



METROPOLITAN PLANNING COUNCIL

Strength in Numbers: Building Vibrant, Compact Communities

Urban Development • Issue Brief

Background

Chicago's Gold Coast. Knob Hill in San Francisco. Fifth Avenue in New York. All of these places bring to mind elegant, affluent, residential neighborhoods and desirable places to live, work and play. They also share another characteristic that is not always considered positive: density. Density is a controversial issue for many communities, but a certain concentration of development is essential to obtain and maintain the amenities communities want. This Issue Brief examines how density contributes to communities by providing the critical mass of people necessary to attract public amenities. It also explores how to create "positive" rather than "negative" density through the use of creative urban design solutions.

Density is a controversial term. For many people, it carries negative connotations of slums and overcrowding. But what is it exactly? In its simplest form, density is a mathematical formula. It refers to the number of people, households or structures in a certain geographic area. Density is usually calculated based on people per acre or dwelling units per acre. The more dwelling units per acre, the more dense the area; the fewer dwelling units per acre, the less dense the area. Mathematical calculations, however, belie how people experience density. **Perceived density** is how compact someone senses a development, neighborhood or city to be.¹ In that sense, density is linked to design consider-

ations. While two developments may have the exact same number of dwelling units per acre, the way they are arranged on the lot, the landscaping or lack thereof, and even the width of the street may impact how dense the buildings are perceived to be by the public. It is perceived density that can make the difference between community acceptance or rejection of a development project.

The amount of density in an area has an undeniable impact on community character and function. A rural village of 200 people will act and feel much different than a thriving metropolis of two million. In addition, most community amenities require a certain number of people to use them in

order to be successful. Few developers, if any, are willing to risk their financial solvency on the "if you build it, they will come" mantra. Thus, if a community desires more shopping opportunities, a developer will want to see a certain number of potential shoppers in the area to ensure the economic viability of the project before breaking ground. Adding density without considering site design and how people will use the space inevitably produces unfavorable community outcomes. Well-planned, well-designed density, however, contributes positively to community character by attracting the amenities people desire in their communities.

ISSUE BRIEF

OCTOBER 2004

Communities Want Places to Shop... Page 2

Density Impacts Housing Costs... Page 4

Density and Walkability Linked to Public Health... Page 5



Left: Buildings with few design details and solid massing may be perceived as more dense (left), whereas buildings that break up mass by setting back from the first floor and use design details to separate different portions of the building appear less dense (right).

Photos: Rey Flores (left) and Heather Campbell (right)

What Amenities Do Residents Want in their Communities?

As communities grow, residents desire more services and conveniences to meet their needs. What specifically do Chicago-area residents want in their communities?

The Metro Chicago Information Center (MCIC) conducts a yearly survey of residents in Chicago's six-county region. In its Metro Survey 2002, MCIC asked residents a wide variety of questions about quality of

life in their communities. Results of the survey show that residents support policies that allow them to live closer to work, preserve open space, and provide affordable housing near jobs. Respondents preferred to live within walking distance of shopping opportunities. (See Table 1.)

Creating more opportunities to walk also resonates nationally. Nationwide studies indicate that more than half of Americans want to walk more for exercise, but

the way their communities are designed often precludes them from doing so.² Achieving these desired policy outcomes depends upon making sound local decisions about land use and understanding how the marketplace will react to those decisions.

Communities Want Places to Shop

One of the most popular community amenities is retail. No matter what type of community they reside in, residents need places to

buy groceries, clothing, hardware, home supplies and other goods and services. Retailers rigorously study the demographics of a given area to determine where to market their products and locate their stores. Population density is, quite often, the first critical piece of the retail puzzle. The retail industry measures population density in several ways, including households within a certain distance from the potential site location, average daily traffic counts per day, and

TABLE 1: SURVEY MEASURES REGIONAL ATTITUDES ABOUT DEVELOPMENT

Respondents who agreed or mostly agreed with the following statements:

Local government should prohibit development of open space
 Favor using zoning boundaries to preserve farm land
 Favor zoning so families can live near jobs
 Affordable housing should be built near work
 Prefer living within walking distance of shops
 Prefer to live where [they] can take public transit to work

	Metrowide	City	Suburbs
Local government should prohibit development of open space	68%	71%	63%
Favor using zoning boundaries to preserve farm land	68%	71%	63%
Favor zoning so families can live near jobs	82%	81%	83%
Affordable housing should be built near work	77%	73%	81%
Prefer living within walking distance of shops	57%	44%	75%
Prefer to live where [they] can take public transit to work	36%	32%	62%

Left: Survey responses of Chicago residents in six-county region.

Source: Taylor, D. Garth, 2002 Metro Survey Report, Chicago, IL: Metro Chicago Information Center, 2002.

pedestrian or foot traffic counts. Without a critical mass of regular customers to support that particular type of retail, the business carries a higher risk of failure.

How much density is needed for various types of retail? Retailers first examine consumer expenditures to estimate demand per household for a retail category. Retailers then divide the sales volume needed to maintain one store by the demand per household to estimate the number of households required for different types of retail. They also estimate how much of the business they could capture in a particular area, adjusting for existing competitors. Using this formula, a grocery store needs about 12,162 households if it has little competition (90 percent capture rate), and 17,375 households with a few competitors in its trade area (70 percent capture rate). (See Figure 1.)

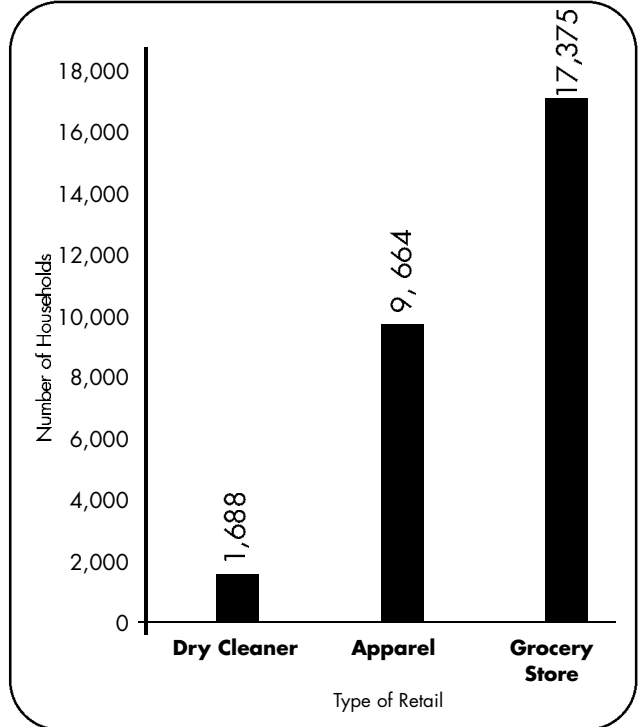
Each retailer determines its own square footage requirements, trade area, population and traffic generators needed for one store to perform successfully. While

a number of factors contribute to a retailer's decision to locate in a particular community, population density and vehicle counts per day are critical pieces of its location criteria. (See Table 2.)

Positive demographics do not guarantee attractiveness to retailers or real estate investors. The way communities distribute, use and regulate land also impacts the way the real estate industry views them in the marketplace. For instance, PricewaterhouseCoopers' 2003 *Urban Trends in Real Estate* report downgraded Houston, Denver, Phoenix, Atlanta and Dallas as real estate investments because of their "lax controls on new construction in their wider open spaces, which translates into higher vacancies and lower rents."³ The report goes on to say that many suburban markets suffer from traffic congestion, car dependency, lack of connectivity between subdivisions and shopping centers, stressed roads and sewers, banal commercial strips, and regional infighting for tax dollars among local governments, among other problems. Conversely, concentrating higher densi-

FIGURE 1: HOUSEHOLDS NEEDED FOR VARIOUS TYPE RETAIL

Based on households within a three-mile radius



Source: Heitman Real Estate Investment Management

ty housing near transit and retail creates instant foot traffic for retailers and builds transit ridership.

Density Necessary for Transit Connections

According to the MCIC survey, one-third of those metrowide who take private transportation now would prefer to live where they can take public transit to work. Of those suburban areas, the survey showed a higher figure of 62 percent. Though demand exists for increased transit, low-densi-

ty development patterns in many areas make transit development difficult, if not impossible. When it comes to transit, density matters. (See Table 1.)

The inability of the region's residents to commute efficiently also has an impact on the region's ability to attract new economic development. Atlanta almost lost a large high-tech employer because of the area's traffic congestion and decline in quality of life.⁵ The state reacted by empowering one

TABLE 2: RETAILER'S LOCATION CRITERIA

Retailer	Preferred Gross Leasable Area (sq. ft)		Trade Area		Traffic Counts
	From	To	Population		Vehicles/Day
Krispy Kreme	4,200	4,600	100,000	Within 5 Miles	35,000
Dominick's	66,000	N/A	40,000	Within 3 Miles	25,000
Mail Boxes Etc.	800	1,800	20,000	Within 3 Miles	20,000

Source: Trade Dimensions 2003 Retail Tenant Directory

TABLE 3: DENSITIES NEED TO MAKE TRANSIT VIABLE

MODE OF TRAVEL	SERVICE LEVEL	DISTANCE BETWEEN ROUTES	SERVICE PER DAY	MINIMUM NECESSARY DWELLING UNITS PER RESIDENTIAL ACRE	REMARKS
Bus	Minimum	1 to 2 miles	20 buses	4	
Bus	Intermediate	1 to 2 miles	40 buses	7	Average varies as a function of downtown size and distance from residential area to downtown
Bus	Frequent service	1 to 2 miles	120 buses	15	
Light Rail	5 min. between rush hour trains	25 to 100 sq. mile corridors	See Service Levels	9	To downtowns of 20 to 50 million square feet of nonresidential floor space
Rapid Transit	5 min.	100 to 150 sq. mile corridors	See Service Levels	12	To downtowns larger than 50 million square feet of nonresidential floor space
Commuter Rail	20 trains/day	NA	20 trains	1 to 2	Only to largest downtowns, if rail line exists

Source: Boris S. Bushkarev and Jeffrey M. Zupan, *Where Transit Works: Urban Densities for Public Transportation, Urban Transportation: Perspectives and Prospects*, ed. by H. S. Levinson and R. A. Weant, *Eno Foundation*, 1982.

regional body — the Georgia Regional Transportation Authority — to make decisions about both transportation infrastructure and regionally important land uses, such as malls, industrial parks and sports stadiums.

Improving public transportation connections can have a positive impact on a region’s attractiveness to potential businesses. A 2001 global survey of technology companies by Jones Lang LaSalle found that 77 percent of its respondents felt proximity to public transportation was an important factor in choosing a location, noting that public

transportation was important in attracting and retaining staff.⁶ Obtaining transit service for a community certainly involves more than just increasing density, but without the right compactness, the economics of transit will not work.

Density Impacts Housing Costs

What role does density play, if any, on the price of housing? The story is a complex one. Land prices vary according to availability, geographic location and regulatory constraints, such as zoning. As a result of this complexity, many myths surrounding density, housing and services emerge. In

unraveling the mysteries of density’s impact, it may be useful to consider two different development scenarios. Density and its financial impacts vary with urban and suburban models. In the newly developed suburbs, where land is generally more abundant, density and housing costs follow lot sizes for individual single-family homes. In the city, density and housing costs are very much tied to land price, as land prices are higher due to scarce land supply.

Scenario 1: Suburban Developments

Density in the suburbs often comes down to the

number of dwelling units permitted per acre. Historically, suburban developments with larger lots have been priced higher than developments with smaller lots. Municipalities therefore have opted for the largest lot sizes the market will bear in order to garner higher property values. A number of studies and real life examples, however, illustrate that both marketplace perceptions and consumer preferences are changing with respect to smaller lot developments. Census figures illustrate that lot sizes for single-family homes are decreasing over time. Between 1992 and 2002,

average lot size in the United States decreased from 17,865 to 16,454 square feet, a change of 1,411 square feet or a 7.8 percent decrease. For the same time period, average lot size changes in the Midwest are even more dramatic, decreasing from 21,766 to 19,577 for a change of 2,189 square feet or a 10 percent decrease.⁷

Consumer mores are also beginning to change, and it shows in the prices they are willing to pay. Studies show that New Urbanist projects — compact developments with smaller lots, interconnected streets and a more neighborhood feel — garner a 15.5 percent price premium over formulaic suburban developments.⁸

Scenario 2: City Developments

Density and price in the city are very closely tied to land prices and the state of the real estate market in each neighborhood. In hot urban real estate markets, land is scarce and prices are high, which means that higher densities allow developers to recoup their high land costs over more units. Lower densities where land prices are high often means higher cost housing. Where the urban real estate market is soft, however, this is not an issue.

In general, density allows a developer to spread the costs of development over

more square feet. With fewer units, a developer must charge more per unit to make the project viable. According to Pam McKinney, of Bryne, McKinney and Associates, a real estate appraisal firm based in Boston, concentration provides an edge for developers. "Density typically translates to more envelope on less land, thus higher floor area ratios (FARs), and in turn a greater ability to support the costs of expensive real estate. Simply put, acquisition is a fixed cost ... the more feet or units you can spread it over, the more economic a project becomes ... Any number of costs are made more efficient with an economy of scale and density ... foundations, utilities, roadway infrastructure, development of soft costs, etc."⁹

Before communities and elected officials downzone property in response to perceived out-of-scale new development, they should understand how the market might respond. Downzoning results in larger, more expensive units, which works against affordable housing and economic vitality goals. Communities could better address neighborhood character issues by adopting urban design guidelines. San Francisco's Residential Guidelines preserve neighborhood character by providing developers with illustrated information

about how to fit new buildings into existing neighborhoods. Simple items like using a pitched roof design if the other homes on the block have pitched roofs, or putting the door on the same side of the house as other homes' entryways mean that modern architectural designs and materials can be used on infill buildings without damaging the character of the neighborhood. (*See Resources for more information.*)

Density and Walkability Linked to Public Health

Alarmed by ever-increasing rates of obesity in the U.S., public health officials are searching for answers. One growing body of research emerging from this obesity epidemic is how land use impacts public health. A recent national study, conducted by a team of urban planners and public health experts, shows a correlation between the type of community where people live and their weight, activity levels, and likelihood of suffering from hypertension. The study indicates that people living in higher density communities weigh 6.3 pounds less than their counterparts in less dense communities.¹⁰ Considering that the difference between a healthy weight and an obese weight is only 30 pounds, that six-pound difference represents one-fifth or 20 percent of the problem. Other researchers are

finding that walkable communities — neighborhoods with higher densities and a mix of uses, such as homes, stores, sidewalks and interconnected streets — provide opportunities for residents to lead active lifestyles. One study found that people who lived in highly walkable neighborhoods performed moderate to vigorous physical activity for 70 more minutes a week than residents in low-walkability neighborhoods.¹¹

THE METROPOLITAN PLANNING COUNCIL (MPC) is an independent, nonprofit group of business, civic and planning leaders working in the public interest to achieve policy that enhances the vitality and livability of the Chicago metropolitan region. Established in 1934, MPC encourages cooperation among the region's stakeholders, promotes open policy and planning decisions, and advocates for implementation of its recommendations. MPC mobilizes leadership around regional solutions to the issues of housing, transportation, land use and urban development.

Public opinion surveys also show that opportunities to walk are a desirable community amenity, but are not adequately encouraged. A 2002 national survey conducted by Belden, Russonello & Stewart found that 55 percent would like to walk more throughout the day, either for exercise or to go to specific locations.¹² The study also found that 61 percent of those surveyed reported that the reason they do not walk more is because destinations are too far away and it is not convenient to walk. This strong public support for walkable communities indicates that in addition to the health benefits these compact neighborhoods provide, there is also pent-up market demand for such communities.

Conclusion

How do communities balance the right intensity of development needed to create vibrant places to live, work and play and still maintain community character? The easiest way to

achieve that delicate balance is to create a vision for the future by developing a community plan with broad public input. This community plan allows elected officials and residents to define community character, identify community assets and challenges, and determine collectively how and where to accommodate growth. Community plans address such important issues as the best location for jobs, housing, retail, transit, schools, parks and entertainment. Through the planning process, communities can identify where density is most appropriately placed to attract and maintain the services residents need and want. Establishing urban design criteria is another means of ensuring that new developments fit into the existing community. Well-planned, well-designed and strategically placed development preserves and enhances community character and helps provide the population base to attract the amenities communities desire.

Thank you to our funders ...

Graham Foundation for Advanced Studies in the Fine Arts
Stearns Family Foundation
Woods Fund of Chicago

Resources

San Francisco Residential Design Guidelines,
<http://sfgov.org/site/uploadedfiles/planning/Document%20s/resdesfinal.pdf>

Neighborhood Based Differences in Physical Activity: An Environment Scale Evaluation,
Saelens, Brian E. et. al.
<http://www.minority.unc.edu/sph/minconf/2004/materials/saelens.et.al.pdf>

Endnotes

- 1 Clare Cooper Marcus. "Considering Residents' Needs in Planning for Higher Density Housing." Getting Smart! The newsletter of the Smart Growth Network. Volume 6, Number 2, May 2003.
- 2 Belden Russonello & Stewart Research and Communications. "Americans' Attitudes Toward Walking and Creating Better Walking Communities." Washington, D.C., April 2003.
- 3 Emerging Trends in Real Estate 2003. PricewaterhouseCoopers LLP. October 2002, p. 36
- 4 Taylor, D. Garth, 2002 Metro Survey Report, Chicago, IL: Metro Chicago Information Center, 2002.
- 5 Robert Cervero. "Transport and Land Use: Key Issues in Metropolitan Planning and Smart Growth." Department of City and Regional Planning, The University of California Transportation Center, Fall 2000.
- 6 Internet access number one criteria for choosing office location, according to Property Futures," Jones Lang LaSalle press release, June 13, 2001. Found at www.joneslanglasalle.com.hk/Press/2001/061301.htm.

7 According to the U.S. Census, the Midwest region is comprised of: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

8 Yan Song and Gerrit-Jan Knaap, "New urbanism and housing values: a disaggregate assessment," *Journal of Urban Economics*, Received November 12, 2002; revised April 17, 2003.

9 Pam McKinney, "Concepts of Development and Density Finding the Edge," presented at the Density: Myth & Reality Conference, Boston, Massachusetts, September 12-14, 2003, sponsored by the Boston Society of Architects.

10 Barbara A. McCann and Reid Ewing. "Measuring the Health Effects of Sprawl: A National Analysis of Physical Activity, Obesity and Chronic Disease." *Smart Growth America and Surface Transportation Policy Project*, September 2003.

11 Saelens, Brian E. et al. "Neighborhood-Based Differences in Physical Activity: An Environment Scale Evaluation," *American Journal of Public Health*, September 2003, Vol. 93, No. 9 1552.

12 Belden, Russonello & Stewart, April 2003.

For More Information...

about urban development, contact Peter Skosey, Vice President External Relations, Metropolitan Planning Council
phone: 312.863.6004,
e-mail: pskosey@metroplanning.org
Issue Brief prepared
by Heather Campbell, Urban Development Associate