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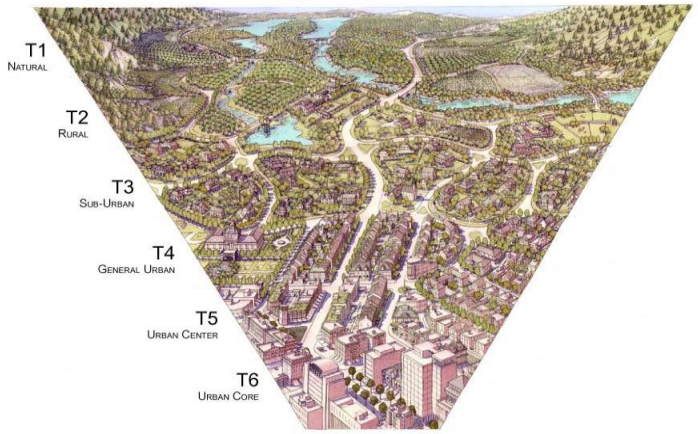
Good form is a key attribute of livability. Good form is development that is consistent with centuries' old principles of human-scale development. Traditional, walkable neighborhoods (that may be historic) are one example of good form in urban neighborhoods. Good form and appropriate land uses/functions leads to social opportunity and good activity which leads to a positive emotional response, which when felt in common among many people is a strong sense of place. This sense of place leads to satisfaction, and attracts not only people, business, and activity (like entertainment), but is critically important in talent attraction and retention. The concentration of talented workers in an area serves to bring new businesses and prosperity follows.

Form is different depending on the location along the transect, a concept drawn from ecology that is a progression through a sequence of habitats (e.g. wetland, upland, foothill). Ecologists use the transect to describe the relationship between sets of mineral conditions, microclimate, flora, and fauna. The rural-to-urban transect (see image at right) extends this classification system to include a sequence of human habitats of increasing density and complexity, from the rural hinterland to the urban core. Transportation, landscaping, buildings, setbacks, and all the myriad details of the human habitat vary across the transect. What matters is not whether the transition between transect zones is made gradually or abruptly but rather whether the details of each transect zone are internally consistent and therefore mutually supportive.

Good form is based on neighborhood, block, building, and street design standards. The road right-of-way is more than a transportation thoroughfare; it is a significant public investment that provides a host of public services for both public and private interests. Streets interact with buildings to create a public space and at the proper scale, this interaction creates an "outdoor room." Good street form is human-scaled and includes a transportation network for multiple types of users. Block lengths are manageable by pedestrians and include a mix of uses including parks and civic spaces.

Buildings made with good form match the right use (e.g., housing, commercial, civic), with the right building type (e.g. single detached, row house, live/work), mass (e.g., width, height, depth), placement (e.g., fronts the right-of-way with parking behind), and appropriate character for the transect area. Good form capitalizes on the importance of unique assets. It maximizes those assets and works off of them to create Quality Places that people want to live, work, play, and learn in. All of these elements are presented in the following techniques.

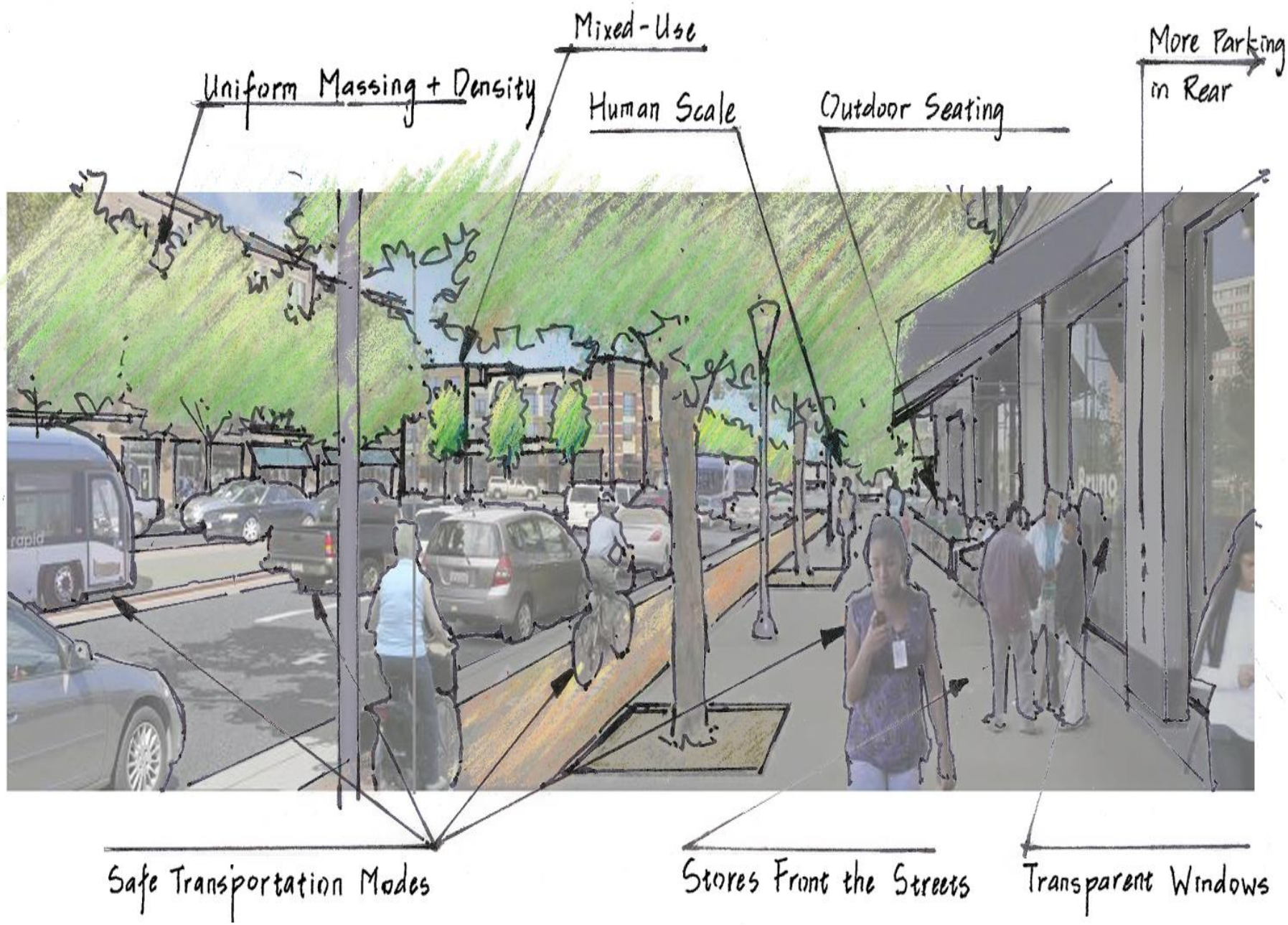


Graphic source: Duany Plater-Zyberk & Company.

Reimagining communities to be compact and more dense in locations with adequate public services, allows for the effective use of transit and non-motorized facilities for routine travel. This maximizes the utilization of space while protecting air quality and provides a long-term perspective on the built environment and the costs to maintain and operate it.

On the facing page is an illustration depicting some of the characteristics that are associated with good form in suburban (T3) to urban center (T5) transect zones.

Image source (opposite page): Dover Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced by permission. Overlay illustration by Na Li, Land Policy Institute, Michigan State University.

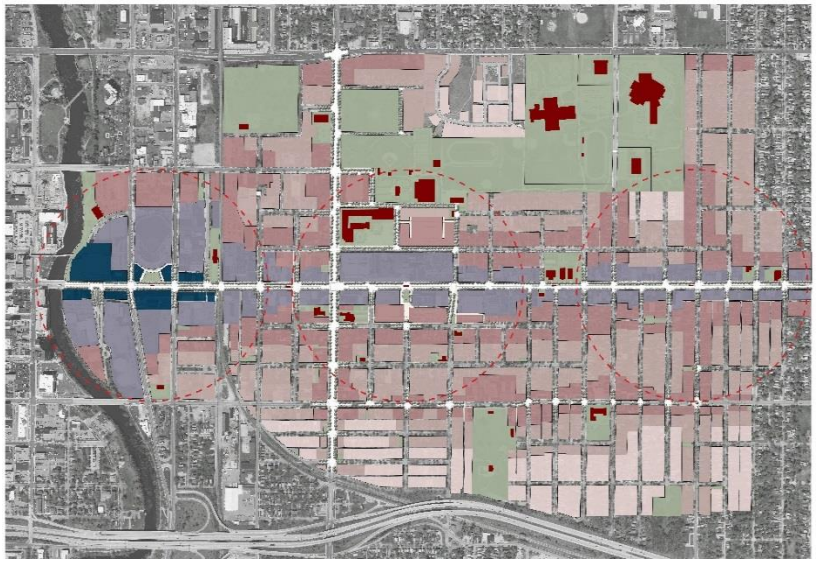

Mixed-Use
Uniform Massing + Density
Human Scale
Outdoor Seating
More Parking in Rear
Safe Transportation Modes
Stores Front the Streets
Transparent Windows

Character Zones

Historically, planners divided communities into neighborhoods or business districts to plan, knitting them together to form a comprehensive, master plan. More recently, planners and urban designers are using character zones for similar purposes. Character zones are areas of a community that exhibit similar characteristics, qualities, or traits. They may be based on their location along the transect and may also reflect not only current land uses and design, but future needs as well.

Like Street Typologies (see p. 1-83), character zones are not only defined on maps, but are also defined by design standards or criteria that make that zone unique. These may include design elements, such as setbacks; frontages and number of stories; lot coverage, open space, and parking; and building type and design.

Defining character zones in master plans is a useful step for communities seeking form-based codes (see p. 2-31) to implement their plan.



zone	Neighborhood Edge	Neighborhood General
setbacks		
Front Build-to Zone	20 - 60 feet	10 - 20 feet
Side Setback	8 - 15 feet	0 - 12 feet
Rear Setback	10 feet minimum	10 feet minimum
frontages & height		
Required Frontage	25% - 50% minimum	40% - 75% minimum
Height (stories)	1-2 stories	1-3 stories
coverages & parking		
Lot Coverage	50% - 60%	60% - 70%
Parking Locations	Side, on-street, or rear yards	On-street or rear yards
Minimum Open Space	5% of gross floor area	5% of gross floor area
building type & design		
Non-Residential Allowed Building Types	Live/Work	Live/Work
Residential Allowed Building Types	Carriage, Detached House, Cottage Court, Duplex	Carriage, Detached House, Cottage Court, Duplex, Rowhouse, Multi-plex
First Floor Window Area	30% - 50%	40% - 50%
Upper Floor Window Area	30% - 50%	30% - 40%

In developing a regional vision for the Michigan Avenue/Grand River Avenue corridor in the Lansing area, five character zones were established and mapped to show the intended design and form of new buildings. The circles represent 5-minute walking radii, the distance a typical pedestrian is willing to invest to reach their destination.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

Imagine Flint uses descriptions, land uses, its relationship to other zones, pictures, and illustrations to define its character zones.

Source: *Imagine Flint Master Plan for a Sustainable Flint. 2013. P. 52. City of Flint.*

The five character zones outlined in *The Capitol Corridor* plan have varying urban and building form characteristics. Each zone contains regulations calibrated to fit with the existing historic or envisioned future context.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

RESOURCES

1) *The Capitol Corridor: A Regional Vision for Michigan Avenue / Grand River Avenue*. 2014. Tri-County Regional Planning Commission. http://migrand-charrette.com/wp-content/uploads/2014/01/Capitol_Corridor_Draft_Summary_Report_Jan2014.pdf
2) Imagine Flint: Master Plan for a Sustainable Flint. 2013. City of Flint. http://www.imagineflint.com/
3) Design Lansing: Master Plan. 2012. P. 57. City of Lansing. http://www.lansingmi.gov/design_lansing
4) Corridors Master Plan. 2013. City of Traverse City. http://www.traversecitymi.gov/downloads/traverse_city_corridors_master_planadopted_lq.pdf

Density

Density is the average number of individuals or dwelling units per unit of space. It is used to describe the number of people in a building, block, or a community, or the number of housing units in an area. High density usually occurs in urban areas whereas low-density is found in rural areas.

With increased density, buildings are built taller making space a vertical commodity. Because there are so many uses within a small space, dense areas create an environment of walkability. If multiple uses are permitted, they contribute to an increase in activities for both functional and recreational purposes. The concentration of people in a defined area also creates the opportunities for further mixed-uses, a variety of transportation modes, especially transit, and supports local business (See TOD p. 1-115).

Many communities have zoning regulations which make building dense areas difficult. Outside of downtowns and dense neighborhoods, land use regulations often encourage single-use zoning districts, low-density development, large surface parking lots, large box stores, and cul-de-sac neighborhoods that are largely cut off from the rest of the road network.

Design standards for low-to-mid density buildings (two to five stories) often include commercial uses in the ground floor at street-level, office space on middle levels, and residential housing on the top floors. This design encourages some of the same benefits (density, walkability, mixed-uses) that denser urban areas enjoy. Higher density supports transit and provides people with more transportation options.

The highest density in Michigan occurs in Detroit. This is the area around Campus Martius Park in downtown Detroit, illustrated in this photo.

Source: Flickr/Michigan Municipal League. https://www.flickr.com/photos/michigancommunities/13996459904/in/photostream/.

The population densities of comparable cities are analyzed in Flint's Master Plan.

Source: Imagine Flint Master Plan for a Sustainable Flint. 2013. P. 17. City of Flint.

Agricultural land along the Michigan Avenue/Grand River Avenue corridor is an example of low density.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

Population Density
FLINT AND PEER COMMUNITIES (2000 & 2010)

			Total Change	
Population	**2000**	**2010**	**Number**	**Percent**
City of Flint	124,943	102,434	22,509	-18.0%
City of Ann Arbor	114,024	113,934	90	-0.1%
City of Grand Rapids	197,800	188,040	9,760	-4.9%
City of Lansing	114,321	109,563	4,758	-4.2%
Population Density (per sq. mi.)	**2000**	**2010**	**Number**	**Percent**
City of Flint	3,714.9	3,065.4	649.5	-17.5%
City of Ann Arbor	4,221.1	4,094.0	127.1	-3.0%
City of Grand Rapids	4,431.2	4,235.6	195.6	-4.4%
City of Lansing	3,366.7	3,303.2	63.5	-1.9%
Land Area (sq. mi.)	**2000**	**2010**	**Number**	**Percent**
City of Flint	33.6	33.4	0.2	-0.6%
City of Ann Arbor	27.0	27.8	-0.8	3.0%
City of Grand Rapids	44.6	44.4	0.2	-0.5%
City of Lansing	34.0	33.2	0.8	-2.3%

Source: *US Census, American Community Survey*

RESOURCES

1) Visualizing Density. Lincoln Institute of Land Policy. http://www.lincolninst.edu/subcenters/visualizing-density/tour/t1.aspx
2) "Density." 2008. American Association of Planning. PAS QuickNotes No. 12. http://www.planning.org/pas/quicknotes/pdf/QN12.pdf
3) Density Atlas. http://densityatlas.org/

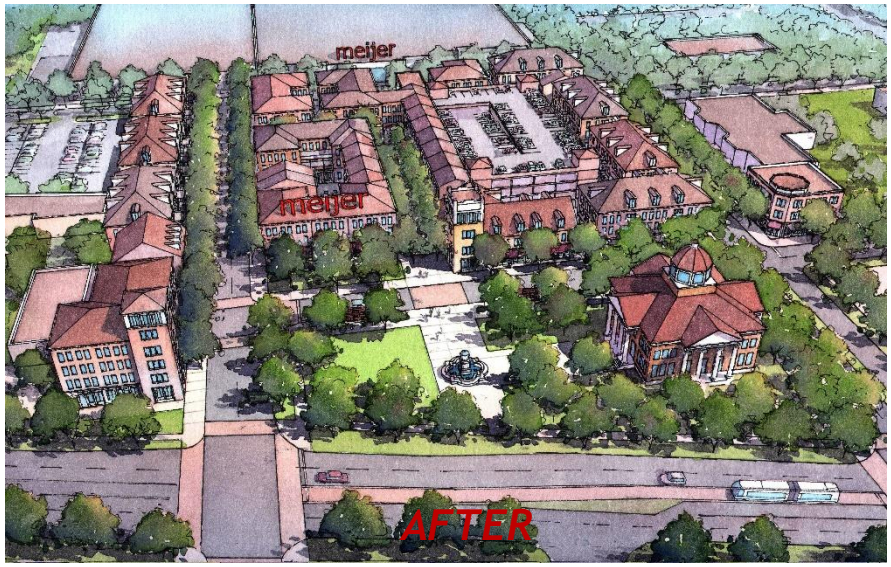
Block Design

Blocks are principally characterized by the streets that define them, but streets, lots, and buildings are all elements of blocks.

Good form is predicated on neighborhood, block, building, and street design standards. Conventional zoning (after 1945) created large blocks scaled for automobiles, not pedestrians. An emerging trend is to create and redesign blocks the way they were designed for centuries to ensure continuity with buildings that are similar in proportion, appropriate setbacks, orientation, window location, and transparency, etc. Form-based codes are a regulatory option to traditional zoning that can set block dimensions such as length, depth, and perimeter.

A typical urban residential block is 700 feet by 300 feet, equivalent to a 2,000 foot perimeter. This is roughly 4.8 acres. This equates to 14 lots at 100 feet by 150 feet creating a density of 2.9 units/acre or 28 lots at 50 feet by 150 feet creating a density of 5.8 units/acre. A typical block in Manhattan is 900 feet by 264 feet making a 2,328 foot perimeter. It is 5.45 acres. This equates to 40 lots at 45 feet by 132 feet creating a density of 7.3 units/acre or 90 lots at 20 feet by 132 feet creating a density of 16.5 units/acre.

A typical suburban lot is usually ½ to one acre per lot or about 100 feet by 200 feet to 200 feet by 200 feet. Suburban blocks are often uneven in size and shape as they often follow the curve of the land.



Existing conditions featuring deep setbacks that are dominated by surface parking at the Meijer site south of Grand River Avenue in Meridian Township allow for ample re-envisioning and redevelopment into a more walkable and transit-oriented area.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

Block standards vary by transect zone. With a 3,000 foot perimeter in T3, the block length would be 700–750 feet and the width would be 30–100 feet.

Source: *Duany Plater-Zyberk & Company.*

A redesign of the Meijer site south of Grand River Avenue in Meridian Township shows a complete walkable and bikeable block-and-street network, which can extend onto surrounding parcels.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

Table 2-3

Local Calibration of Transect Zone Characteristics

	T3	T4	T5	T6
Base residential density (units per acre gross)	4 units per acre gross	6 units per acre gross	8 units per acre gross	12 units per acre gross
Block size (max. block perimeter)	3,000 ft. max.	2,000 ft. max.	2,000 ft. max.	2,000 ft. max.
Thoroughfares required, permitted, or not permitted,	Commercial street not permitted	Roads* not permitted	Roads not permitted; alleys required	Roads not permitted; alleys required
Civic spaces required, permitted, or not permitted	Plazas not permitted	All permitted	All permitted	Greens not permitted
Lot width	30 ft. min., 100 ft. max.	18 ft. min., 100 ft. max.	18 ft. min., 100 ft. max.	18 ft. min., 100 ft. max.
Lot coverage	60% max.	70% max.	80% max.	90% max.
Front setback (max.)	14 ft. min.	18 ft. max.	12 ft. max.	12 ft. max.
Edgeyard building permitted/not permitted	Permitted	Permitted	Not permitted	Not permitted
Sideyard building permitted/not permitted	Not permitted	Permitted	Permitted	Not permitted
Building configuration (max. and min. no. of stories)	2 stories max.	3 stories max., 2 min.	5 stories max., 2 min.	8 stories max., 2 min.

RESOURCES

1) The Better Block. http://betterblock.org/
2) "Retrofitting Suburbia, Updated Edition: Urban Design Solutions for Redesigning Suburbs." 2011. Dunham-Jones, Ellen and June Williamson. John Wiley and Sons, Inc.
3) Commerce Center Templates. March 2008. Grand Valley Metro Council. http://www.gvmc.org/blueprint/documents/gvmctemplates.pdf

Urban Core

The Urban Core is the population, employment, and activity center of a large urban area. It is commonly called the "downtown" or Central Business District (CBD) in cities and is often the area of greatest density of buildings, businesses, and population in the metropolitan area. In the beginning of the 20th century, urban cores were the economic, social, and cultural centers of a community. In an age before electronic communications, the center of the city was where one went to exchange goods, services, and ideas. Around the middle of the 20th century, the retail uses in the urban core of most middle and large U.S. cities was starting to be replaced by new malls in the suburbs. By the late 1980s, many downtowns had many vacant structures and undesirable places, while the suburbs were growing by attracting large office and industrial parks to go with growing residential neighborhoods ("After the Fall: Opportunities and Strategies for Real Estate Investing in the Coming Decade." 2009. Bergsman, Steven. http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470405279.html.).

Since the middle and late 1990s, many urban cores in the U.S. have started to regain their status as regional centers for a number of different reasons (Bergsman, 2009). Capital investments such as new sports venues are being constructed in urban centers, rather than in the suburbs. As individuals of the Millennial generation (born 1982-2004) become professionals, many are choosing to live in large urban centers, due to the professional and recreational options that they provide ("Millennials Prefer Cities to Suburbs, Subways to Driveways." 2014. The Nielsen Company.). Urban cores are also becoming desirable for Boomers who want to retire to amenity-rich downtowns and leave years of yard work behind them.

Sample Neighborhood Regulating Plan: Context Zone 6

Urban core buildings may range in height but typically have little to no setbacks from the road. Buildings orient to the street and create a streetwall, as can be seen in this photo from Detroit.

Source: Flickr/Michigan Municipal League. https://www.flickr.com/photos/michigancommunities/9576159821/in/set-72157635197335461.

There is typically a lot of pedestrian activity in urban cores, as can be seen in this photo from Grand Rapids.

Source: Flickr/Michigan Municipal League.

This sample Regulating Plan for downtown Grand Rapids (T6 zone) examines how the permitted building type, the Downtown Site (purple), relates to the surrounding uses, such as parking (grey boxes and green circles), open spaces (green squares), and civic spaces (blue squares), and the existing street network as redevelopment occurs.

Source: Form-Based Code Study: Grand Valley Area of Michigan. Parr Associates under contract for Grand Valley Metro Council.

RESOURCES

1) Center for Applied Transect Studies. http://www.transect.org/
2) Urban Core Collective. http://urbancorecollective.org/
3) CEOs for Cities. http://www.ceosforcities.org/

Downtowns

Downtowns are the traditional central business districts of small towns as well as large cities. The more people who live in residences above stores and offices, the more active the downtown. Downtowns usually consist of side-by-side buildings with no setbacks that use vertical space to maximize land value on each parcel.

Many downtowns are the entertainment and cultural hubs of their regions. The more choices for entertainment, the more vibrant the downtown.

Many downtowns and adjoining neighborhoods went through a period of population decline from the 1950s–1990s. There were many reasons for this emigration, including the expansion of road systems that cut up downtowns and neighborhoods near downtown while making it easier to live in the suburbs and work downtown. As city populations fell, so did the market for goods and services in once vibrant downtowns.

Many cities are reversing the trend of population loss in downtowns as businesses and people move back into downtowns. This is helping stimulate a market for new retail, entertainment, and residential services. It is aided by the high quality of historic buildings in many downtowns which create a comfortable form that attracts people and activities.

Many downtowns can once again become a strong economic center of their regions if they are planned strategically with the principles of placemaking. Most important is attracting people to live downtown above retail and office establishments. This will attract new business and entertainment venues. Activating public spaces downtown will also help improve the sense of place and attract more people downtown.

An overhead view of the Lansing skyline at night, which shows the downtown block and street network. The density of the area is medium to high.

Source: Lansing. MiPlace Partnership Initiative. http://miplace.org/downtowns-neighborhoods/lansing.

Signage and increased density make people aware that they are entering downtown Ann Arbor.

Source: Ann Arbor. *MiPlace Partnership Initiative.* http://miplace.org/downtowns-neighborhoods.

Mason, the county seat of Ingham County, has an historic downtown and features medium density that is appropriate for its place on the transect.

Source: Mason Downtown. Wikipedia. http://en.wikipedia.org/wiki/File:Mason_downtown_crop.jpg.

RESOURCES

1) Michigan Downtown Association. http://www.michigandowntowns.com/1/mda/index.asp
2) Michigan Main Street Center. http://www.michiganmainstreetcenter.com/
3) *Downtown planning for Smaller and Midsized Communities.* 2012. Philip Walker. American Planning Association. www.planning.org/multimedia/video/2009/book/walker.htm

Urban Alleys

Urban alleys are generally private spaces between buildings that connect adjoining streets. They service residential and commercial properties. Alleys can contain parking spots or pedestrian access but are often left unattended and unmaintained despite the unique nature of the space.

When gone unmaintained, alleys can be dark, dirty, and confined, which hinders the perception of safety. However, when appropriately designed and maintained, alleys can be quality places that promote walkability, connectivity, and social activity.

The green garage movement in Detroit is an example of an effort to restore the city's alleys as safe and attractive ancillary connections between streets. The movement began in 2010 and focuses on creating sustainable and walkable alleys clear of waste, trash, damaged concrete or broken pavement and other signs of decay.

Alleys can be further enhanced by the following:

- Improved lighting;
- Building signage;
- Wayfinding;
- Public seating;
- Gardens and landscaping; and
- Pervious surfaces.

In the case of Denver, Colorado, alleyways have been improved and transformed into social places as part of festivals and outdoor seating for downtown restaurants. When designed and planned for with purpose, alleyways can be vital assets that enhance connectivity and social capital.

An urban alley in Detroit, before renovations and upgrades by the Green Garage group.

Source: Green Garage Detroit. http://greengaragedetroit.com/.

The East Lansing Arts Festival attracts hundreds of visitors to the streets and alleyways in downtown East Lansing.

Source: East Lansing Art Festival. http://elartfest.com/.

An urban alley in Detroit, after renovations and upgrades by the Green Garage group. Pervious pavement allows stormwater infiltration instead of runoff.

Source: Green Garage Detroit. http://greengaragedetroit.com/.

RESOURCES

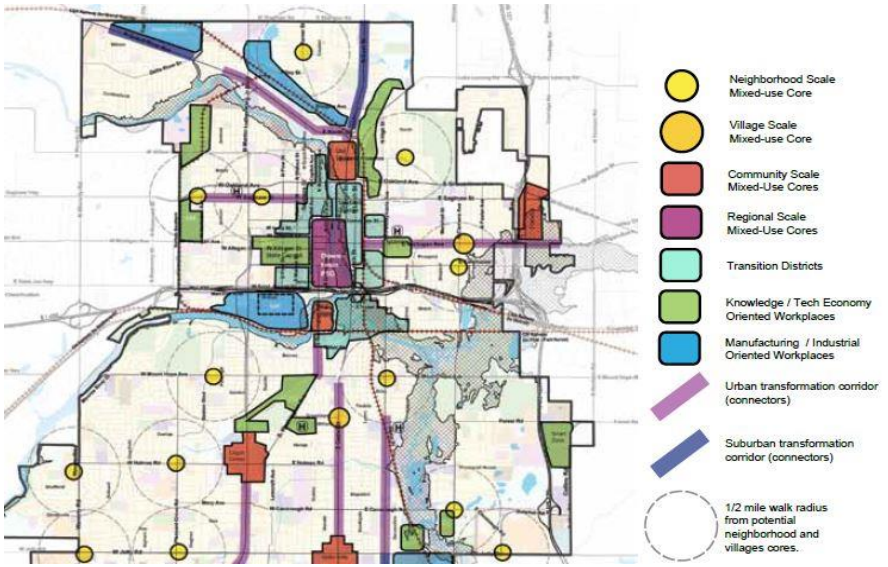
1) Green Garage Detroit. http://greengaragedetroit.com/index.php?title=Main_Page
2) Tight Urbanism. 2010. Daniel Toole. http://www.blurb.com/bookstore/invited/1831195/b8736a70a19a428c1327fdc80c1c1ed5241086ce?ce=blurb_ew&utm_source=widget

Neighborhoods

Neighborhoods are distinct areas made up of blocks. A city is made up of a few to many neighborhoods. It is typical to define a neighborhood by ¼ to ½ mile radius, or about a 5–10 minute walk. Many traditional neighborhoods that were built prior to the 1950s have small lots, garages that are accessed by a rear alley, and have commercial districts within walking distance. Rural areas are largely devoid of neighborhoods, due to lot sizes that are large to retain rural character. There are occasionally suburban-style housing developments in rural areas, however, they rarely coincide with traditional amenities of neighborhoods such as parks, commercial districts, or even sidewalks.

Neighborhoods in urban and suburban settings should contain residential, recreation, schools, civic, and retail uses. Too often, residential neighborhoods are zoned for residential uses only and do not provide space for interaction. Many of the designs of modern suburban-style neighborhoods are completely auto dependent, due to zoning and street design. There are often no sidewalks. This undermines the sense of community that is found in close-knit neighborhoods, is less safe because people must walk in the streets, and is less healthy because people walk less when neighborhoods do not have sidewalks.

Urban and suburban neighborhoods should offer a variety of housing and transportation options. Neighborhoods with balanced transportation options connect to bus and transit lines, and offer bike paths and sidewalks. Compatible commercial uses should be integrated into neighborhoods (usually at the periphery) and provide walkable destinations. Neighborhood parks, schools, and civic structures should also be present.



A city is often made up of several neighborhoods, either formally or informally. This image from the *Design Lansing* Master Plan shows proposed mixed-use neighborhood cores with a ½ mile walking radii throughout the city.

Source: Design Lansing: 2011 Master Plan. 2012. City of Lansing. http://www.lansingmi.gov/media/view/Lansing_2011_Master_Plan_DRAFT_2011_05_16_LowRez/3633.

This is a traditional single-family residential neighborhood in Coldwater.

Source: Holly Madill, Planning & Zoning Center at MSU.

A multi-unit housing complex such as this is generally found in dense, urban areas. It is also an example of the Missing Middle density housing that is currently not available in many communities, but will increase in demand in the future.

Source: Imagine Flint Master Plan for a Sustainable Flint. 2013. City of Flint.

RESOURCES

1) U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/HUD
2) Michigan State Housing Development Authority. http://www.michigan.gov/mshda
3) Ingham County Land Bank. http://www.inghamlandbank.org/
4) City of Lansing Housing Assistance and Neighborhood Stabilization. http://www.lansingmi.gov/development

Suburban Form at Major Intersections

Suburban form consists of low-density buildings (usually one-story), wide, large-volume collector roads, box-stores with large parking lots, and near complete reliance on the vehicle.

Many suburban communities across the U.S. are starting to reverse the negative effects of suburban planning by changing design standards and making the streetscapes more accessible to non-motorized forms of transportation. Long, wide, auto-dominated roads are being transformed by accessible sidewalks, shallower setbacks for buildings, bike lanes, well-marked pedestrian crossings, rain gardens to reduce storm water runoff, and in some cases, new additions, such as low-emitting and efficient street lights.

Suburban communities that are adapting to new designs for their major intersections may see an increase in activity in that area. Increasing the height of buildings on all sides of the intersection, making roads safer for pedestrians and bicyclists, and adding signage or gateways can help enhance identity and increase activity in the area.

BEFORE

AFTER

Existing conditions on Grand River Avenue at Okemos Road in Meridian Township are typical of many suburban roads in Michigan; characterized by commercial buildings set back off the road and behind parking lots, with no defining features at the intersection.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

East Lansing's intersection of Grand River and M.A.C. Avenue offers a gateway to downtown.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

This rendering of Grand River Avenue at Okemos Road in Meridian Township shows how suburban roads can be redesigned to incorporate on-street parking, transit, bicycle infrastructure, street trees, and wider sidewalks.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

RESOURCES

1) "Dead Malls: Activism, Local Spaces, Global Logistics." 2010. Parlette, V, and Deborah Cowen. *International Journal of Urban and Regional Research*. Volume 35, Issue 4, p. 794-811, July 2011. http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2427.2010.00992.x/abstract
2) "Evaluating Pedestrian Connectivity for Suburban Sustainability." 2001. Randall, T and Baetz, B. *Journal of Urban Planning and Development*. 127(1). 1-15. http://ascelibrary.org/doi/abs/10.1061/%28ASCE%290733-9488%282001%29127:1%281%29
3) "Seven Rules for Sustainable Communities: Design Strategies for the Post Carbon World." 2010. Condon, Patrick and Robert Yaro. Island Press.

Suburban Form Along Key Connecting Corridors

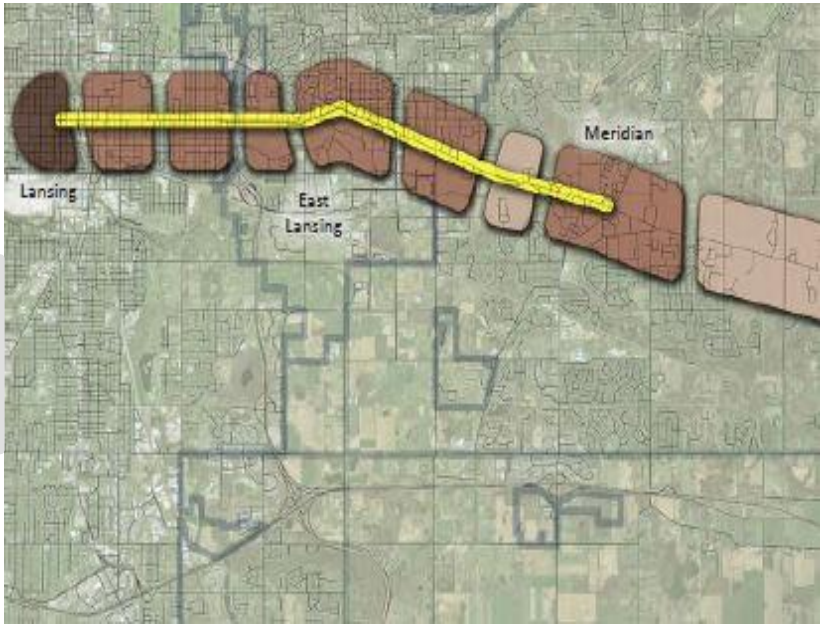
Corridors are major roadways that traverse the transect. The roadway changes in appearance and function as it passes through each zone. Key corridors should provide for multiple types of efficient transportation, including pedestrian, bike, bus, and cars. Ideal corridors move large volumes of both motorized and non-motorized transport, in and out of activity and commercial centers. Traditionally, large suburban corridors have been five-lane roads for vehicle traffic only. Providing well-marked bus or transit service with frequent, safe stops along the corridor can reduce car traffic and make the corridor safe for multiple users.

Making corridors safer for pedestrians and bicyclists could include improved sidewalks and pedestrian connections, multi-use bike and pedestrian pathways on parallel streets, adding bike lanes, and connecting bike paths. These enhancements would help improve safety and connectivity for pedestrians and bicyclists, which could encourage more people to use non-motorized transport and further reduce motor vehicles in the roadways, as well as fossil fuel consumption.

Other ways to enrich the corridor include installing trees and rain gardens to provide shade and reduce storm water run-off, improving the quality and appearance of street lighting, and enhancing aesthetic appeal of buildings and landscaping. Landscaping improvements, sidewalks, and public art installations are examples of improvements that can enhance activity and uses on a corridor. Increasing residential density by filling vacant parcels or parking lots with residential and multi-use buildings will also provide the people necessary to increase activity at key nodes.

The Michigan Avenue/Grand River Avenue corridor in Lansing connects the urban core with the rural areas of Ingham County. In more urban settings the corridor supports multi-modal transportation and mixed-use buildings as it is oriented more for the pedestrian.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.



The 19 miles of Michigan Avenue/Grand River Avenue passes through transect zones 2–6.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

In Ingham County, Michigan Avenue/Grand River Avenue spans 10 municipalities and the corridor transverses cities, towns, and countryside. In small towns, the corridor is often narrower with fewer vehicles and pedestrians.

Source: Dover-Kohl and Associates, under contract to the Tri-County Regional Planning Commission, reproduced with permission.

RESOURCES

1) "Market-Based Retrofit of Suburban Strip Corridors." March 16, 2011. Erik Calloway. *Better Cities & Towns*. http://bettercities.net/article/market-based-retrofit-suburban-strip-corridors-14314
2) Form First: The New Urbanist Alternative to Conventional Zoning. November 2004. Katz, Peter. http://www.fltod.com/research/about_form_based_codes/form_first.pdf
3) Shifting Suburbs: Reinventing Infrastructure for Compact Development. 2012. Rachel MacCleery, Casey Peterson, Julie D. Stern. Urban Land Institute. http://www.uli.org/wp-content/uploads/ULI-Documents/Shifting-Suburbs.pdf

Industrial and Special Districts

The transect has a special category for industrial land and large special districts. These are employment centers containing large-scale manufacturing businesses, airports, railroad yards, as well as small-scale light-industrial businesses, and sometimes a mix of use types. Industrial and special district zones should be located near major transportation hubs, such as railways, arterial roads, interstate highways, and bus and transit lines. These districts can use industrial condos to house several small, light-industrial businesses under one roof. Businesses in this zone are often most important when sharing resources, ideas, and key services. In small, low-intensity light manufacturing districts, clustered housing, such as apartments or townhomes may serve to diversify the uses in the area and place housing near employment hubs.

Industrial zones in large cities offer diverse employment opportunities and can be integral to the economic strength of a region. A wide-range of industrial employment options includes traditional large-scale manufacturing to small-scale light manufacturing that is more skills-based. Modern industry tends to be smaller and more efficient than traditional large-scale industry, and is able to adapt to changing markets and economic changes more readily.

Office/research/technology parks may also be in these areas. These mixed-use approaches (commercial, office, residential) are crucial in attracting and retaining high-paying employment opportunities and achieving economic competitiveness. See Office/Service – Office Complex, p. 1-37 for more information on these types of forms.

Collaboration with adjacent jurisdictions is often required to achieve the specialized safety, security, and operational standards and needs of airports. The Capital Region International Airport's Master Plan outlines future facility needs, predicted aviation activity, and the strategic vision of the airport.

Source: Capital Region International Airport Master Plan.

Although not a special district, commercial, office, academic, and residential uses cluster within a half mile along Hagadorn Road in East Lansing.

Source: Holly Madill, Planning & Zoning Center at MSU.

Large volume, large vehicle transportation needs to be factored into industrial and special districts. Imagine Flint includes logistic/freight operations (2), office/research parks in a campus setting (3), and a street grid and design to accommodate freight traffic in their "Production Centers."

Source: Imagine Flint Master Plan for a Sustainable Flint. 2013. City of Flint.

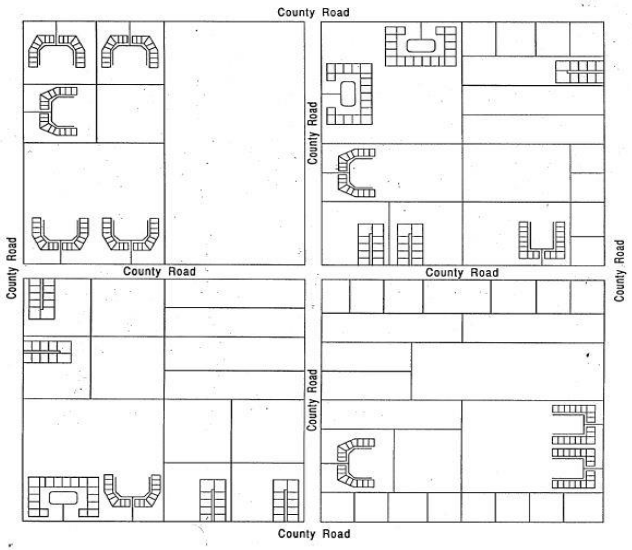
RESOURCES

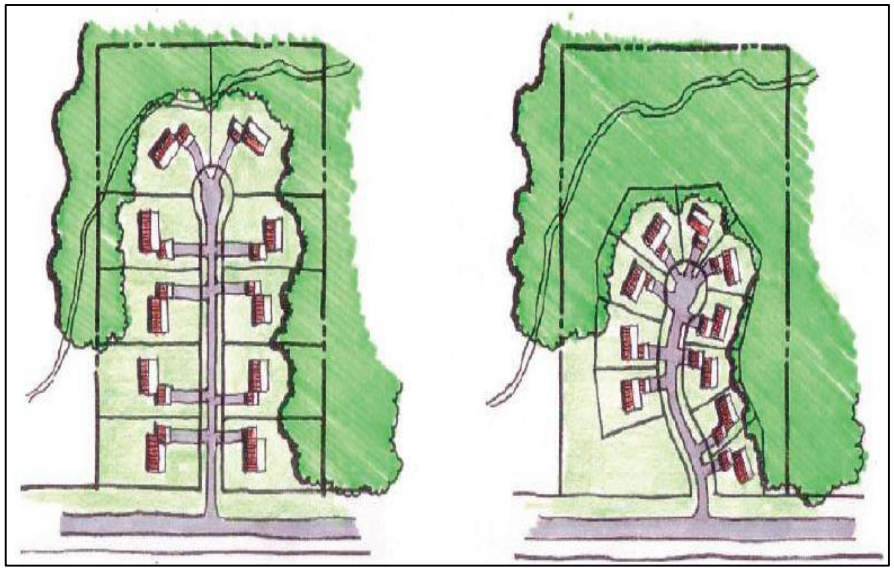
1) U.S. Department of Commerce: Bureau of Industry and Security. http://www.bis.doc.gov/
2) Michigan Department of Corrections, Office of Employment Readiness: Michigan State Industries. http://www.michigan.gov/msi
3) Chicago Made: Factory Networks in the Industrial Metropolis. 2008. Lewis, Robert. The University of Chicago Press.
4) SynergiCity: Reinventing the Postindustrial City. 2012. Hardin Kapp, Paul and Paul J. Armstrong. University of Illinois.

Clustering Buildings

Over the past 50 years as cities grew, people migrated to the rural or suburban outskirts of towns and cities. Residential zoning facilitated sprawling development by requiring large minimum lot sizes, uniform road frontage and lot setbacks, specific road standards, and other standard requirements. The only open space within such developments is often the yards between adjoining privately-owned housing lots. As concerns over open-space preservation, environmental protection, and farmland loss increased, cluster or conservation development was created as a tool to address these concerns.

Cluster development allows residential or commercial development while protecting the area's environmental features, allowing for more open space, and protecting farmland and the character of rural communities. While the total number of homes within a development is often the same for both traditional and cluster developments, cluster developments site homes on smaller lots without emphasizing a minimum lot size. The homes are clustered on a smaller portion of the total site while the remaining land, which would have been allocated to individual home sites is converted into protected open space and shared by the residents of the subdivision and possibly the entire community. Some incentive-based provisions, often called density bonuses, allow for development of more homes in exchange for providing other non-required features that are desirable to the community. (University of Illinois Extension. Local Community Resources.) Often planned unit development (PUD) that requires a certain amount of land to remain undeveloped is the zoning technique used to accomplish this goal.





Four sections in a rural area that utilize cluster zoning to achieve a one dwelling unit per five acre standard allowing development and preserving larger tracts for farming and open space.

Source: Planning & Zoning Center at MSU.

The roadways in a cluster development (top) allow more access to common open space than do those in a traditional, curvilinear pattern (lower left).

Source: Meridian Township Greenspace Plan. Pg. 10. 2004. The Greenway Collaborative, Inc. http://www.greenmidmichigan.org/Publications/Meridian%20twp/Green%20space%20plan%20final%20report.pdf

This illustration compares a traditional residential subdivision on the left to a cluster development on the right. The same number of lots and homes are built on both, but the cluster development preserves significant open space.

Source: "Affordable Housing." Michigan Association of Planning. Smart Growth Tactics. Issue Number 36. http://www.planningmi.org/downloads/issue_36_affordable_housing.pdf.

RESOURCES

1) *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks*. 1999. Randall Arendt. Washington, DC: Island Press.
2) *Growing Greener: Putting Conservation into Local Plans and Ordinances*. 1999. Randall Arendt. Washington, DC: Island Press.
3) In Small Towns and Rural Area, Try Cluster Housing. 2014. Useful Community Development . . . Yrban to rural. http://www.useful-community-development.org/cluster-housing.html

Natural Areas

Natural areas are the green infrastructure in a community or region. It is the lakes, streams, open fields, marshlands, and other natural spaces that make up natural areas. Adequate natural areas and green infrastructure are vital to a community's health and well-being, due to their potential for absorbing air, soil, and water pollution. These are nature's way of cleaning up the impacts of urban development and industrialization.

Frederick Law Olmsted, a famous landscape designer of such special places as Central Park in New York, called parks the "lungs of the city" and saw these natural spaces for their great public health potential. He designed many city parks across the nation and while his parks were elegant and contained monuments, bridges, etc., their primary function was to absorb stagnant, disease producing water, clean the air from industrial era pollution, and provide a break in the visual and auditory clutter of cities. While most modern parks are not built specifically to reduce pollutants, they still retain this function as a byproduct.

Natural areas are also vital for recreational opportunities. Parks, trails, athletic fields, wetlands, and waterways provide numerous opportunities for recreation and exercise. Ideally, a city's park network is highly connected and provides easily-accessible natural areas throughout the community.

Successful modern parks are physiologically and culturally healthy places for a community. Natural areas and open space networks should be prioritized to create a healthy community.

Natural areas can supply valuable wildlife habitat, while assisting communities with floodwater storage and stormwater runoff management.

Source: Greening Mid-Michigan. Land Use Planning, Policy and Education. Tri-County Regional Planning Commission. http://www.tri-co.org/lup.htm.

This table outlines the key elements of green infrastructure.

Source: Elements of Green Infrastructure. Greening Mid-Michigan. http://www.greenmidmichigan.org/?page_id=5.

Parks can be the link between the built environment and natural areas in a community. It is important that they are linked and connected to a broader greenway system. They often parallel blue infrastructure such as streams, rivers, and lakes.

Source: Green Infrastructure. Greening Mid-Michigan. http://www.greenmidmichigan.org/Publications/POW%20Green%20Infrastructure%20ppt.pdf.

Elements of Green Infrastructure

Although each example of place and function is listed only once, some fit into more than one element. Please use these lists as a guide to stimulate your thinking rather than as a list of fixed examples. Also, note that some examples will be more visible at different scales.

Elements	Examples of places	Examples of functions provided
Human Health	Parks; Trails; Athletic Complexes; Schools; Scenic Vistas	Encourage exercise and active lifestyles; Provide outdoor space for activities for all ages; Create appealing visual landscapes; Offer places of solitude & respite.
Ecology	Public lands—county & state parks, forests, wildlife refuge; Conservancy lands; Riparian corridors; Wetlands; Floodplain; Forested lands; Vegetative buffer	Protect & restore air & water quality; Conserve soil; Manage stormwater; Provide habitat for wildlife; Protect or restore native communities; Enrich biodiversity
Economy	Town & city centers; Tourism destinations; Corporate headquarters & corporate parks	Attract & retain residents, businesses and employees; Connect businesses & residents/pedestrians; Increase residential & business property tax base; Offer alternative transportation
Culture & Society	Historic sites; Event sites; Public art; Outdoor markets; Beaches; Festival grounds	Interpret & share environmental & cultural identities; Foster community identity and pride
Education	Interpretive sites; Zoos; Museums; Botanical gardens; Nature centers	Foster formal & informal education; Provide spaces for experiential education; Use nature as a classroom; Involve citizens in resource stewardship

RESOURCES

1) Greening Mid-Michigan. http://www.greenmidmichigan.org/
2) Meridian Township Land Preservation Program. http://www.meridian.mi.us/index.asp?Type=B_BASIC&SEC={3B600991-75FC-4553-B321-3E5C8C4D4198
3) Michigan Department of Natural Resources. http://www.michigan.gov/dnr
4) West Michigan Toolkit for Local Green Inventories. 2005. Planning & Zoning Center Inc. for the Grand Valley Metro Council. http://books.google.com/books/about/West_Michigan_Tool_Kit_for_Local_Green_I.html?id=0YJjNwAACAAJ