs should be designed to reflect the architectural style and materials of a Regional Center, and sized to be readable without detracting from the local and regional character. Local jurisdictions should vary sign size standards depending on a Regional Center's type and location: in more urbanized areas *(e.g., downtown Traverse City)*, signage should be pedestrian scaled *(i.e., small, simple, and easily readable by passers by at slower speeds)* and in more rural areas, signs may need to be slightly larger to be visible from greater distances. Within a Regional Center, low signs along roadways are recommended to direct motorists to various stores. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Highway Development

Highway Development is a modification of a traditional downtown development pattern *(i.e., businesses lining pedestrian-oriented streets)* that can provide valuable retail and office space and complement local community character. Appropriate location and good design is essential to incorporating Highway Developments into the predominantly small-town, rural communities within the five-county region. Highway Developments include a wide range of scales and types, from stand-alone businesses to multi-building complexes, from restaurants and motels to auto dealerships. Retail facilities depend on visibility and accessibility to passing traffic to thrive, so locations along the region's major roadways will continue to be highly desirable sites for new businesses. Communities that establish site, architectural, and landscaping standards can exert some control and enhance local character through both new and revised Highway Developments.



When Designing Highway Developments:

- Conduct site assessment
- Provide or extend infrastructure
- Locate buildings to retain desirable existing vegetation and other natural features
- Orient buildings to streets and sidewalks
- Incorporate architectural elements to break up building mass
- Provide joint driveways and alternate access
- Design parking areas to facilitate safe and efficient access
- Establish pedestrian pathways connecting building entrances, transit facilities, and parking areas
- Place parking lots behind or beside buildings
- Screen parking areas, especially those between buildings and roadways
- Encourage shared parking and reduced parking standards
- Design landscaped islands to break up the mass of parking areas
- Promote alternative surfacing materials, especially for overflow parking areas
- Establish buffers between Highway Developments and adjacent properties
- Combine and screen service elements
- Use low-maintenance landscaping
- Control and recycle stormwater runoff
- Incorporate context-appropriate signage
- Assess trash and recycling service needs

Locating Highway Developments

Highway Developments can enhance a community when sited and designed to be an extension of an existing area or an infill project *(e.g., Galleries on Garfield on Garfield Avenue in Traverse City)*. The adaptive reuse of structures and infill projects promote economic and community revitalization in established areas of the region's communities. To achieve desired development patterns, local jurisdictions should revise master plans and zoning ordinances to direct developments to appropriate locations. Not all property along highway corridors needs to be zoned for commercial use; it may be beneficial to concentrate commercial development more densely at major intersections and retain lower-density, mixed-use agricultural and open space areas in between. Refer to **Critical Design Practices:** *Redevelopment of Existing Properties* and *Building Revitalization & Reuse* for additional information.

Galleries on Garfield, Traverse City, Grand Traverse County

Updating Existing Developments

Communities throughout the Grand Traverse Bay region enhance local character by requiring existing businesses to apply site design guidelines as land uses change. Although a gradual process, the cumulative effect is an overall improvement of both form and function. Local jurisdictions are encouraged to revise their ordinances to require improvements to structures as uses change, as well as consider the implementation of form-based codes. Additionally, local jurisdictions should allow for the conversion of Highway Developments into medium- and high-density residential developments. Refer to **Critical Design Practices:** *Building Design & Materials* and **Residential:** *High-Density Residential* for additional information.

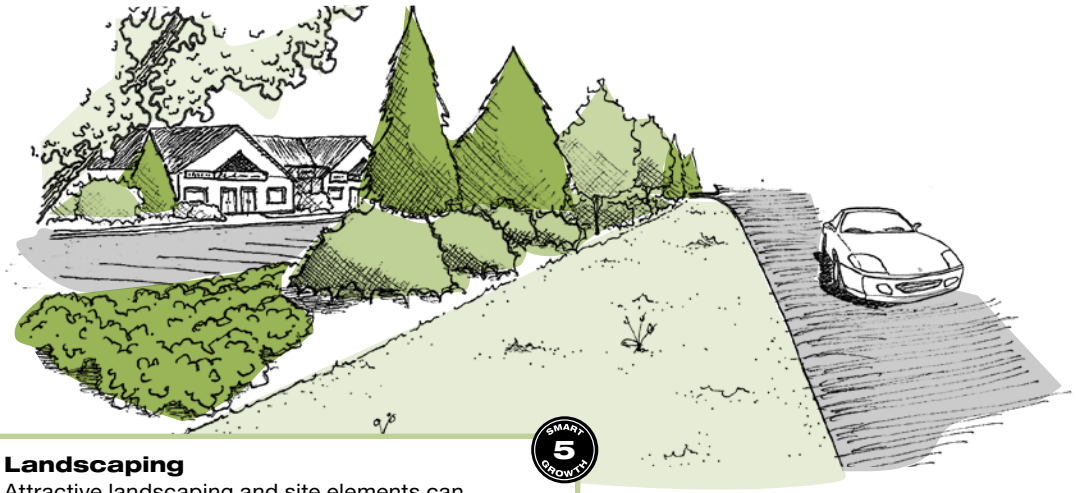
Highway Development

Designing Highway Developments

When a design incorporates attractive architectural and site elements, Highway Developments enhance local and regional character. Using an architectural style reflective of aesthetically pleasing existing structures *(e.g., architecture similar to older buildings in a historic area or similar to newer buildings in a newly-developed area)* can help integrate Highway Developments into an area by increasing compatibility between new and existing structures. In areas where the current architectural style would benefit from enhancement, local jurisdictions should promote the introduction of an architectural style that will enhance the existing aesthetics over time.

To improve both new and existing Highway Developments, incorporate the following elements: building design and orientation, vehicular and pedestrian access, parking, service elements, signage, lighting, and landscaping. For detailed information on specific techniques, refer to the **Critical Design Practices** section.

Building Design & Orientation
Highway Developments should be located near and oriented toward streets as site conditions permit. The design should include visual and architectural elements *(e.g., large windows, awnings, signage)* to enhance the streetscape. Prominent, well-designed architecture can create focal points along circulation corridors that contribute to local identity and character. Buildings should incorporate designs and materials that are compatible with the surrounding area. When presented with renovation projects, local jurisdictions should encourage rebuilding in a traditional pattern *(i.e., buildings close to the street with parking behind).* Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility,* and *Building Design & Materials* for additional information.



Landscaping
Attractive landscaping and site elements can enhance the aesthetic appeal of Highway Developments. Preserving desirable existing vegetation and landscaping with native plants can enhance natural character and reduce maintenance costs. Incompatible land uses, parking lots, and blank walls should be screened and buffered with a mixture of trees, shrubs, and berms. Refer to **Critical Design Practices:** *Landscaping* and *Streetscape* for additional information.

Landscaping screens parking lot at Grand Traverse Commerce Center, Garfield Township, Grand Traverse County

Access & Circulation

The use of shared roadways and alleys minimizes curb-cuts *(i.e., driveways)* and provides off-road connectors between businesses for both vehicles and pedestrians. Connections between existing businesses can also improve safety, functionality, and aesthetics. Architectural details and landscaping elements create identifiable, inviting, and accessible entrances. Sidewalks and connections to local and regional trail systems facilitates pedestrian access, which is especially important in more developed areas where more people are likely to use them. Refer to **Critical Design Practices:** *Site Access* for additional information.

Pedestrian access to Kids Creek Marketplace, Garfield Township, Grand Traverse County

Screened parking, Traverse Brewing Company, Elk Rapids Township, Antrim County

Parking

Parking areas should be designed to accommodate site conditions and the needs of businesses while reflecting community character. In higher density areas, on-street parking can provide easy access and minimize surface parking lots. Parking areas should be located behind, beside, or between buildings to minimize the visual impact on adjacent properties. Linking parking areas and providing shared roadway accesses can facilitate ease of access between adjacent properties, increase efficiency in parking areas, and reduce the amount of paved area.

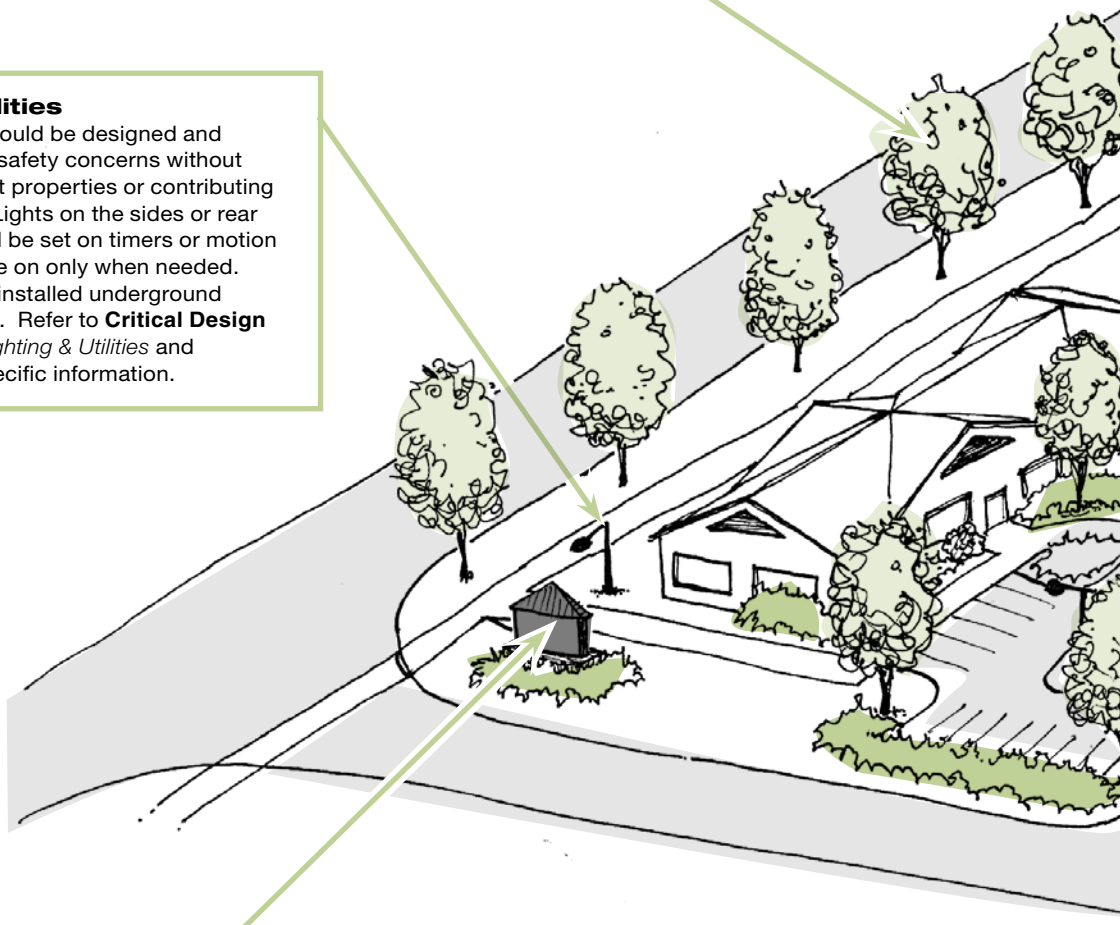
Local jurisdictions should require the buffering and screening of parking lots. When site conditions necessitate parking areas between buildings and roadways, a substantial vegetative buffer can dramatically minimize the visual impact of the parking areas. Bike parking should be provided, especially when developments are or will be connected to a trail network. Refer to **Critical Design Practices:** *Pedestrian & Bike Circulation, Parking,* and *Landscaping* for additional information.

Highway Development

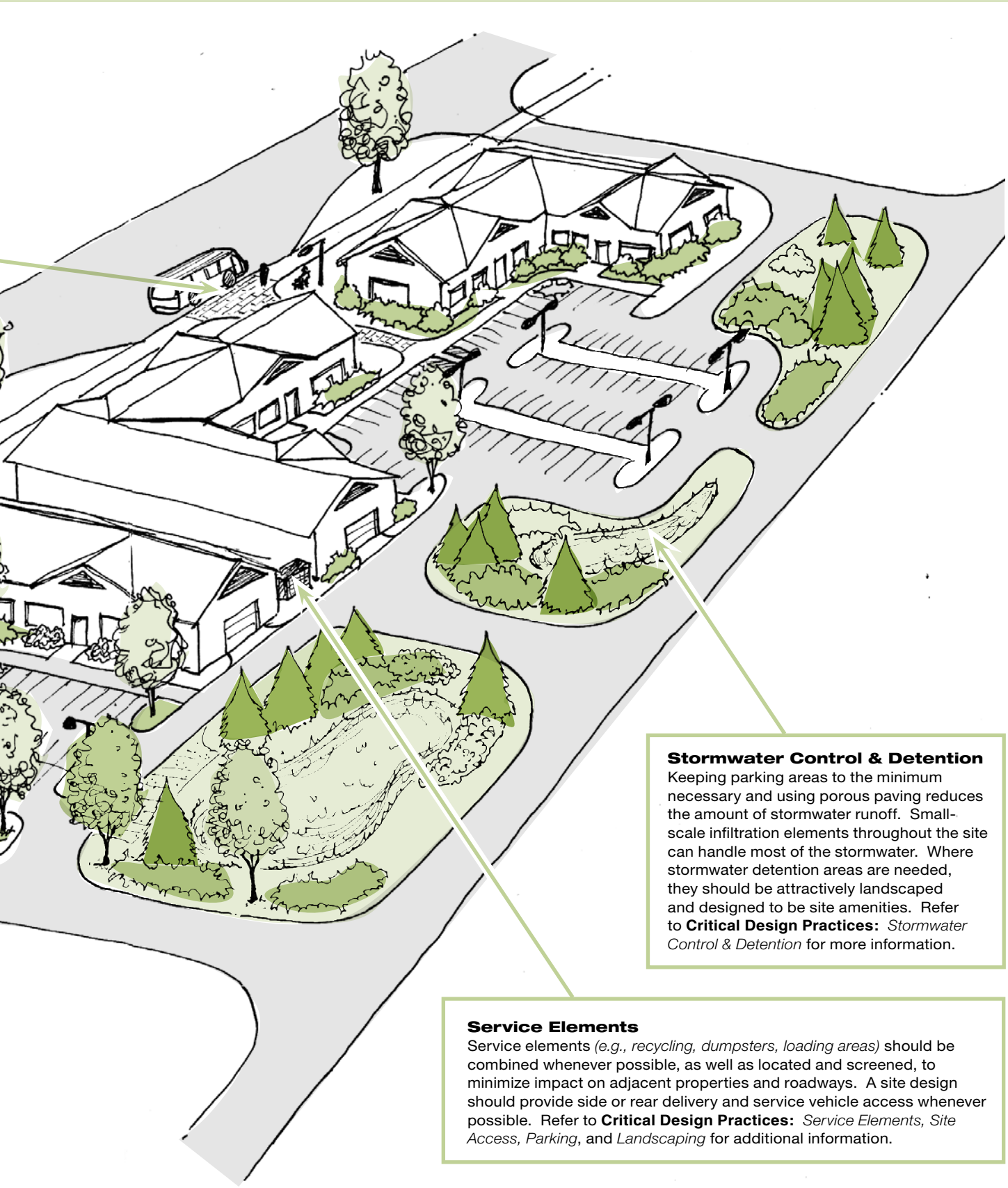
Designing Highway Developments *continued*

Streetscape
Streetscape elements *(e.g., street trees, site furnishings, special paving)* enhance the attractiveness of Highway Developments. Adjacent property owners should be encouraged to work together to create a unified design. Refer to **Critical Design Practices:** *Streetscape* for more information.

Lighting & Utilities
Exterior lighting should be designed and scaled to address safety concerns without disturbing adjacent properties or contributing to light pollution. Lights on the sides or rear of buildings should be set on timers or motion sensors so they are on only when needed. Utilities should be installed underground whenever possible. Refer to **Critical Design Practices:** *Site Lighting & Utilities* and *Streetscape* for specific information.



Signage
Signs should be designed to reflect the architectural style and materials of a building, and be sized to be readable without detracting from local character. The appropriate size for a sign will depend on the location of the business. In more urbanized areas, signage should be pedestrian scaled *(i.e., small, simple, and easily readable by passers by at slower speeds)* and in more rural areas, signs may need to be slightly larger to be visible from more rapidly passing vehicles. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

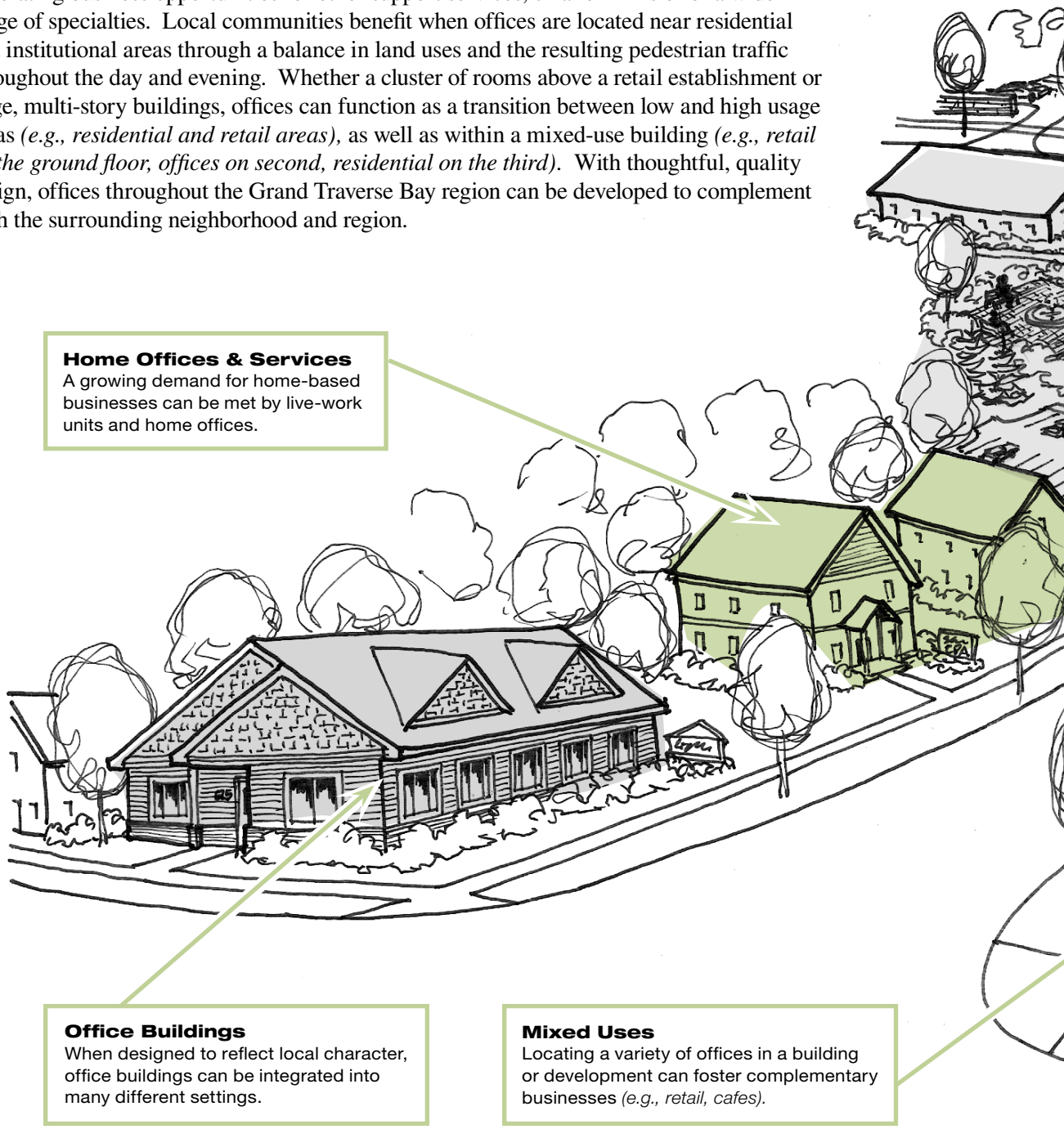


Stormwater Control & Detention
Keeping parking areas to the minimum necessary and using porous paving reduces the amount of stormwater runoff. Small-scale infiltration elements throughout the site can handle most of the stormwater. Where stormwater detention areas are needed, they should be attractively landscaped and designed to be site amenities. Refer to **Critical Design Practices:** *Stormwater Control & Detention* for more information.

Service Elements
Service elements *(e.g., recycling, dumpsters, loading areas)* should be combined whenever possible, as well as located and screened, to minimize impact on adjacent properties and roadways. A site design should provide side or rear delivery and service vehicle access whenever possible. Refer to **Critical Design Practices:** *Service Elements, Site Access, Parking*, and *Landscaping* for additional information.

Office

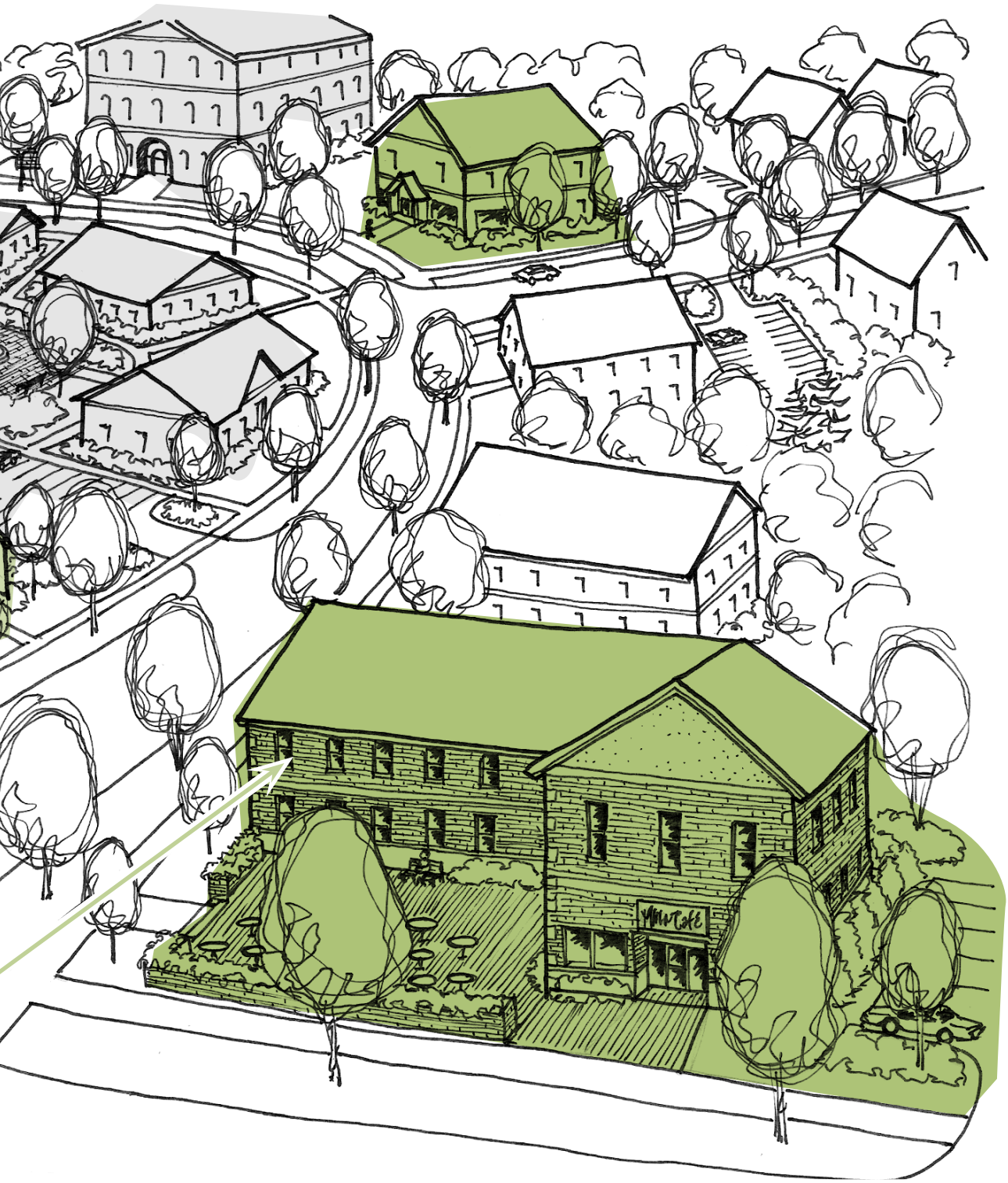
The Grand Traverse Bay region's diversity of office buildings is matched only by the assortment of tenants: from large financial institutions and insurance companies to home-based accountants and travel agents. While large offices drive the regional economy by generating business opportunities for other support services, smaller firms offer a wide range of specialties. Local communities benefit when offices are located near residential and institutional areas through a balance in land uses and the resulting pedestrian traffic throughout the day and evening. Whether a cluster of rooms above a retail establishment or large, multi-story buildings, offices can function as a transition between low and high usage areas *(e.g., residential and retail areas),* as well as within a mixed-use building *(e.g., retail on the ground floor, offices on second, residential on the third)*. With thoughtful, quality design, offices throughout the Grand Traverse Bay region can be developed to complement both the surrounding neighborhood and region.



Home Offices & Services
A growing demand for home-based businesses can be met by live-work units and home offices.

Office Buildings
When designed to reflect local character, office buildings can be integrated into many different settings.

Mixed Uses
Locating a variety of offices in a building or development can foster complementary businesses *(e.g., retail, cafes).*



Office

Building Design & Orientation

Through context-sensitive design, office buildings can complement virtually any zoning district. While specific design characteristics for office buildings are dependent on location, office buildings should be located near and oriented towards streets, and their entrances should be easily identifiable, inviting, and ADA accessible. Office buildings enhance streetscapes by incorporating visual and architectural elements *(e.g., large windows, awnings)* in their design. Architectural styles and materials that reflect an area's character promote compatibility between new buildings and existing structures. When presented with infill or renovation projects, local jurisdictions should encourage rebuilding in a traditional pattern *(i.e., buildings close to street with parking behind)*. Refer to **Critical Design Practices:** *Building Orientation, Building Compatibility,* and *Building Design & Materials* for additional information.

Redevelopment for office and retail uses, Traverse City, Grand Traverse County

Access & Circulation

Access to and circulation within a site involves more than just automobile traffic. Offices serving local residents benefit by the provision of pedestrian and bicycle access and circulation. Service vehicles *(e.g., delivery trucks, trash pickup)* can be accommodated without undue impact on activities within the site and on surrounding properties. Refer to **Critical Design Practices:** *Site Access, Pedestrian & Bike Circulation, Roadways,* and *Streetscape* for additional information.

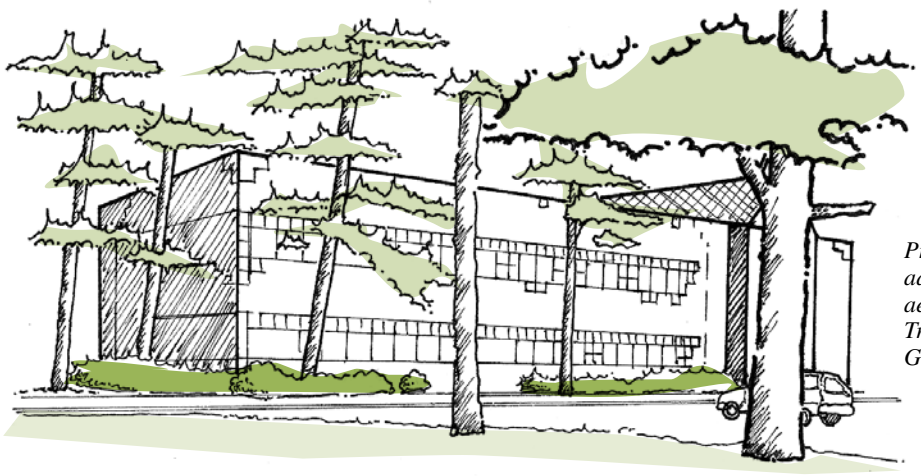
Streetscape

By complementing adjacent areas, office buildings contribute to the pleasing character of our region. Streetscape elements *(e.g., street trees, benches, special paving)* highlight and bring attention to the commercial establishment and enhance neighborhoods. Clusters of buildings and their streetscape elements can have an even greater impact on an area's curb appeal and usability. Refer to **Critical Design Practices:** *Streetscape* for more information.

Parking

Parking requirements depend both on the services within the building and the location of the building. On-street parking facilitates access to neighborhood offices for short-term use and reduces the need for parking lots. In many cases parking lots can be shared – especially those with different peak-demand times – to further reduce impervious surfaces. Locating small parking areas behind or beside buildings with access from alleys and side streets contributes to the overall attractiveness of a streetscape. Parking lots should be screened to minimize impact on adjacent properties. Where site conditions permit, parking can be located on a building's lower level. Refer to **Critical Design Practices:** *Parking* and *Building Orientation* for additional information.

Parking below offfices at Copper Ridge, Garfield Township, Grand Traverse County



Preserved mature trees add greatly to the site's aesthetics and value, Traverse City, Grand Traverse County

Landscaping

Preserving desirable existing vegetation and incorporating native species into new landscape elements improves the appearance of buildings, drives, and parking areas as well as lowers maintenance demands. Landscaping offers one of the most cost-effective methods for increasing the aesthetic appeal of office buildings through attractive plant material, site furniture, and lighting in courtyard areas. Screening and buffering incompatible land uses and blank walls with trees and shrubs also adds to a development's attractiveness. Refer to **Critical Design Practices:** *Landscaping* and *Streetscape* for additional information.

Large parking lot island around existing trees, Traverse City, Grand Traverse County

Office

Building Design & Orientation *continued*

Lighting

Exterior lighting of office buildings can be designed and scaled to address safety concerns without disturbing adjacent properties or contributing to light pollution. Controlling lights with timers and motion sensors around the side and rear of buildings ensures that lights are on only when needed. Refer to **Critical Design Practices:** *Site Lighting & Utilities* and *Streetscape* for specific information.

Signage

Office signs designed to reflect the architectural style and materials of a building and the neighborhood character enhance the aesthetics of an area. Buildings with combined signage for multiple tenants contribute to pleasing streetscapes. Local jurisdictions may consider varying sign size standards depending on location: in more urbanized areas, signage should be pedestrian-scaled *(i.e., small, simple, and easily readable by passers by at slower speeds)* while in more rural areas, signs may need to be slightly larger to be visible from passing automobiles. Refer to **Critical Design Practices:** *Sign Design & Placement* for additional information.

Stormwater Control & Detention

Both small- and large-scale office buildings have opportunities for innovative stormwater management. For smaller buildings, these include reducing the size of parking lots and/or using porous paving, installing landscaped rain gardens or other infiltration methods, or capturing rain water for reuse. On larger sites, engineered systems can be designed for underground stormwater storage, infiltration, or both. Refer to **Critical Design Practices:** *Stormwater Control & Detention* for additional information.

Service Elements

Mailbox clusters, a frequent occurrence in office buildings and developments with multiple tenants, can be located to facilitate access with minimal disruption of pedestrian or vehicular traffic. Service elements *(e.g., recycling, dumpsters, loading areas)* should be located and screened to minimize their impact on adjacent properties. Refer to **Critical Design Practices:** *Service Elements* for additional information.

Home Offices & Services

The number of individuals working from home has increased steadily throughout the nation and region, and all indications suggest a continuation of the trend as the U.S. economy evolves to include more internet-connected work environments. Over fifty million Americans currently work from home offices, and the demand for live-work units to better accommodate both residential and commercial uses will likely increase. Given the desirability of living and working within the Grand Traverse Bay region and technological advancements which make it possible to conduct work from virtually anywhere in the world, the interest in live-work units has risen as increasing numbers of artisans *(e.g., photographers, painters, weavers)*, tradesmen *(e.g., mechanics, builders),* and professionals *(e.g., engineers, lawyers, accountants, financial advisors)* conduct business from their homes.

Live-work units provide an alternative housing and business option which can be adapted to different uses over time. Live-work units offer communities a way to attract and retain small businesses which might otherwise not be economically viable if individuals had to pay both a residential and commercial mortgage; they also facilitate a broader mix of uses in residential areas within walking distance of retail and support services. Local jurisdictions should update their ordinances to allow and encourage live-work units within residential and commercial areas.

Bed & Breakfast within a residential neighborhood, Traverse City, Grand Traverse County

Designing Live-Work Units

Integrating live-work units into a neighborhood involves designing or adapting buildings to complement and enhance existing structures – whether residential, commercial, or industrial buildings. Distinct entrances for residential and commercial uses clearly separate these uses within the building and ensure adequate privacy and security for residents. Design of live-work units that considers signage, noise, lights, odors, parking, and customer-generated traffic minimizes the potential negative impact on other residents. Given the diversity of development types within the region, the specific characteristics of live-work units will depend on their location *(i.e., low-, medium-, or high-density residential or commercial).* For specifics related to site design of live-work units, please refer to the pertinent **Critical Design Practices, Residential,** and **Commercial** sections.

Institutional & Cultural

Perhaps the widest range of scales and uses occurs in the category of Institutional & Cultural facilities, covering everything from a small-town post office to Munson Medical Center. While many Institutional & Cultural uses are not commercial per se, some do include commercial uses, and their site designs involve many of the same elements. As with all other categories of development, the principles found in the Critical Design Practices section of the Guidebook should be applied to Institutional & Cultural uses at any scale. The wide variety of Institutional & Cultural facilities makes it difficult to recommend specific guidelines that will apply to all, but some general characteristics describe most of these uses.

- Facilities located near population and activity centers such as downtown areas maximize pedestrian and bike access *(e.g., Old Town Playhouse, Suttons Bay School, libraries)*
- Facilities located with retail in mixed-use areas help create vibrant, dynamic communities
- Facilities can often be a community focal point *(e.g., city hall, church, school)*
- Uses that are large in scale involve many of the same site design elements as Regional Centers

Post office, Northport, Leelanau County

Governmental
Governmental facilities range in scale from rural township halls to the multiple-building complex of the Grand Traverse County Governmental Center. Activity levels vary from occasional use for township meetings or wedding receptions to daily usage with hundreds of employees and visitors. The prominence and civic importance of governmental buildings can be elevated through their location and architectural quality; civic presence is enhanced by height, mass, and materials. Primary building entries should face public streets and be strongly articulated. Civic buildings should be visually connected with their surrounding neighborhood, perhaps as a prominent focal point that terminates a vista.

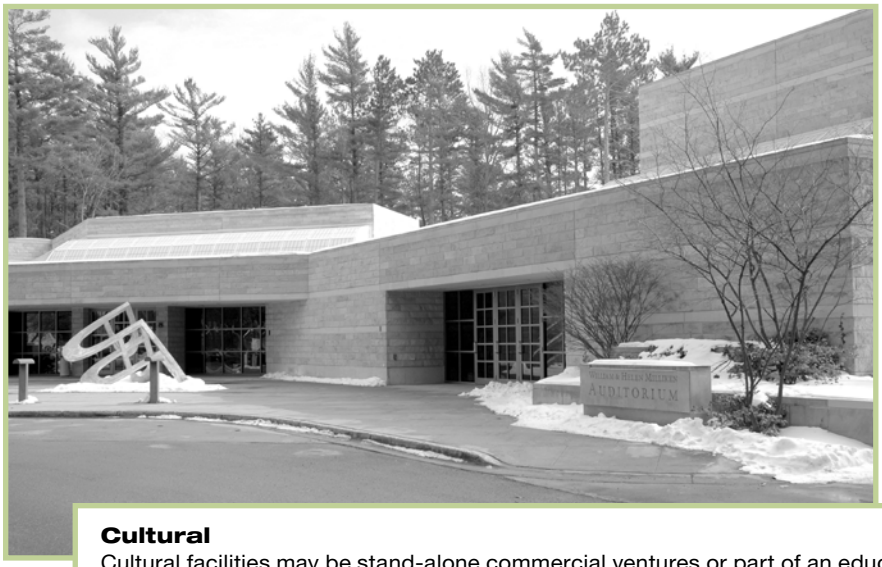
Maritime Academy building at Northwestern Michigan College, Traverse City, Grand Traverse County

Educational
Educational facilities range in scale from the Greenspire Montessori school at Grand Traverse Commons to Northwestern Michigan College. Locating them within communities provides greater access for pedestrians and bicyclists, especially younger users. Larger facilities have greater parking needs, for both employees and visitors. Educational facilities sometimes include accessory uses *(e.g., athletic fields)* requiring a larger site area; these can be integrated into a neighborhood through careful site design.

Munson Medical Center, Traverse City, Grand Traverse County

Medical
From small neighborhood clinics to Munson Medical Center, medical facilities cover the entire spectrum of scale. Small-scale facilities are easier to integrate into existing communities and can be located in former residential structures. Facilities at the larger end of the scale have correspondingly greater impacts, particularly the need for employee and visitor parking. The large numbers of vehicles to be accommodated and/or a limited site area may make a parking deck *(e.g., Munson)* or parking below a building *(e.g., Copper Ridge)* the optimal solution. Site access and circulation are important considerations for medical facilities, particularly regarding people with limited mobility and emergency vehicle access.

Institutional & Cultural



Dennos Museum Center and Milliken Auditorium at Northwestern Michigan College, Traverse City, Grand Traverse County

Cultural

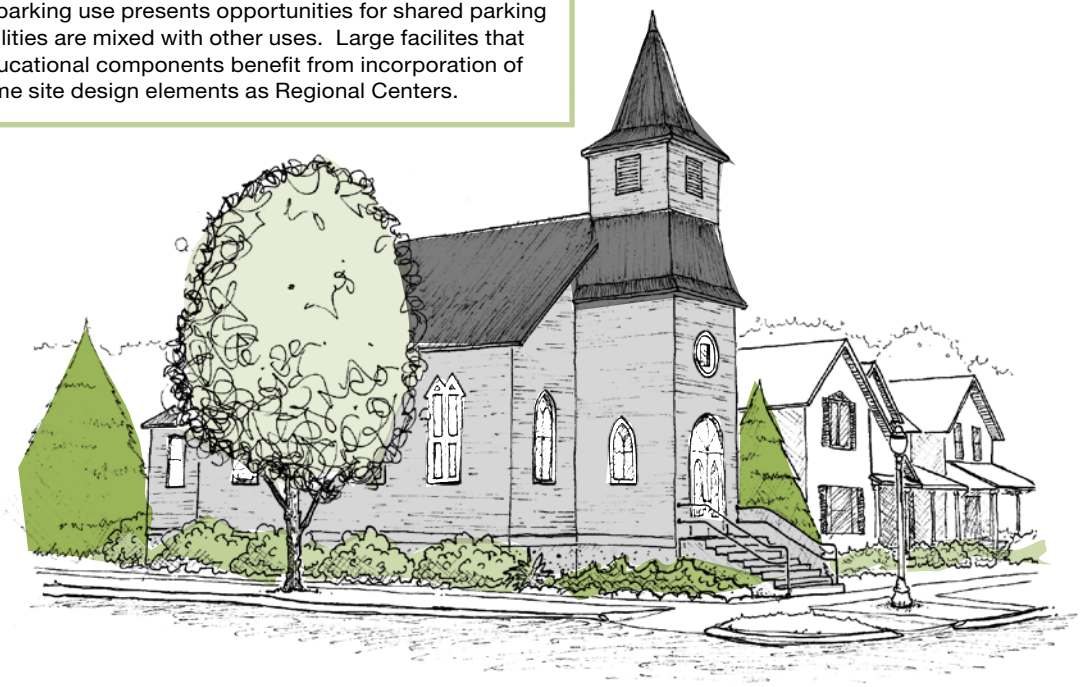
Cultural facilities may be stand-alone commercial ventures or part of an educational or civic institution. Parking needs may be considerable where large groups of people are congregating but can be minimized by well-designed pedestrian and bicycle access. Occasional use may facilitate shared parking if cultural facilities are located near other types of uses. Some of the different types of cultural facilities include:

- Outdoor performance space, street music
- Festivals, community events
- Community theaters
- Movie theaters
- Concert venues
- Museums
- Art galleries
- Public gardens
- Public art
- Sports facilities
- Libraries

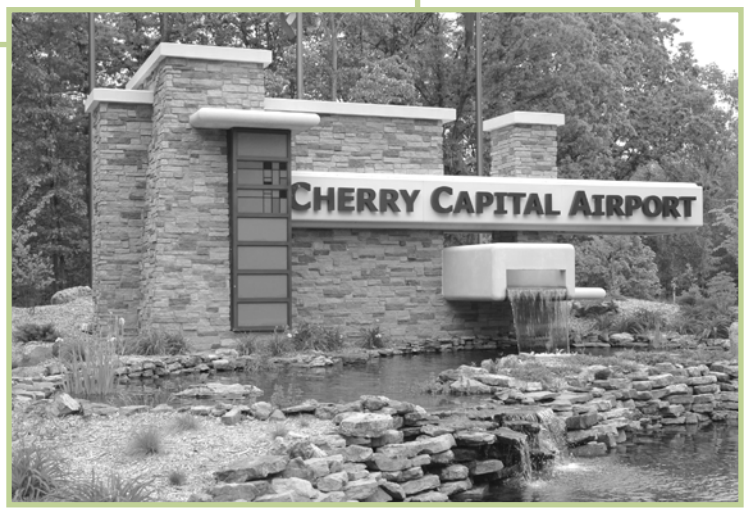
Kaliseum, Kalkaska, Kalkaska County

Traverse Area District Library, Traverse City, Grand Traverse County

Places of Worship
Worship facilities vary from small neighborhood buildings to large community church complexes *(e.g., New Hope Community Church)*, with a correspondingly wide range of needs and impacts. Small facilities are readily integrated into residential areas and can be a neighborhood focal point. The relatively limited and predictable period of peak parking use presents opportunities for shared parking when these facilities are mixed with other uses. Large facilites that may include educational components benefit from incorporation of many of the same site design elements as Regional Centers.



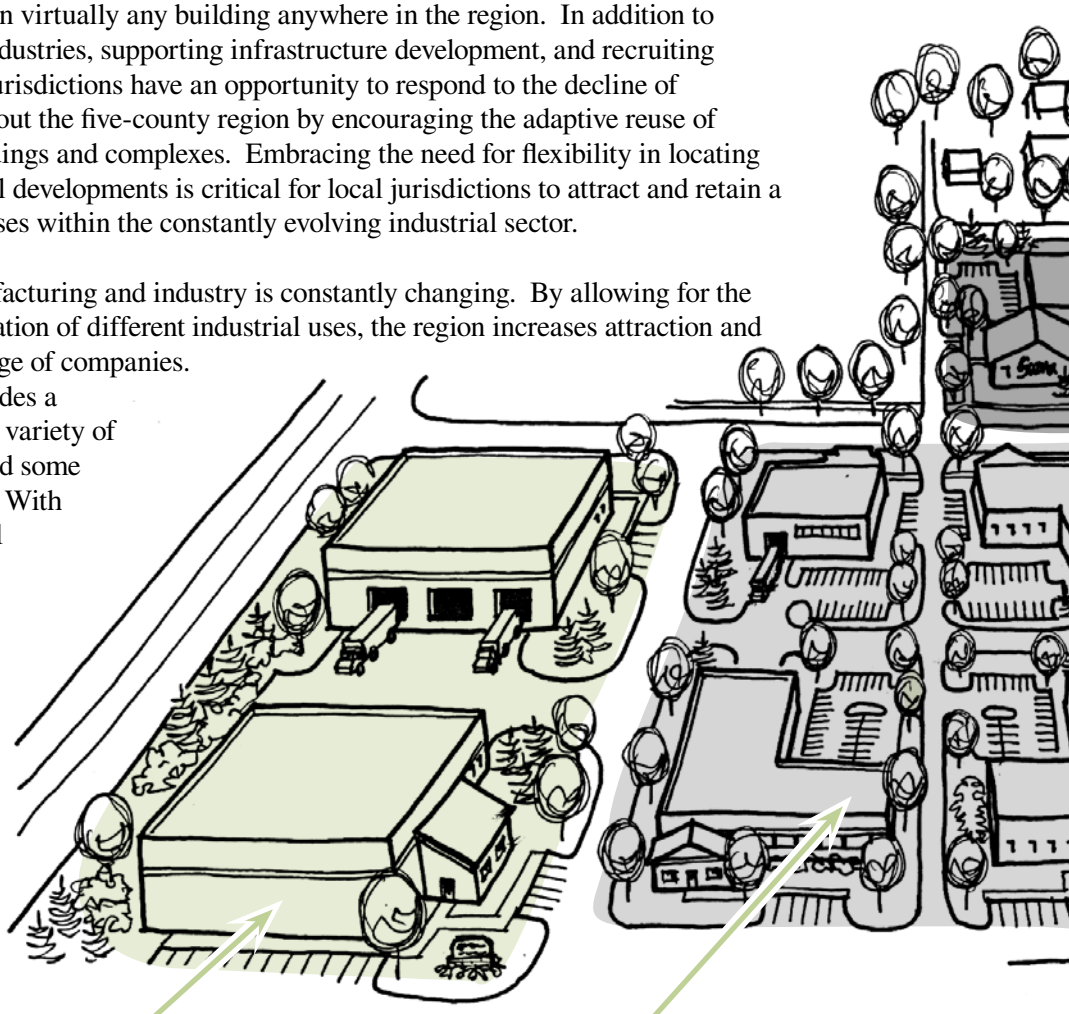
Airports
From small, private, grass landing strips to Cherry Capital Airport, airports also cover a range of scale and activity. Airports require large land areas and create noise that can have a negative effect on surrounding properties. Well-designed access is imperative for large, public facilities. Signs are used on- and off-site to direct people to the proper areas. Federal regulations control many of the elements of site design for airport facilities.



Industrial

Industry is a small but significant portion of the Grand Traverse Bay region's economy. The region's industry mix, however, has changed over the past three decades and will likely continue to evolve. While past industrial operations necessitated separation from residential and commercial land uses, many of today's industries are compatible with other land uses. Some operations require a particular location and specific structural requirements; others can be easily operated in virtually any building anywhere in the region. In addition to accommodating new industries, supporting infrastructure development, and recruiting high-tech firms, local jurisdictions have an opportunity to respond to the decline of manufacturing throughout the five-county region by encouraging the adaptive reuse of existing industrial buildings and complexes. Embracing the need for flexibility in locating and designing industrial developments is critical for local jurisdictions to attract and retain a wide variety of businesses within the constantly evolving industrial sector.

The definition of manufacturing and industry is constantly changing. By allowing for the development and adaptation of different industrial uses, the region increases attraction and retention of a broad range of companies. The following list provides a general overview of the variety of industrial operations and some of their characteristics. With continued technological advancements, this list will undoubtedly change over time.

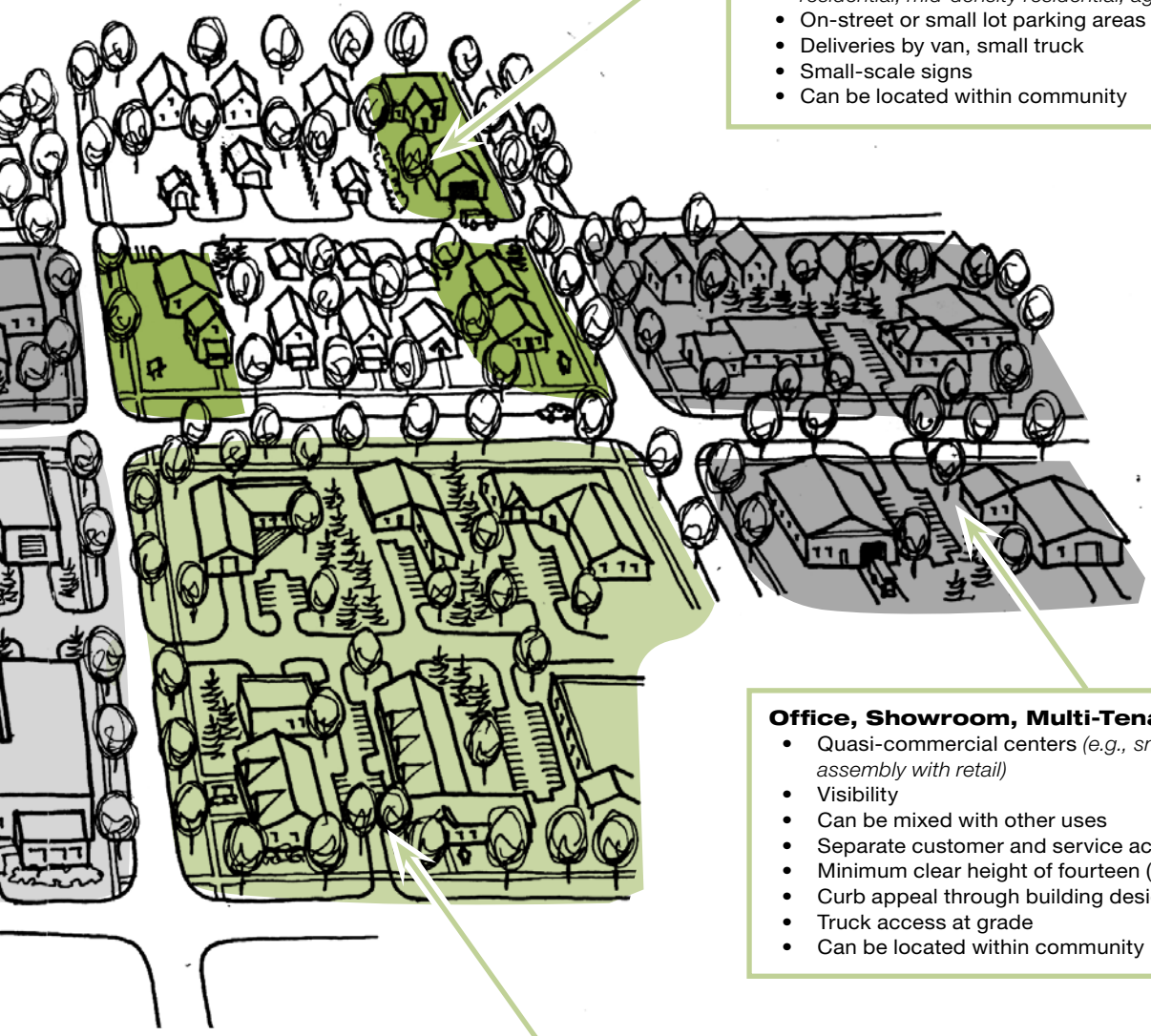


Warehouse & Distribution Facilities

- Direct access to transportation network
- Few windows
- Large, open interior spaces
- Minimum clear heights of twenty-four (24) feet
- Loading docks above grade level
- Sufficient space in front of loading docks for trucks to maneuver
- Screened loading docks and parking areas
- Significant potential impact on adjacent uses

Manufacturing & Assembly Facilities

- Smaller than warehouse/distribution facilities
- Attention to building design and landscaping for attractive integration into community
- Separate entrances for trucks and cars
- Separate employee and public parking
- Loading/unloading area with overhead doors
- Screened loading docks and parking areas
- Emphasis on security
- Significant potential impact on adjacent uses
- Can be located within community



Home Industries

- Small scale, low impact operations *(e.g., cabinet makers, mechanics)*
- Building design dependent on location *(e.g., low-density residential, mid-density residential, agricultural district)*
- On-street or small lot parking areas
- Deliveries by van, small truck
- Small-scale signs
- Can be located within community

Office, Showroom, Multi-Tenant Buildings

- Quasi-commercial centers *(e.g., small manufacturing, assembly with retail)*
- Visibility
- Can be mixed with other uses
- Separate customer and service access
- Minimum clear height of fourteen (14) feet
- Curb appeal through building design and landscaping
- Truck access at grade
- Can be located within community

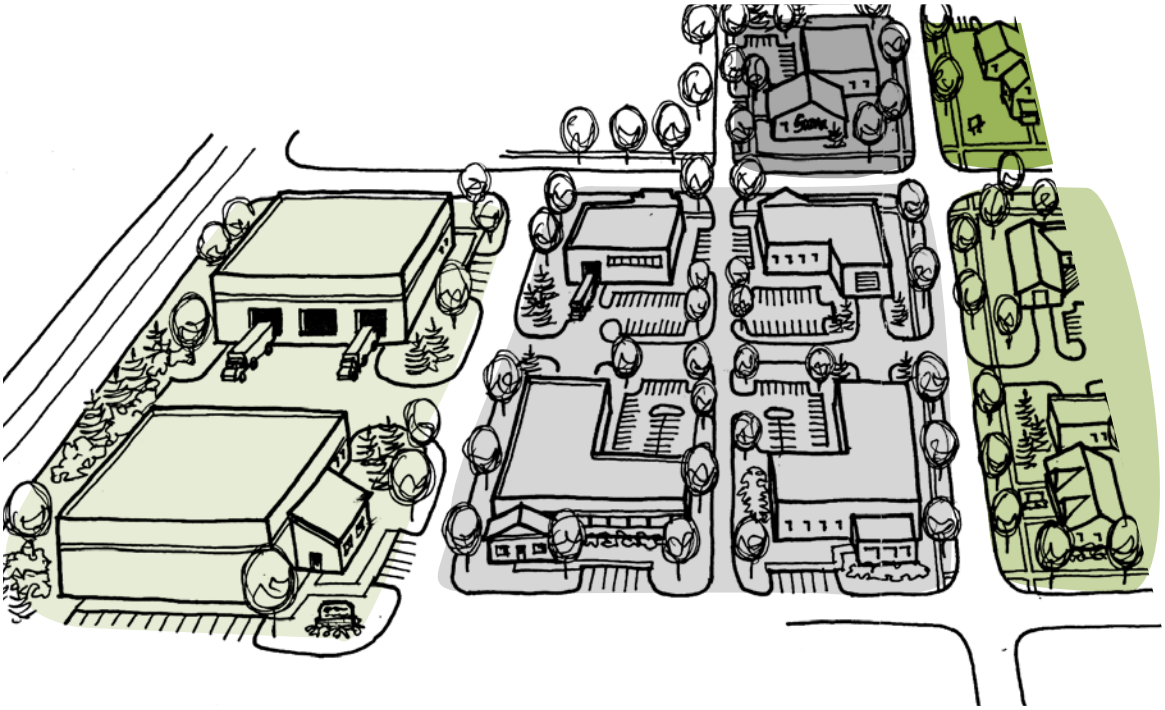
Research & Development

- Combination of offices and laboratories
- Shallower bays and lower clear heights than traditional manufacturing
- Flexibility for more specialized spaces
- One- or two-story buildings
- Curb appeal through building design and landscaping
- Less truck access needed
- Emphasis on security
- Can be located within community

Industrial

Designing Industrial Buildings

Although specific design recommendations for the broad range of industrial operations is beyond the scope of the Guidebook, general design elements apply to both small, home-based operations and large, international manufacturing companies. By incorporating these design elements into zoning ordinances, local jurisdictions promote the adaptability of structures when occupants, uses, and traffic change over time.



Building Design

While industrial buildings vary significantly in size, their design can improve integration into the region. Clear separation of uses within the building and visible, distinctive entrances for customers, employees, and deliveries enhance their appearance and function. Green building techniques for new projects reduces the environmental impact. Refer to **Critical Design Practices:** *Building Compatibility, Building Orientation,* and *Building Design & Materials* for additional information.

Technology Infrastructure

Due to increasing demand, advanced telecommunication services *(e.g., high-speed fiber optics, computer networks, wireless networks, data transmission)* are becoming critical in developing new or enhancing existing industrial buildings and complexes. In addition, the availability of advanced telecommunication services makes structures more adaptable as uses change over time.

Landscape screening of industrial area along Cass Road, Garfield Township, Grand Traverse County

Landscaping
Landscaping *(e.g., porous paving materials, medians with natural ground cover, shrubs, earth berms used as screening devices, trees, seasonal plantings)* can greatly enhance the appearance and reduce stormwater runoff of an industrial building or complex, increasing the site's marketability. Attractive open spaces between buildings and along the perimeter of the site provide areas for recreational use by employees, as well as a buffer between the site and adjacent uses. Functional landscaping elements include: street edge, site entries, building entries, service areas, and stormwater management areas *(e.g., detention ponds).* Refer to **Critical Design Practices:** *Landscaping* and *Stormwater Control & Detention* for additional information.

Signage
In addition to identifying tenants and providing directions, signs can enhance the character of industrial buildings and complexes. Good sign design reflects regional architectural styles and materials used on the site. Integration of landscaping, building, and graphic elements visually ties signs to their surroundings. Elements to consider when designing signs include: materials, color palette, size, and location. Refer to **Critical Design Practices:** S*ign Design & Placement* for additional information.

Industrial

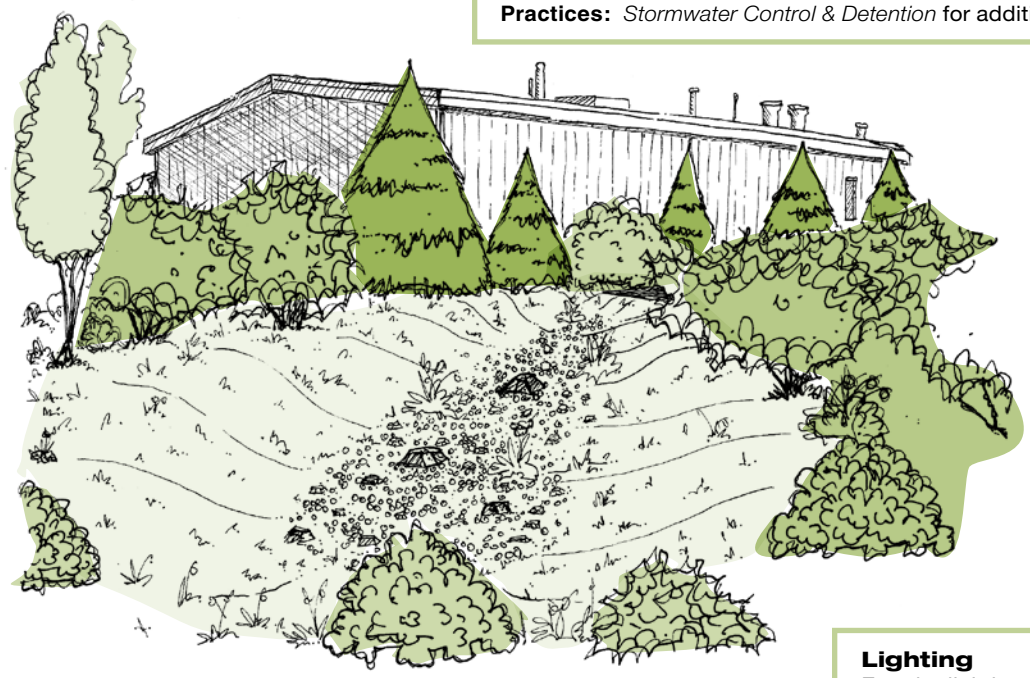
Designing Industrial Buildings *continued*

Access & Circulation

Designing streets to facilitate safe and efficient traffic flow while complementing the existing road network and a site's natural topography greatly increases the value, desirability, and effectiveness of an industrial development. The separation of semi-truck and car traffic through separate entrances and parking areas typically increases efficiency and safety. Road access should be as clear and direct as possible. Road design should accommodate current and anticipated traffic flow without over-building and be adaptable to the fluctuation of traffic loads resulting from changes in building uses. The size of a loading area depends not only on the building's use but on anticipated truck size and amount of traffic. Effective loading areas are generally located along rear property lines or between industrial buildings, and they are screened from the view of adjacent properties.

As more and more industries today can be located close to or within residential and commercial areas, sidewalks and bike paths link buildings to their neighbors as well as other areas of the community. Pedestrian-scaled lighting with landscaping and other pedestrian amenities foster pedestrian activity to and within the development, reducing traffic. Increasing transportation options *(e.g., bike paths, bus stops)* is especially desirable for industries with higher employment densities. Refer to **Critical Design Practices:** *Site Access, Pedestrian & Bike Circulation, Roadways,* and *Streetscape* for additional information.

Stormwater Control & Detention
Stormwater management is an important aspect of designing an industrial site due to typically substantial amounts of impervious surfaces *(e.g., building areas, parking lots).* Combining a site's existing natural drainage with constructed stormwater management can reduce development and maintenance costs. Refer to **Critical Design Practices:** *Stormwater Control & Detention* for additional information.



Lighting
Exterior lighting on buildings and in parking areas should be designed and scaled to address safety concerns without disturbing adjacent properties or contributing to light pollution. Lights on the sides or rear of buildings should be set on timers or have motion sensors. Refer to **Critical Design Practices:** *Site Lighting & Utilities* for additional information.

Parking
The size of parking areas varies by industry size and type; placing parking areas at the rear or between buildings and/or creating multiple, smaller lots separated by landscaped buffers helps reduce their visual impact. The design of parking areas should complement the overall appearance of the site and community. Alternative paving and combined parking areas accommodate overflow parking requirements, as well as possible future increases in parking needs, with reduced environmental impact. In locations where space is limited, parking structures may effectively meet parking requirements. Refer to **Critical Design Practices:** *Parking* for additional information.

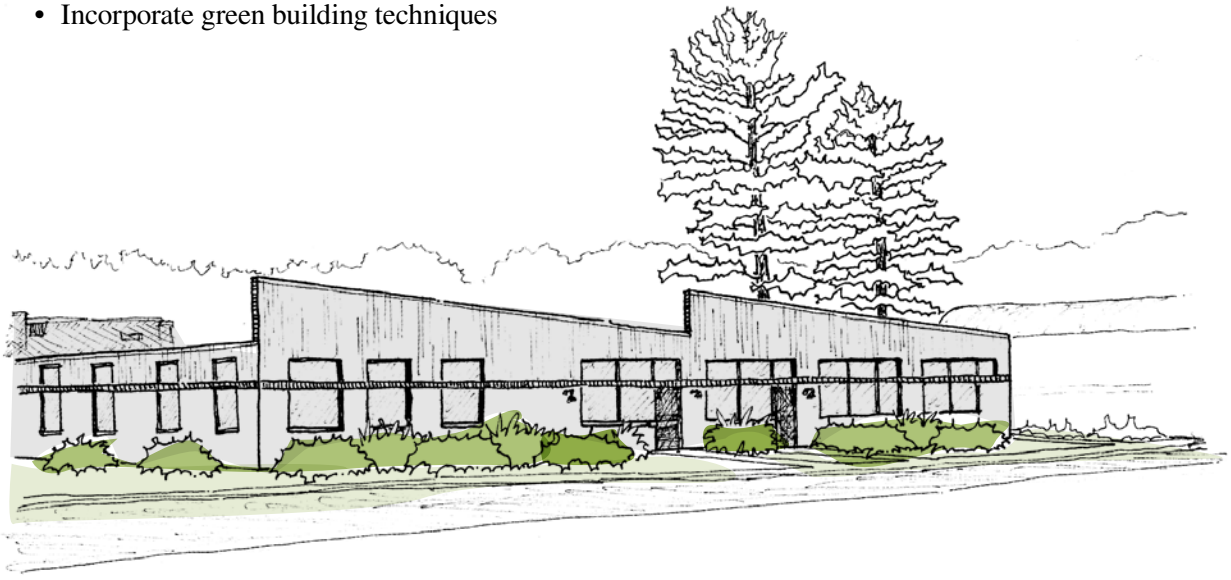
Industrial

Adaptive Reuse of Industrial Buildings & Complexes

Over the past thirty years, the decline of manufacturing and industry has affected communities throughout the country, state, and region. If the current trends continue, communities within the Grand Traverse Bay region will face a decline in demand and usage of traditional industrial buildings and areas. Structures and existing sites, however, can be adapted to accommodate new uses such as offices, indoor sports arenas, or boat/RV storage areas. Local jurisdictions may benefit from establishing zoning ordinances conducive to the adaptive reuse of industrial buildings and complexes as an attractive alternative to greenfield development. By facilitating the renovation of existing structures for new uses, local jurisdictions help preserve community character by reviving under-utilized areas and protecting open space on the urban fringe and beyond.

When Modifying Buildings for Reuse:

- Install skylights to provide interior light
- Add glass and high-quality materials to form a more dramatic lobby
- Update and/or install telecommunications capacity, including T-carrier lines and fiber optics
- Reconfigure interior spaces to meet tenants' specialized requirements
- Create a second floor and/or new interior offices, laboratories, or research areas
- Extend ductwork for HVAC system
- Add plumbing and restrooms
- Upgrade electrical systems
- Improve building façade
- Incorporate green building techniques



Former industrial building converted to office use, Traverse City, Grand Traverse County

Industrial & Business Complexes

Industrial buildings and business complexes can be integrated into the Grand Traverse Bay region's character through careful site selection and design. As defined by Urban Land Institute, an industrial and business complex is "a multibuilding development planned to accommodate a range of uses from light industrial to office space, in an integrated park-like setting with supporting uses for the people who work there. They can range from small parks on several acres to facilities of several hundred acres or more."

Nature trail at Garfield-Heidbreder Industrial Park, Grand Traverse County

Locating Industrial & Business Complexes

Several factors influence the location of industrial and business complexes. Industrial and business parks are ideally sited in areas with established infrastructure *(e.g., roads, water, sanitary sewer)* or where it can be easily extended. Access to transportation corridors and hubs is also critical. Proximity to established commercial and residential areas can help reduce sprawl and traffic. To accommodate this sector's size, scope, and evolving needs while protecting the region's valuable agricultural and wooded lands, communities are advised to work together to determine the best locations for development, as well as opportunities to redevelop existing sites. Today's efforts help to ensure that future developments will complement regional character and protect natural resources.

As the needs of industry continue to evolve and the focus on recruiting high-tech industries increases, separating industrial areas from other uses, as was done in the past, is neither necessary nor advantageous to the region. High-tech industries in a mixed-use development that is integrated and interconnected with a community is likely to better accommodate present and future industry needs. Communities are encouraged to revise their master plans and zoning ordinances to accommodate changes in industrial zoning to enhance the vitality and competitiveness of the community *(e.g., a reduction in land restricted to industrial development and/or permit a diversity of uses)*.

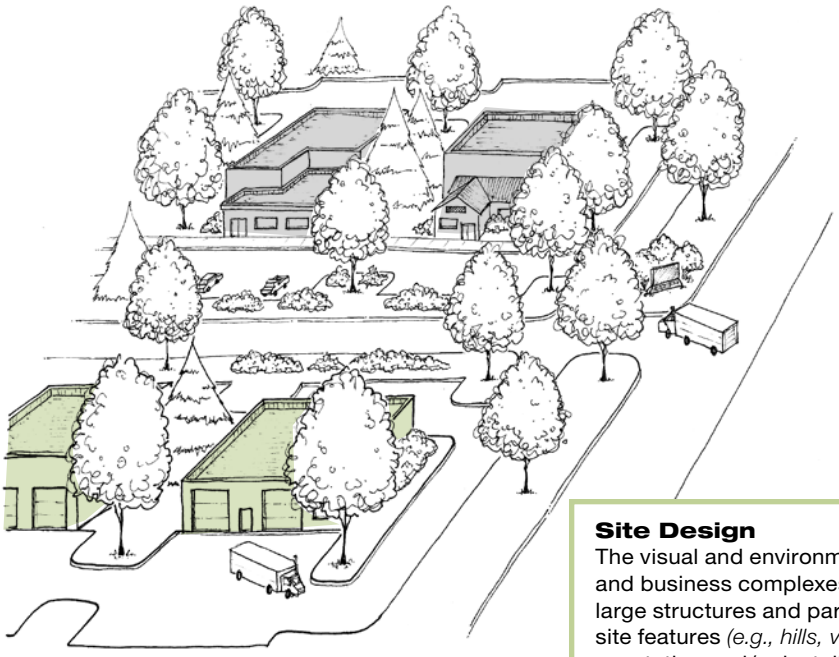
Industrial

Designing Industrial & Business Complexes

Site layout and building design is essential for enhancing the attractiveness of large structures and parking areas. By retaining desirable existing vegetation and installing site-appropriate landscaping, the visual integration of industrial developments and surrounding areas is possible.

Although the design of complexes includes many of the same characteristics as industrial buildings, the presence of multiple buildings requires greater attention to site design and to opportunities for combined facilities. The following site design elements can dramatically enhance the efficiency and aesthetics of industrial and business complexes.

Airport Industrial Park, East Bay Township, Grand Traverse County



Site Design
The visual and environmental impact of industrial and business complexes is lessened by placing large structures and parking areas among natural site features *(e.g., hills, valleys)* and retaining existing vegetation and/or installing site-appropriate landscaping. Additionally with a flexibile site design, industrial and business complexes can accommodate new buildings, changes in traffic, and subdivision of parcels. Offices, showrooms, and multi-tenant buildings located close to roads can benefit from higher visibility. Larger, more traditional manufacturing businesses sited away from roadways and accessed with a service drive minimize traffic disruptions.

Access & Circulation
Establishing common access roads for semis *(e.g., a single access road behind several buildings)* can improve safety and traffic patterns in industrial and business complexes. Whenever possible, combine access for shipping and receiving areas to enhance the overall efficiency of a complex. Refer to **Critical Design Practices:** *Site Access* for more information.

Service Elements
Service elements *(e.g., recycling, dumpsters, loading areas)* should be combined, as well as located and screened, to minimize impact on adjacent properties and roadways. A site design should provide side or rear delivery and service vehicle access whenever possible. Refer to **Critical Design Practices:** *Service Elements, Site Access, Parking*, and *Landscaping* for additional information.

Stormwater Control & Detention
In industrial complexes with multiple buildings, common drainage facilities minimize site disruptions and infrastructure costs. Refer to **Critical Design Practices:** *Stormwater Control & Detention* for additional information.

Parking
Complexes with multiple buildings, especially those with different peak use periods, present opportunities for shared parking. Refer to **Critical Design Practices:** *Parking* for specific information.

Enhancing Industrial & Business Complexes

As the five-county region's industry mix continues to change, integrating other businesses into existing industrial and business complexes can enhance their viability today and into the future. Local jurisdictions are encouraged to revise their master plans and zoning ordinances to allow support services *(e.g., daycare, restaurants)* and mixed uses, appropriately located, within industrial and business parks. This can enhance the competitiveness of these locations, as well as reduce traffic within a community and the region.

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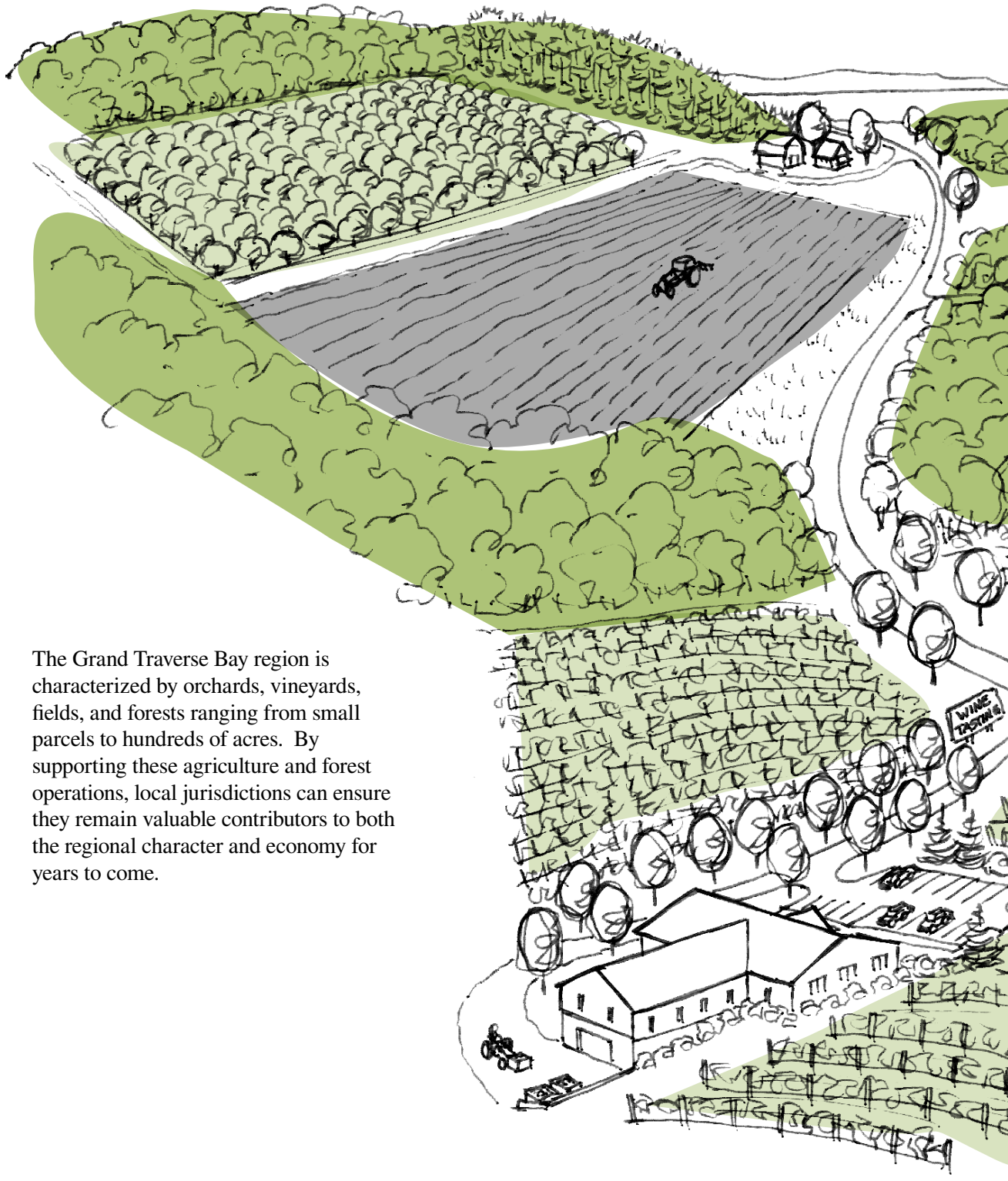
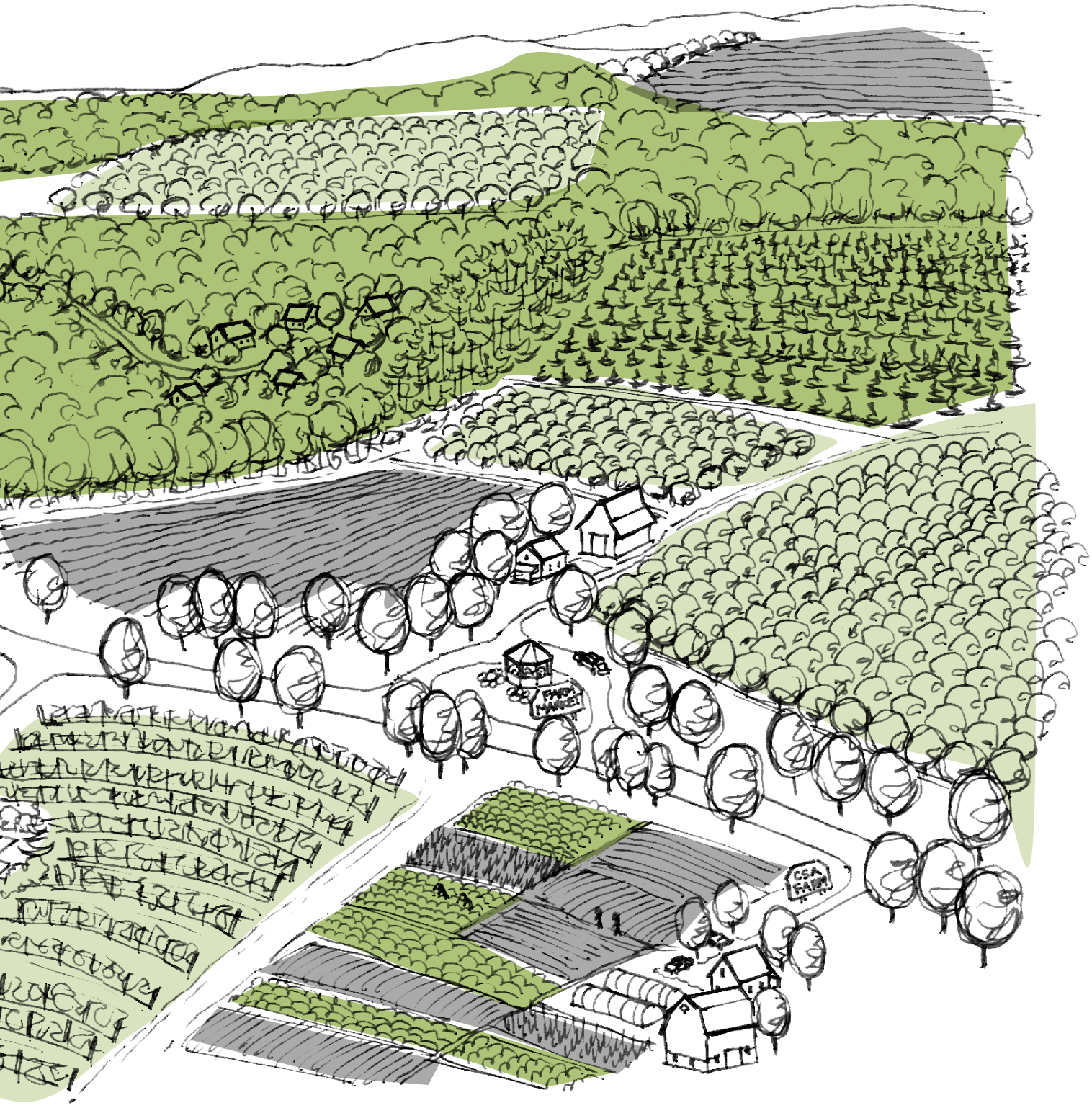
Design Guidelines

Section 5 Agriculture & Forestry

Introduction

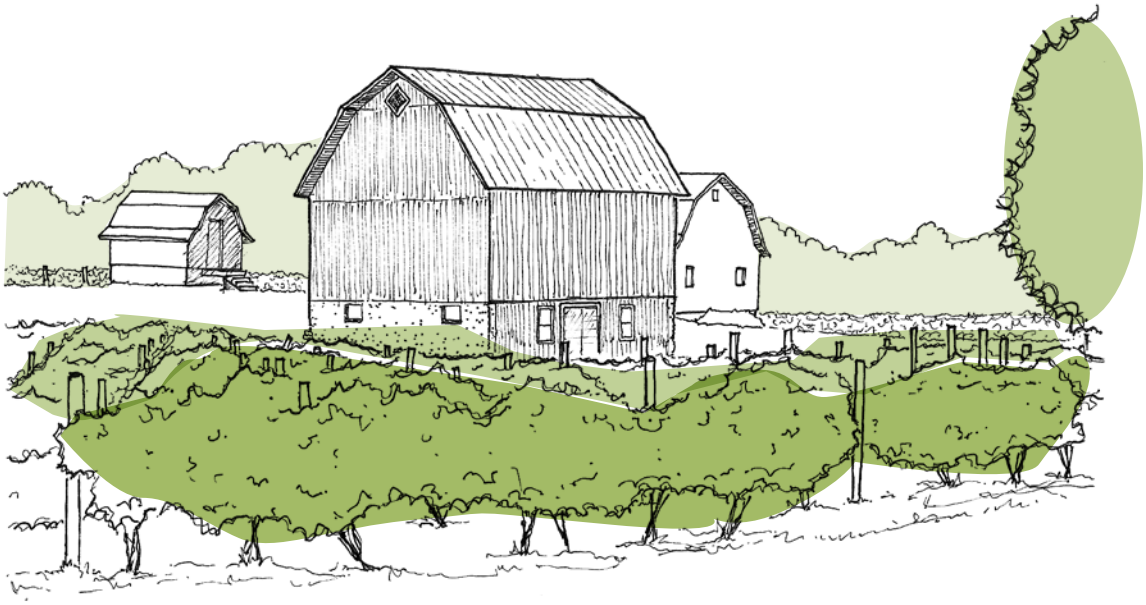


The Grand Traverse Bay region is characterized by orchards, vineyards, fields, and forests ranging from small parcels to hundreds of acres. By supporting these agriculture and forest operations, local jurisdictions can ensure they remain valuable contributors to both the regional character and economy for years to come.


FARM MARKET
CSA FARM

Overview of Agriculture & Forestry

The Grand Traverse Bay region's extensive croplands, orchards, vineyards, and forests are valuable resources, and the range of agricultural operations *(e.g., small fruit farms, family-owned dairies, large-scale agri-businesses)* contribute greatly to the regional character and economy. Protection of agricultural and forest lands is essential to the continued environmental and economic vitality of the region and state. Since orchards, vineyards, field crops, and forests require specific conditions and microclimates *(e.g., soil quality, sun exposure, air drainage),* local jurisdictions have a key role in evaluating and protecting irreplaceable sites suitable for these uses within their communities and the region. A balance of short- and long-term economic interests, as well as a balance of public and private interests, will ensure prime agriculture lands and forests remain productive for generations to come.

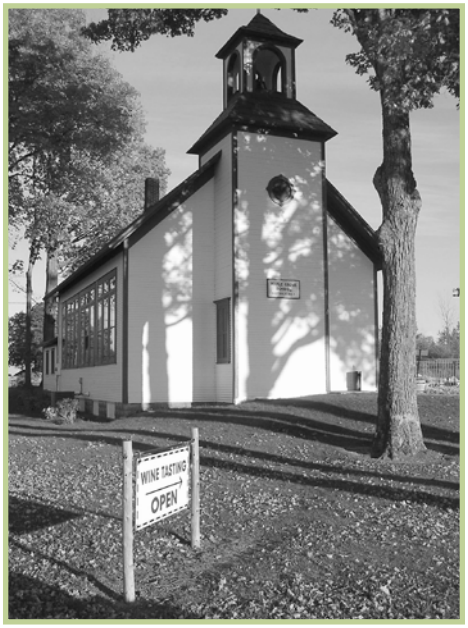


Role of Local Jurisdictions

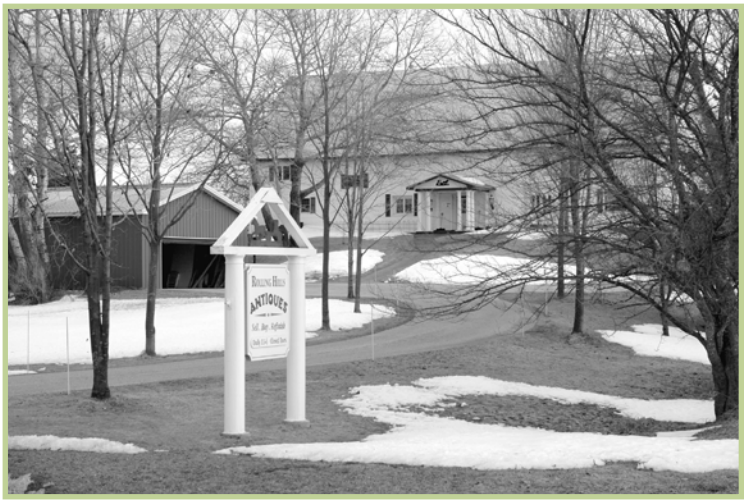
The Grand Traverse Bay region's topography, geology, and diversity of microclimates accounts for the variety of agricultural operations found within the five counties: cherry and apple orchards, vineyards, dairies, corn and soybean fields, Christmas tree farms, and stands of pines and hardwoods. Although most of the region's agriculturally zoned land could be developed into residential, commercial, or mixed-use buildings, not all of that land can support prime agriculture or forests. Local jurisdictions thus have an important role in protecting our irreplaceable agricultural resources.

Protection of the region's agriculture and forest lands typically starts with an up-to-date inventory to determine an area's most valuable resources and the identification of irreplaceable natural resources in local master plans and zoning ordinances. By promoting infill and redevelopment projects, as well as establishing overlay zones, conservation subdivision *(i.e., cluster development)* ordinances, and Purchase of Development Rights and Transfer of Development Rights programs, local jurisdictions can help alleviate development pressure on owners of agriculture and forest lands and promote a more sustainable development pattern.

The revision of zoning ordinances to allow mixed-use agriculture further supports active agriculture. Wine tasting and production, Bed & Breakfasts, value-added processes *(e.g., producing jams or pies for sale),* farm tours, Community Supported Agriculture (CSA), and roadside markets are just a few possible ways agricultural operations can generate additional income. Local jurisdictions are also encouraged to allow seemingly unconventional uses *(e.g., barns for boat storage)* in adapted or new structures within agricultural areas if the structures do not detract from the form or function of the region's rural areas. When establishing new agricultural operations, incorporation of **Critical Design Practices** guidelines will help protect the Grand Traverse Bay region's rural character and resources.



Wine tasting room in former schoolhouse, Peninsula Township, Grand Traverse County



Barn converted for antique sales, Garfield Township, Grand Traverse County

Site Design

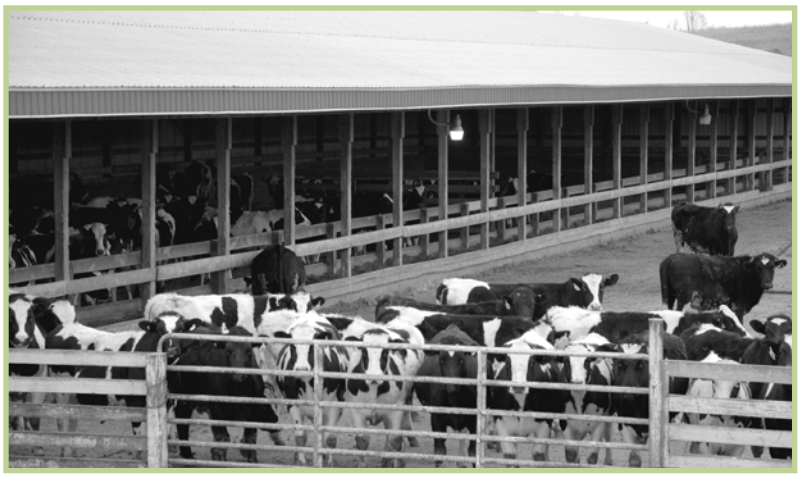
Designing Sites to Protect Agriculture & Forestry

Implementing design guidelines helps protect agricultural operations and rural character, especially when establishing new or expanding existing commercial agricultural operations. The following examples demonstrate how guidelines can be applied to these areas. Refer to **Critical Design Practices** for specific information on these and other applicable design guidelines.

Storage
Storage requirements vary significantly depending on the agricultural operation; however, buildings for machinery, equipment, and chemicals can be designed to complement the regional character. Placement, construction, and security of storage areas and/or structures should be carefully considered to protect the health and safety of humans, animals, and the environment. Refer to **Critical Design Practices:** *Building Design & Materials* for more information.

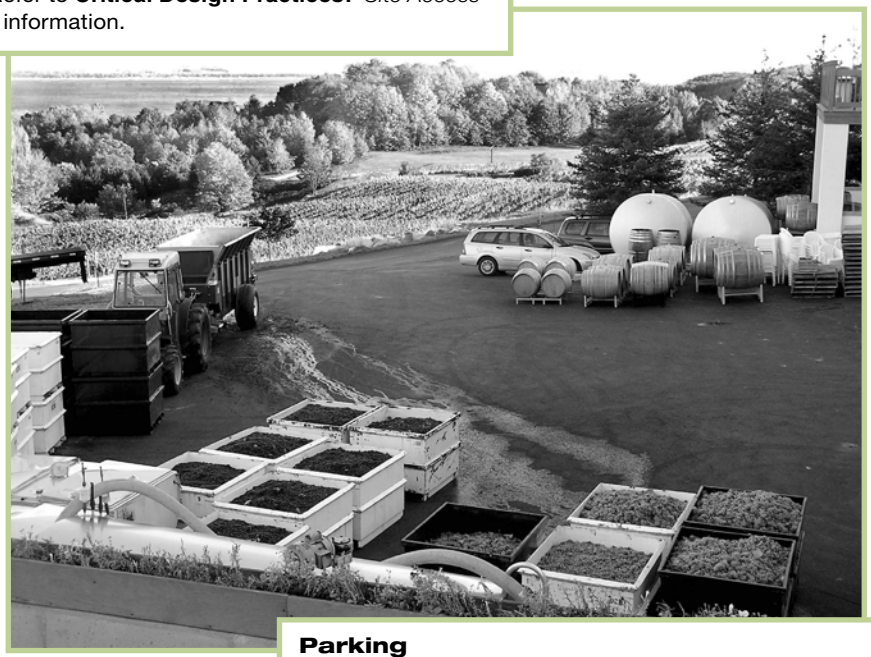
Roadside produce stand and screened operations area, Peninsula Township, Grand Traverse County

Buffering & Screening
Adequate landscaped buffers and screens minimize the impact of agricultural operations and buildings *(e.g., parking, storage, work areas)* on surrounding properties and roadways. Buffer size will vary depending on crop type, location, operations *(e.g., organic farms may not require as large a buffer)*, and adjacent land use. Maintaining a wooded buffer is critical to reducing the impact of timber harvesting on neighboring properties and the region's natural character. Refer to **Critical Design Practices:** *Landscaping* and *Streetscape* for more information.



Lighting
Appropriately designed and scaled exterior lighting can address safety concerns without disturbing adjacent properties or detracting from the region's character. Lights on buildings set on timers or movement sensors provide safety without unnecessary lighting. Refer to **Critical Design Practices:** *Site Lighting & Utilities* for specific techniques.

Access
For agricultural operations with accessory or supplementary uses that include public access to the site, a clear separation of areas *(e.g., operational, retail)* promotes safe access for public vehicles as well as operation of farm machinery. Refer to **Critical Design Practices:** *Site Access* for additional information.



Production separated from public areas, Peninsula Township, Grand Traverse County

Parking
Well-designed, safe transitions between roadways and parking areas minimize conflicts between agricultural operations and the surrounding community. Given the seasonal usage of many commercial agricultural operations, pervious paving is ideal for parking areas to preserve stormwater infiltration. Refer to **Critical Design Practices:** *Parking* for more information.

Tools & Methods

Land Conservation Tools

Local jurisdictions can implement several tools to support current and future agriculture and forestry operations including conservation subdivision ordinances, overlay districts, and Purchase of Development Rights and Transfer of Development Rights programs. These techniques provide for development while simultaneously protecting valuable natural resources – including farmlands and forests.

Buildings placed to blend into the rural landscape, Peninsula Township, Grand Traverse County

Conservation Planning
Conservation planning locates structures in compact groupings in smaller areas of a site to preserve large tracts of usable open space *(e.g., orchards, vineyards, fields, forests)* or sensitive environments *(e.g., wetlands, woodlands, steep slopes)* over the remainder of the site. By revising zoning ordinances to make clustering a use-by-right, local jurisdictions can facilitate the protection of the region's valuable natural resources and achieve more desirable and sustainable land patterns.

Agricultural landscape, Peninsula Township, Grand Traverse County

Grand Traverse Bay shoreline,
Elmwood Township, Leelanau County

Overlay Districts
An overlay district provides additional land use regulations to designated areas which exceed those established by an underlying zoning district. While the underlying zoning district identifies permitted land uses, the overlay district provides additional specifications *(e.g., design restrictions, additional setbacks)* independent of the underlying zoning. As the term suggests, overlay districts are an additional layer of protection that local jurisdictions can use to protect environmentally sensitive areas *(e.g., ridgelines, hillsides, shorelines)* or valuable agricultural or forest lands, especially those which fall within multiple zoning districts.

Land Conservation Tools *continued*

Purchase of Development Rights
Purchase of Development Rights (PDR) is a voluntary program where land owners receive financial compensation for selling a parcel's development rights to a land trust or similar agency. In return for the development value, a deed restriction is placed on a portion or entire piece of property protecting the land from future development. PDR programs provide land owners capital and ensure the protection of valuable agricultural and forest lands for future generations.

Cherry orchard, Elmwood Township, Leelanau County

Transfer of Development Rights
Transfer of Development Rights (TDR) provides local jurisdictions a regulatory tool to redirect development from farmland, forests, and open space to areas more conducive to development. TDR programs alter development patterns in a community by moving development from one area to another. As with PDR programs, a land owner receives financial compensation for the development rights of a parcel; however, with TDR programs, the development rights are transferred to another area within the community. TDR programs offer communities a method for directing development to those areas most appropriate for it, while keeping areas most suitable for agriculture, forestry, or open space available for those purposes. Refer to **Critical Design Practices:** *Open Space* for a TDR illustration.

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New Designs for Growth
Development Guidebook

Appendix

Regional Native Trees & Shrubs

Landscaping with native plants, including varieties and cultivars of native species, plays a big part in improving our rural and urban environments, protecting our natural resources, and preserving the distinctive landscape character of the Grand Traverse Bay region. Native plants are part of diverse ecological communities that have evolved over thousands of years and have adapted to the various conditions of the region. Development projects using native plants and native plant communities help to create self-sustaining, low-maintenance landscapes over time. They also help to integrate natural and designed landscapes.

Trees in particular provide a more sustainable natural filter of air and water than other plant material such as turf or shrubs. Tree canopy also contributes significantly to stormwater management: ninety (90) percent of stormwater is retained by the tree canopy with only ten (10) percent runoff.

Benefits of Using Native Species in Landscaping

- Well-adapted to the climate, geography, and soil characteristics of our region
- Typically self-sustaining and low-maintenance *(e.g., less or no watering, fertilizing, pruning)* once they are established when used in a location suited to the species
- More tolerant of pests and diseases than non-natives
- Not likely to be invasive, adapted to natural competition among other species within the ecosystem
- Valuable to natural plant diversity and ecological balance
- Generally hardier than non-natives
- Source of food and habitat for wildlife

Planting Conditions

Plants need to be suited for the conditions of the site to grow successfully. Native plants are well-adapted to our general climatic conditions, but have specific growing requirements depending on the species. Until they are established (a couple of years after planting), native plants require the same care and attention as non-natives. Selecting native plants must take into consideration both the function that the plant will serve in its location *(e.g., screening, erosion control, aesthetics)* and the suitability of the plant to the site conditions. Note that a given site may have more than one set of conditions, such as sun and shade, wet and dry. Some of the conditions that affect plant selection include:

Soil Conditions:
Sand soils – Light
Loam soils – Medium
Clay soils – Heavy

Light Conditions:
Full sun – Eight (8) or more hours
Partial sun/shade – Three (3) to eight (8) hours
Shade – Three (3) or less hours

Topography:
Low damp areas – Usually poor drainage
High areas – Potential wind problems
Retention/Detention – Areas built to have varying levels of water and provide snow storage in winter

Environmental Conditions:
Proximity to high-traffic roads
Damage from snow plows
Salt, chemical de-icers
Proximity to parking lots
Building exhaust
Artificial light
Heat reflection or absorption from asphalt, concrete, buildings
Microclimates
Prevailing wind patterns

Zone Hardiness of the Plant Material:
Locations along Grand Traverse Bay and Lake Michigan provide an opportunity to use plants that would not be hardy further inland; in fact, the five-county region of the Guidebook has six hardiness zones within its boundaries (4A - 6B). It is imperative to consider the USDA Zone Hardiness when selecting plants for the landscape.

Physical Characteristics of Plant Material:
Physical characteristics of a plant can limit its use in certain situations, for example: nut-bearing trees in parking lots may cause vehicular damage, heavy fruiting trees and shrubs may be messy along walkways and near building entrances, plants may overgrow the confines of planting beds, and plants with thorns may be hazardous in areas of heavy pedestrian traffic.

Biodiversity
When landscaping with native plants use several different varieties and species to reduce the chances of losing a large planting area to a single pest. For example, the impacts of both Dutch elm disease and emerald ash borer were magnified due to over-planting of a single plant species. Landscaping with a diversity of species is attractive, promotes wildlife habitat, and results in a more sustainable landscape.

Retention/Detention Areas
Stormwater retention and detention areas, when properly designed, prepared, and planted, can be an asset to a site rather than a utilitarian afterthought. Plants must be carefully selected to withstand the variable and sometimes difficult conditions of these areas. Those plants listed as tolerant of wet conditions are recommended for planting in stormwater retention and detention areas. Some of these plants may also be appropriate for shoreline areas along lakes and streams. If the retention/detention area is to be used for snow storage in winter, plants must be chosen that are sturdy enough to withstand having snow piled on them or that die back in the winter and reemerge in the spring. Consult a landscape professional for specific recommendations for a particular site.

Vast and ever-changing selection and availability of plant material for our area:
The plant industry is still discovering and developing new varieties of native plants; as they are introduced to nurseries they then become available to the public. Check with local nurseries and landscape professionals. A comprehensive list of local native plant species and additional information on landscaping with native plants can be obtained from:

- Soil Conservation District offices
- Michigan State University Extension offices
- Michigan Botanical Club, the native plant society for the state of Michigan, www.michbotclub.org
- Michigan Native Plant Producers Association, PO Box 14553, Saginaw, MI 48601

Regional Native Trees & Shrubs

Native Trees, Northwest Michigan

Botanical Name	Common Name	Soil Moisture	Full Sun	Partial Sun	Shade	Salt Tolerant
Abies balsamea	Balsam Fir	Moist			x	
Acer pensylvanicum	Striped Maple	Medium			x	
Acer rubrum	Red Maple	Moist		x	x	
Acer saccharum	Sugar Maple	Medium		x	x	
Amelanchier arborea	Common Serviceberry	Medium	x	x	x	
Amelanchier laevis	Allegheny Serviceberry	Medium	x	x	x	x
Betula papyrifera*	Paper Birch	Medium	x			
Carpinus caroliniana	American Hornbeam	Moist			x	
Carya ovata	Shagbark Hickory	Medium		x		
Cornus alternifolia	Pagoda Dogwood	Moist		x	x	
Fagus grandifolia	American Beech	Moist	x	x	x	
Gleditsia triacanthos	Honeylocust	Any	x			x
Hamamelis virginiana	American Witchhazel	Moist	x	x	x	
Juglans cinerea	Butternut	Moist	x			
Larix laricina	Tamarack	Medium	x			
Ostrya virginiana	Hophornbeam	Medium	x	x	x	
Picea glauca	White Spruce	Moist	x	x		
Pinus resinosa	Red Pine	Medium	x			
Pinus strobus	Eastern White Pine	Moist	x	x		
Populus deltoides*	Eastern Cottonwood	Any	x			x
Populus tremuloides*	Quaking Aspen	Moist	x			x
Prunus serotina	Black Cherry	Medium	x			
Prunus virginiana	Chokecherry	Medium	x			
Quercus coccinea	Scarlet Oak	Dry	x			
Quercus macrocarpa	Bur Oak	Any	x			
Quercus rubra	Northern Red Oak	Medium	x	x		
Quercus velutina	Black Oak	Medium		x		
Salix discolor*	Pussy Willow	Moist	x			x
Thuja occidentalis	Arborvitae	Medium	x	x		
Tilia americana	American Basswood	Moist	x	x	x	
Tsuga canadensis	Eastern Hemlock	Moist		x	x	

* Will remove heavy metal pollutants from the soil

Native Shrubs, Northwest Michigan

Botanical Name	Common Name	Soil Moisture	Full Sun	Partial Sun	Shade	Salt Tolerant
Alnus rugosa	Speckled Alder	Moist		x		
Arctostaphylos uva-ursi	Bearberry	Dry	x	x		
Aronia melanocarpa elata	Black Chokeberry	Medium	x	x		x
Ceanothus americanus	New Jersey Tea	Medium	x	x	x	
Cephalanthus occidentalis	Buttonbush	Moist			x	
Comptonia peregrina	Sweet-fern	Dry	x	x		
Cornus amomum (obliqua)	Silky Dogwood	Moist	x	x		
Cornus racemosa	Grey-twig Dogwood	Medium	x	x	x	
Cornus rugosa	Roundleaf Dogwood	Dry			x	
Cornus sericea (stolonifera)	Red-osier Dogwood	Moist	x	x		
Diervilla lonicera	Bush Honeysuckle	Dry	x	x		
Ilex verticillata	Winterberry	Moist	x	x		x
Juniperus communis	Common Juniper	Dry	x			
Juniperus horizontalis	Creeping Juniper	Moist	x			
Mitchella repens	Partridgeberry	Medium			x	
Physocarpus opulifolius	Ninebark	Medium	x	x		
Potentilla fruticosa	Shrubby cinquefoil	Any	x			x
Rhus typhina	Staghorn Sumac	Medium	x			x
Ribes americanum	Wild Black Currant	Medium	x	x	x	
Ribes cynosbati	Prickly Gooseberry	Medium	x	x		
Rosa palustris	Swamp Rose	Moist		x	x	
Salix exigua (interior)	Sandbar Willow	Medium	x	x		
Sambucus canadensis	Elderberry	Medium	x			x
Sambucus racemosa	Red-berried Elder	Moist		x		
Spiraea alba	Meadowsweet	Medium		x		
Symphoricarpos albus	Snowberry	Dry	x	x		
Taxus canadensis	Canadian Yew	Medium		x	x	
Viburnum cassinoides	With-rod Viburnum	Medium		x	x	
Viburnum lentago	Nannyberry	Medium		x	x	x
Viburnum trilobum (opulus v. amer.)	American Highbush Cranberry	Moist	x	x		x

Glossary

The following land use planning terms appear throughout the *New Designs for Growth Development Guidebook*, and definitions are provided for clarification and reference purposes. Some definitions are taken directly or adapted from land use planning resources; please refer to the endnotes for a list of sources.

ADA: The Americans with Disabilities Act, signed on July 26, 1990, is wide-ranging legislation intended to make buildings and spaces that serve the public accessible to people with disabilities.

Accessory Dwelling (*i.e., Ancillary Unit, Granny Flat, Second Unit)*: A year-round housing unit with cooking facilities, sanitary facilities, and an independent means of access – either attached to a single-family unit or located on the same lot as a single-family unit.[1]

Adaptive Reuse: A process that adapts existing buildings for new uses while retaining their architectural character.

Alley (*i.e., lane*): A narrow service way, either public or private, which provides a permanently reserved but secondary means of public access not intended for general traffic circulation. Alleys are typically located along rear property lines.[2]

Agricultural Land: Land devoted to the production of livestock, dairy animals, dairy products, poultry, poultry products, nursery plants; Christmas trees; forages and sod crops; grains and feed crops; and other similar uses and activities, including equestrian activities.[3]

Arterial: Medium-speed, medium-capacity roadway that provides intra-community travel and access to the regional highway system. Access to community arterials should be provided at collector roads and local streets, but direct access from parcels to existing arterials is common.[2]

Articulation: Emphasis on architectural elements (*e.g., windows, balconies, entries*) that create a complementary pattern, dividing large buildings into smaller identifiable pieces.[4]

Base District (*i.e., underlying*): The zoning district mapped for a specific location.[5]

Bicycle Lane: A portion of the roadway designated by striping, signs, and pavement marking for the preferential or exclusive use by bicyclists.

Biofiltration: A pollution control technique using living material to filter or chemically process pollutants. Common uses include processing waste water, capturing harmful chemicals or silt from surface runoff, and microbiotic oxidation of contaminants in air.

Blank Wall: An exterior building wall with no openings and generally constructed of a single material, with a uniform texture, and on a single plane.[1]

Bollard: A short, vertical post frequently used to control traffic or define pathways.

Boulevard: A major road with a planted median in the center of two cartways, with parkways on both outside edges.[1]

Brownfield Development: The remediation and/or rehabilitation of property in order to restore contaminated, abandoned, idled, or under-used sites, making them available for productive uses.

Buffer: An area within a property or site, typically adjacent to and parallel with the property line, either consisting of existing natural vegetation or created by the use of trees, shrubs, berms, and/or fences, and designed to limit views and sounds from the development tract to adjacent properties and vice versa.[1]

Build-To Line: An alignment which dictates the front yard setback from a street or public right-of-way, to be followed by buildings or structures fronting thereon. The build-to line does not apply to building projections or recesses.[1]

Build-Up Line: An alignment which dictates the average height of a structure's cornice line or roof edge line on a street or space.[1]

Building Massing: The volume or three-dimensional shape of a structure including sides, roofs, and the size of the base/footprint. Building mass shows the expected range of base size and will also reflect the style of the structures.[1]

Building Design: How buildings can be made to serve their purposes, be visually appealing, and better fit into their settings.[4]

Building Envelope: The horizontal and vertical space on a property that is occupied by a building. Typically regulated by a combination of floor area ratios, maximum lot coverages, and height limitations.[2]

Building Scale: The relationship between the mass of a building and its surroundings, including the width of streets, open space, and mass of surrounding buildings.[1]

Business Improvement Districts (*i.e., downtown improvement districts, special improvement districts, special assessment districts*): A means to maintain the value of property in a neighborhood by improving public services beyond what the local jurisdiction can provide. The members of the Business Improvement Districts (BID) authorize the city to levy additional taxes on its members, who are obligated to pay them. The BID then uses the revenues to provide the needed services.

Capital Improvements Program (CIP): A management tool used in conjunction with a master plan to establish a schedule or program for capital improvements over and above operating expenses to be done in a community according to a prioritized sequence. This tool helps a community manage the direction and pace of development by phasing land development with associated infrastructure development (*e.g., sanitary and storm sewers, water lines, roads*).

Cartway (*i.e., lane)*: The surface of a street, road, or alley available for vehicular traffic.

Center Island Narrowings (*i.e., midblock medians, median slowpoints, median chokers)*: Raised islands located along the centerline of a street that narrow the travel lanes at a specific location. Center Island Narrowings are often landscaped to provide a visual amenity, and they are often referred to as Gateway Islands when located at a neighborhood entrance and combined with textured pavements. If fitted with a gap to allow pedestrians to walk through at crosswalks, they are known as Pedestrian Refuges. Center Island Narrowings are useful for entrances to residential areas and wide streets where pedestrians need to cross.[6]

Chicanes (*i.e., deviations, serpentines, reversing curves, twists)*: Curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Chicanes can also be created by alternating on-street parking, either diagonal or parallel, between one side of the street and the other. Chicanes are ideal for locations with substantial speed problems but where noise associated with speed humps and related measures would be unacceptable.[6]

Chokers (*i.e., pinch points, midblock narrowings, midblock yieldpoints, constrictions)*: Curb extensions at midblock locations that narrow a street by widening the sidewalk or planting strip. If marked as crosswalks, they are also known as safe crosses. Two-lane chokers leave the street cross-section with two lanes that are narrower than the normal cross-section. One-lane chokers narrow the width to allow travel in only one direction at a time, operating similarly to one-lane bridges. Chokers are ideal for areas with substantial speed problems and sufficient on-street parking.[6]

Collector: A relatively low-speed and low-volume street that provides circulation within and between neighborhoods. Collectors usually serve short trips and are intended for collecting autos from local streets and distributing them to the arterial network.[2]

Concurrency: A pay-as-you-go approach that ensures public facilities and services are available at the same time as development.

Condominium: A structure of two or more units, the interior spaces of which are individually owned; the balance of the property, both land and building, is owned in common by the owners of the individual units.[2]

Conservation Easement (*i.e., agricultural preservation easement, historic preservation easement, scenic easement, forever wild easement*): A legally binding agreement between a property owner and a land trust for the sale of the property's development rights. In return for the donated or sold development rights, a land trust agrees to ensure the terms of the conservation easement are followed through monitoring the parcel, enforcing the easements terms, and providing long-term stewardship. Easements are drafted to meet the specific needs of a property owner while adhering to the minimum requirements of a land trust.

Glossary

Conservation Planning: Locating structures in compact groupings in small areas of a site to preserve large tracts of usable open space *(e.g., orchards, vineyards, fields, forests)* or sensitive environments *(e.g., wetlands, woodland, steep slopes)* over the remainder of the site.

Conservation Subdivisions (*i.e., cluster subdivision*): An alternative to conventional residential lot designs. Designers identify land resources (*e.g., scenic views, steep slopes, riparian areas*) worthy of conservation, then design development in a way that respects and preserves the resources identified. Conservation subdivisions are similar to golf course communities, but open space protection rather than golf course recreation is the objective.[7]

Context: The character of the buildings, streetscape, and neighborhood which surround a given building or site.[1]

Context-Sensitive Street Design (CCSD): An approach that blends roadway planning, design, and operation with the context of adjacent uses of land. CCSD keeps traditional street design objectives for safety, efficiency, and capacity, while emphasizing compatibility, livability, walkability, sense of place, urban design, and environmental impacts. CCSD considers access for alternative modes of transportation, such as bicycling, walking, and transit, as well as environmental, scenic, aesthetic, historic and community impacts of street projects.[7]

Cornice: The top part of an entablature, usually molded and projecting.[1]

Covenants, Conditions, and Restrictions (CC&Rs): Restrictive limitations that may be placed on property and its use. Usually they are a condition of holding a title or lease.[2]

Convenience Goods: Retail items generally necessary or desirable for everyday living, usually purchased at a convenient nearby location. Because these goods cost relatively little compared to income, they are often purchased without comparison shopping.[2]

Cul-de-sac: A short street or alley with only a single means of ingress and egress at one end and with a turnaround at the other end.[2]

Deed Restrictions: A restriction on the use of land usually set forth in the deed. Restrictive Covenants usually run with the land and are binding upon subsequent owners of the property; however, some restrictive covenants run for specific periods of time. Deed restrictions include private preserves (*e.g., estates, commons, churches, camps*) and public preserves (*e.g., park lands, lake shores, forests, natural areas that are owned by federal, state, and local government or non-profits*).

Density: The number of permanent residential dwelling units per acre of land. Densities specified in a community's master plan may be expressed in units per gross acre or per net developable area.[2]

Designated Open Space: Open space that is designated within a conservation subdivision to be placed under a conservation easement permanently restricting future development.[3]

Destination Retail: Retail businesses that generate a special purpose trip and that do not necessarily benefit from a high-volume pedestrian location.[2]

Developable Area: All land in a proposed subdivision not defined as undevelopable due to environmental conditions or in ordinances adopted by a community.[3]

Development: An activity other than agricultural, forestry, or mining practices which materially alters or affects the existing condition of any land use.[3]

Double-Loaded: A street in which the parcels are located and accessed along both sides.[2]

Downtown Development Authority (DDA): A public/private entity devised to plan and finance revitalization and redevelopment of a central business district. Frequently a DDA finances infrastructure and public facility improvements (*e.g., streetscape improvements*).

Downzoning: The reduction of density previously allowed.

Drip Line: An imaginary circle that could be drawn on the soil around a tree directly beneath the tips of its outermost branches. A tree's roots usually extend well beyond the drip line.

Dwelling Unit: A room or group of rooms including sleeping, eating, cooking, and sanitation facilities that constitutes an independent housekeeping unit, occupied or intended for occupancy by one household on a long-term basis.[2]

Egress: A place for or means of exiting.

Elevation: A representation or drawing of the exterior façade of a structure, its head-on view, used primarily for construction.[1]

Emerging Centers: Relatively fast-growing districts located near transit corridors that will accommodate much of a region's growth. They feature a mix of commercial, community-based, and residential uses. Strategies emphasize planning concepts to successfully accommodate higher densities and mixed-use development within compact areas.[4]

Entablature: A horizontal part in classical architecture that rests on the columns and consists of architrave, frieze, and cornice.

Environmental Constraints: Features, natural resources, or land characteristics that are sensitive to improvements and may require conservation measures or the application of creative development techniques to prevent degradation of the environment, may require limited development, or, in certain instances, may preclude development.[1]

Façade: A building face or wall.[1]

Fascia: A projecting flat horizontal member or molding, also part of a classical entablature.[1]

Fenestration: The arrangement, proportioning, and design of windows and doors in a building.[2]

Floor Area Ratio (FAR): The gross floor area permitted on a site divided by the total net area of the site, expressed in decimals to one or two places. Commonly used in zoning, FARs typically are applied on a parcel-by-parcel basis as opposed to an average FAR for an entire land use or zoning district.[2]

Footcandle: A unit of luminance – the measure of the intensity of light falling on a surface, equal to one lumen per square foot ($lmft^2$) and originally defined with reference to a standardized candle burning at one foot from a given surface. Lux is an international metric unit of luminance. One lux is equal to one lumen per square meter (lm/m^2).

Forestry: The art and science of cultivating, maintaining, and developing forests.

Form-Based Codes: A land development tool which places primary emphasis on the physical form (*i.e., building type, dimensions, parking location, façade features)* in order to produce a specific type of "place" and less emphasis on a structure's use. Form-based codes stress the appearance of the streetscape or public realm through specifying building height, orientation, and elements (*e.g., windows, doors*). Land use is addressed through broad parameters that can better respond to market economics, while still prohibiting undesirable uses.

Gateway: A physical or geometric landmark that indicates a change in environment from a higher speed arterial or collector road to a lower speed residential or commercial district. They often place a higher emphasis on aesthetics and are frequently used to identify neighborhood and commerical areas within a larger urban setting. Gateways may be a combination of street narrowing, medians, signs, archways, roundabouts, or other identifiable features. Gateways are meant to be an introduction; slower speeds on the rest of the street need to be maintained using other traffic-calming features.

Greenfield: Areas without development typically at the urban or suburban fringe.

Greyfield: Unutilized structures and infrastructure in already built areas, frequently commercial shopping centers.

Gross Density: The average number of dwelling units per acre inclusive of public streets and other public rights-of-way.[2]

Hamlet: A small, compact cluster of buildings, primarily residential and usually located at a crossroad. Typically a hamlet has clearly defined edges, is surrounded by open space or agricultural land, and lacks public infrastructure – specifically sewer and water. Its size and compactness make a hamlet pedestrian friendly.

Heat Island: A microclimate in which the air temperature is slightly higher than in the surrounding area. In an urban heat island, the temperature in the city is typically one (1) to two (2) degrees Celsius higher than in the rural area around it.

Highway: A main public road, especially one connecting cities, towns, and villages.

Glossary

Home Occupation: A commercial activity conducted solely by the occupants of a particular dwelling unit in a manner incidental to residential occupancy.[2]

Homeowner's Association (*i.e., condominium association, property owners association, townhouse association, site condominium association*): A formally constituted non-profit association or corporation made up of the property owners and/or residents of a development for the purpose of owning, operating, and maintaining common open space and facilities.[3]

Human Scale: The relationship between the dimensions of a building, structure, street open space, or streetscape element and the average dimensions of the human body.[1]

Incentives: Methods (*e.g., bonus densities, tax increment financing, tax credits, infrastructure subsidies, a streamlined review process*) for communities to achieve their development goals. Incentives can be more strongly and effectively accomplished through updated zoning provisions such as those that offer a combination of density bonuses for sensitive land-conserving layouts and also density disincentives to discourage conventional land-consuming layouts. Incentives can also be provided for energy conservation improvements.

Industrial Use: The manufacturing, production, and processing of consumer goods. Industry is often divided into "heavy industrial" uses (*e.g., construction yards, quarrying, factories*) and "light industrial" uses (*e.g., research and development, warehousing, less intensive manufacturing*).[2]

Infill: Development of vacant land (usually individual lots or left-over properties) within areas that are already largely developed.[2]

Infrastructure: Public services and facilities (*e.g., sewage-disposal systems, water-supply systems, other utility systems, roadways*).[2]

Ingress: A place for or means of entering.

Internal Open Space: A component of common open space, comprising one or more parcels with a distinct geometric shape and bounded by streets with curb side parking on at least fifty (50) percent of the perimeter.[1]

Land Division: Michigan's Land Division Act, Public Act 288 of 1967 as amended in 1996, provides private land owners the right to subdivide their land. The division of large parcels of land frequently contributes to sprawling, fragmented development patterns; loss of renewable resource lands and rural character; and potential conflicts between incompatible land uses on neighboring properties. Newly created parcels must meet the minimum standards of the zoning district, and local jurisdictions can ensure that setbacks, road frontage, and lot size are met.

Level of Service: A scale that measures the amount of traffic a roadway may be capable of handling between or at intersections. Levels range from A to F, with A representing the highest level or best service.[2]

Linkage: A line of passage (*e.g., pathway, arcade, bridge, lane*) linking two or more areas or neighborhoods which are either distinct or separated by a physical (*e.g., railroad, roadway*) or natural feature (*e.g., river, stream, lake*).[1]

Main Street *(i.e., commercial area*): A street containing a mix of uses.[1]

Massing: The three-dimensional bulk of a structure: height, width, and depth.

Mitigation Measure: A strategy that reduces the impact on the environment through the application of programs and other mechanisms. Associated with environmental analysis and documents.[2]

Mixed-Income Housing: The provision of housing for those with a broad range of incomes. Most housing developments are currently built with a single type of 'product' for a specific target market. This separates people not only by income, but often by race and age. Mixed-income housing refers to a host of housing strategies that provide a broader range of housing types and price ranges.[7]

Mixed-Use: Development that includes two or more different land uses (e.g., *residential, office, retail, civic, institutional*) that are functionally and physically integrated. Building residential units above ground-level commercial space is a frequent type of mixed-use.[7]

Modulation: A measured and proportioned inflection or setback in a building's façade.[4]

Neckdowns (*i.e., nubs, bulbouts, knuckles, intersection narrowings, corner buldges, safe crosses*): Curb extensions that reduce the roadway width from curb to curb. They "pedestrianize" intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. They also tighten the curb radii at the corners, reducing the speeds of turning vehicles. Neckdowns are good for intersections with substantial pedestrian activity and areas where vertical traffic calming measures would be unacceptable because of noise considerations.[6]

Net Density: The number of dwelling units in relation to the total land area proposed to be used for residential purposes, not including rights-of-way, interior parking areas, access drives, private streets, sidewalks, common open space, and public or semi-public parks and playgrounds. This can also apply to the specific lot on which a building(s) is sited. It can be measured in dwelling units per acre (DU/A) or Floor Area Ratio (FAR).[1]

New Communities: Rapidly growing residential areas outside existing cities and towns but inside urban growth boundaries. Strategies are directed to reduce sprawl by creating more pedestrian-oriented, cohesive, and land efficient new residential communities.[4]

Non-Point Source Pollution: The introduction of impurities into a surface-water body or an aquifer, usually through a non-direct route and from sources that are diffuse in nature. Typically non-point source discharges are intermittent, associated with a rainfall or snowmelt event, and occur less frequently and for shorter periods of time than do point source discharges. Non-point sources of pollution are often difficult to identify, isolate, and control.[8]

Office Use: The use of land for general business, medical and professional, administrative, or headquarter offices.[2]

Open Space: Land used for agriculture, forestry, natural habitat, pedestrian corridors, and/or recreational purposes that is undivided and protected from future development.[3]

Overlay Districts: Apply similar regulations over a large area already containing a number of zoning districts in order to address a common issue. For example, overlay districts can be used to protect watersheds, viewsheds, or historical areas; delineate agricultural preserve areas; or designate sending and receiving zones for a Transfer of Development Rights program. Overlay districts also offer a simple way to establish mixed-use development within the confines of conventional zoning. Overlay districts can fill gaps where standard controls are ineffective.[5]

Parcel: A lot or contiguous group of lots in single ownership or under single control, usually considered a unit for purposes of development.[2]

Parkway: A planting area located within the public right-of-way, typically located between the curb and the sidewalk, and planted with ground cover and trees.[1]

Planned Unit Development (*i.e., Site Condominiums, Clustering, Special Use Permits***)**: Allows landowners to construct housing, streets, and residential amenities in close proximity in order to protect valuable natural resources on the majority of a site. The dedicated open space often is used for agricultural or recreational purposes, as well as natural habitat. Ownership of the open space may be joint, common, or by a sole proprietor depending on how the project is developed. An advantage to Planned Unit Developments (PUD) is that infrastructure (*e.g., roads, water, sewer, utilities*) does not need to be extended throughout the site, thereby decreasing development costs. PUDs also allow for flexible site design and a mix of uses.

Point-Source Pollution: A polution that can be traced back to a single origin or source such as a sewage treatment plant discharge.

Primary Conservation Area: Lands identified in the resource inventory and subdivision application as having important natural values that should be permanently protected such as wetlands, floodplains, steep slopes, unique habitat, productive agricultural soils, and forested lands.[3]

Proportion: The relationship or ratio between two dimensions (*e.g., width of a street to the height of building wall, width to height of a window*).[1]

Public Sidewalk: A paved path provided for pedestrian use and usually located at the side of a road within a right-of-way. In residential areas it is typically separated from the cartway by a parkway.[1]

Public Viewshed: That which is reasonably visible, under average conditions, to the average observer located on any public land or right-of-way, or on any semi-public or private space which is normally accessible to the general public.[1]

Glossary

Purchase of Development Rights (PDR): A method for compensating landowners for selling a part of their property rights in order to limit future non-agricultural development of the land. Landowners are compensated for the fair market value of their land, based on the difference between what it could be sold for on the open market without restrictions and what it can be sold for once an easement is placed on the land. In 1994, Peninsula Township, Grand Traverse County established the first locally funded Purchase of Development Rights program in the Midwest.

Raised Crosswalks (*i.e., raised crossings, sidewalk extensions)*: Speed tables outfitted with crosswalk markings and signage to channelize pedestrian crossings, thereby providing pedestrians with a level street crossing. By raising the level of the crossing, pedestrians are more visible to approaching motorists. Raised crosswalks are good for locations where pedestrian crossings occur at haphazard locations and vehicle speeds are excessive.[6]

Reduced Parking Standards: Reducing the number of parking spaces involves two main techniques. 1) Reduce parking requirements which mandate a certain amount of parking. These requirements often require too many spaces but can be retooled to reduce spaces, provide flexibility for TOD, or change from minimum to maximum ratios. 2) Encourage shared parking: users of nearby facilities share the same parking spaces at different times. For example, a church, which generally needs parking on Sunday mornings, could share parking spaces with a movie theater, which needs parking spaces in the evenings. Shared parking can also apply to better use of on-street parking spaces.[9]

Residential Use: Land designated for buildings consisting of dwelling units.[2]

Retail Use *(i.e., commercial use)*: A land use classification that permits facilities for buying and selling of commodities and services.[2]

Riparian: Relating to, living, or located on the bank of a natural watercourse (*e.g.,* river) or lake.

Roundabouts (*i.e., rotaries)*: A road design that requires traffic to circulate counterclockwise around a center island. Unlike traffic circles, roundabouts are used on higher volume streets to allocate right-of-way between competing movements. Roundabouts can moderate traffic speeds, enhance safety, and minimize traffic congestion near intersections.[6]

Rural Areas: Areas of forests, fields, and agriculture outside urban growth boundaries.[4]

Secondary Conservation Areas: Lands identified in the resource inventory and subdivision application as lands that complement or provide a buffer to the primary conservation areas or provide additional open space or recreational lands.[3]

Shared Parking: Patrons of nearby facilities use the same parking areas at different times. Some shared parking plans may be formulated by local redevelopment organizations, business improvement districts, or by large institutions like universities or hospitals.[9]

Sight Distance: The length of highway visible to a driver. A safe sight distance is the distance needed by a driver to verify that the road is clear and avoid conflicts with other vehicles, bicyclists, and pedestrians.

Sight Triangle: An area at a road intersection that should remain free of obstructions that might block an approaching driver's view of potentially conflicting vehicles.

Sign: Illustrates, by its shape and graphics, the nature of the business conducted within.[1]

Single-Family Dwelling Unit: A dwelling unit occupied or intended for occupancy by only one household. It can be detached from or attached to another dwelling unit.[2]

Single-Loaded: A street in which the parcels are located and accessed only along one side.[2]

Site Planning: The arrangement of elements on the site to achieve the site's purposes, better use natural assets, and increase compatibility with neighbors.[4]

Speed Humps (*i.e., road humps, undulations*): Rounded, raised areas placed across the roadway. Speed humps are generally ten (10) to fourteen (14) feet long in the direction of travel, making them distinct from the shorter "speed bumps" found in many parking lots, and are three (3) to four (4) inches high. The profile of a speed hump can be circular, parabolic, or sinusoidal. Speed humps are often tapered where they reach the curb to allow unimpeded drainage. Speed Humps are good for locations where very low speeds are desired and reasonable and noise and fumes are not a major concern.[6]

Speed Tables *(i.e., trapezoidal humps, speed platforms)*: Flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields give speed tables higher design speeds than Speed Humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction. Speed tables are good for locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles. [6]

Street Furniture: Functional elements of the streetscape, including but not limited to benches, trash receptacles, planters, telephone booths, kiosks, sign posts, street lights, bollards, and removable enclosures.[1]

Streetscape: The built and planted elements of a street that define its character.[1]

Structural Soil: A mixture of soil and aggregates that provides a stable foundation for paved surfaces while also providing an environment conducive to plants' long-term root growth.

Sustainable Development: Development that meets current needs without compromising the ability of future generations to meet their own needs.

Tax Increment Financing (TIF): Permits local governments to target increases in local property tax revenues for the support of particular development activities. Typically, local bonds are issued to finance infrastructure improvements for a particular project, and the enhanced tax revenues over time are used to pay the reduced bond interest and to retire the bonds.[10]

Telecommute: A work mode where individuals perform job requirements for part or all of the work week at off-site facilities, such as private residences or satellite centers, thereby reducing vehicle trips or vehicle miles traveled. [2]

Textured Pavements (*i.e., cobblestone, brick pavement, stamped pavement)*: The use of stamped or alternate paving materials to create an uneven surface for vehicles to traverse. They may be used to emphasize either an entire intersection or a pedestrian crossing and are sometimes used along entire street blocks. Textured pavements are good for "main street" areas where there is substantial pedestrian activity and noise is not a major concern.[6]

Townhouse (*i.e., Townhome)*: A one-family dwelling in a row of at least three such units in which each unit has its own front and rear access to the outside. No unit is located over another unit, and each unit is separated from any other unit by one or more common and fire-resistant walls. Townhouses usually have separate utilities; however, in some condominium situations, common areas are serviced by utilities purchased by a homeowners association on behalf of all townhouse members of the association.[2]

Traditional Neighborhood Development *(i.e., neotraditional development, new urbanism):* Neighborhoods designed to resemble pre-automobile neighborhoods. Traditional Neighborhood Development (TND) uses planning and urban design techniques to build compact urban neighborhoods with mixed uses, a network of narrower, connected streets; greenspace (*e.g., town squares, central greens*); a mix of housing types; shallower building setbacks so dwellings and businesses frame the street; and improvements that favor the pedestrian more than the automobile. TND is distinguished from conventional zoning regulations because it places more emphasis on the physical arrangement of buildings and spaces, as well as on more fine-grained mixes of land uses.[7]

Transfer of Development Rights (TDR): The allocation of development rights assigned to a parcel of land to another parcel within the same jurisdiction. TDR can be used to preserve the land resource in one area from development while adding to a center (*i.e., hamlet, village, town, city*) by transferring that density where it may defray infrastructure and service costs.

Transit: The conveyance of persons or goods from one place to another by means of a local transportation system (typically a public system).[2]

Transit Oriented Development (TOD): Land development within a ¼ to ½ mile distance from transit stations and bus corridors. TODs seek to provide direct pedestrian access from the development to transit.[7]

Trip: A one-way journey that proceeds from an origin to a destination via a single mode of transportation; the smallest unit of movement considered in transportation studies. Each trip has one "production end" (*i.e., origin*) and one "attraction end" (*i.e., destination*).[2]

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Trip Generation: The dynamics that account for people making trips in automobiles or by means of public transportation. Trip generation is the basis for estimating the level of use for a transportation system and the impact of additional development or transportation facilities on an existing, local transportation system. Trip generations of households are correlated with destinations that attract household members for specific purposes.[2]

Undevelopable Area: Lands in a proposed subdivision that are restricted from development due to environmental conditions, such as steep slopes or the presence of wetlands or waterways, or lands restricted from development under local ordinances.[3]

Urban Growth Boundary (UGB): The legal boundary that distinguishes those areas that can be developed (those inside the boundary) from those that cannot (those outside). A UGB simultaneously preserves open space and encourages more compact development. One result is that property values inside the UGB tend to rise while those outside tend to fall.[10]

Urban Service Area: A technique used to either direct new development to areas where facilities and services already exist or to phase in the location, timing, and extent of development in designated geographic areas for the future. This approach offers an efficient use of infrastructure, as well as discourages development in areas without adequate services.

Use: The purpose for which a lot or structure is or may be leased, occupied, maintained, arranged, designed, intended, constructed, erected, moved, altered, and/or enlarged in accordance with zoning ordinance and master plan land use designations.[2]

Vernacular Landscape Style: A landscape style of, relating to, or characteristic of a period, place, or group; especially of, relating to, or being the common style of a period or place.

Village: Larger than a hamlet but still a small, compact, pedestrian-friendly community. Like a hamlet, it has clearly defined edges, is surrounded by open space, and offers the character and scale that give it the feeling of community. It has a greater mix of uses, with more commercial, than a hamlet. In Michigan, one of the strongest defining elements of a village is that it has its own municipal government, which provides additional services to its residents. A larger village incorporates several smaller neighborhoods which gives further support to regional character.[11]

Zero Lot Line: A detached single family unit distinguished by the location of one exterior wall on a side property line.[2]

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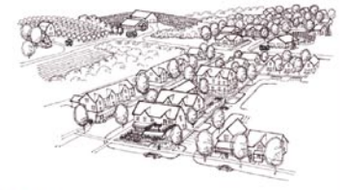

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