

Mandated Density: The Blunt Instrument of Smart Growth

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Introduction

This essay expresses concern that urban growth management places too heavy a reliance on densification, particularly upzoning with minimum density requirements in suburban infill situations. Increasing densities may be appropriate when other aspects of urban development can be controlled through urban design. However, evidence provided here indicates that mandating density reduces land consumption, but does not achieve other objectives of growth management, particularly street connectivity, greater use of alternative modes of transportation, and more housing choices.

This analysis finds that upzoning and requiring minimum-densities, when used to regulate suburban residential infill developments, is not effective in producing quality compact development. Instead it is resulting in small-lot single-family developments that can only be accessed by cul-de-sac designs augmented by shared driveways. Incentive-based approaches to increase density may be preferable. This analysis raises concern about placing too much emphasis on densification as a policy tool for “smart growth.” Too much attention and effort is expended on increasing density of development and there is little evidence of benefits of doing so. The positive aspects of density results from favorable market forces, rather than regulatory forces.

Background

There is a growing public concern with urban sprawl. The urban planning profession has responded with growth management programs as a means of combating sprawl. More activist forms of anti-sprawl movements are known as new urbanism, smart growth, livable communities, and sustainable planning. These resonate well with environmental groups, but a larger segment of the population is undecided or confused by the growing claims and rhetoric. These anti-sprawl movements lead to very normative planning stances and practices that can be characterized as advocacy planning, not for underrepresented groups, but for a planning concept that intends to change majority preferences and behavior. Advocating a concept that opposes two strongly held aspirations of the majority of Americans -- personal housing and personal transportation -- leads to controversy. It intends to influence consumer preferences and behavior by means of urban design. But the anti-sprawl movements are not satisfied with the tools of urban design; they compound the political risk by reliance on mandating densification to

achieve compact development that they assume will be less land consumptive, more efficient to service, and less auto dependent.

The smart growth concept calls for compact, mixed-use developments that are denser than conventional developments to encourage pedestrian and transit use. This concept is based on earlier neo-traditional and new urbanism planning studies that found that residents in older traditional neighborhoods make fewer auto trips and more transit trips. Some of these early studies did not provide adequate controls for socio-economic differences and self-selection effects, however. Consequently, the importance of increasing density to reduce auto dependency is likely to have been overstated.

The Density Debate

Myers and Kitsuse (1999a) review the overlapping literatures of compact development, sprawl, and new urbanism that relate to density of urban development. The sprawl apologists' view is that dispersed development patterns are the realization of widespread homeownership and personal transportation in a setting that combines urban and rural amenities, and escape from urban slums. On the other hand, the anti-sprawl movement is driven by a vision of an escape from endless strip development to a return to the architecture and urban design of the 1920's as a baseline for building communities that support strong citizen participation, provide affordable housing and promote social and economic diversity. The design and regulatory tools to achieve these goals are more compact development patterns and reduction of auto dependency.

The biggest dispute in this debate is the classic issue of whether design and development can and should influence consumer preferences and behavior. The principal point is whether current travel behavior should be taken as a given and cannot be affected. Another contentious point is that most new urbanism projects have been new towns or development projects on the suburban periphery, and that infill projects are more in keeping with the movement's environmental philosophy and should be the primary focus of attention in the future.

This essay addresses the issue of upzoning and mandated densities to achieve compact development in suburban residential infill areas to implement an urban growth management policy. Urban growth management programs have to rely on policies and regulation since they cannot control the design process directly. Consequently, mandating density becomes a primary tool of growth management, and it is a blunt instrument by which to achieve the growth management and smart growth objectives.

The Problem of Using Density as a Policy Instrument

Denser developments can be designed holistically when the site is clear, as in greenfield development, or when a site is being completely redeveloped. However, these developments need to be large in order to impact travel behavior. Nevertheless, these

large projects have to fit into the fabric of nearby developments, which may necessitate use of the auto to access the new smart growth project. On the other hand, infill development provides greater opportunity to fit into the fabric of nearby development, but mandating greater density in single-family suburban neighborhoods may not produce the objectives of smart growth. Where these objectives are not realized, the resulting quality of development is compromised and the neighborhood is adversely impacted by development of a different character.

Minimum density requirements mandate that a developer plat or build out a development to at least some percentage of the allowable density, usually 80 percent. So if the allowable density were eight dwelling units per acre, the required minimum density would be six units per acre.

Reliance on minimum density requirements is greater in states with state-mandated land use planning and growth management, such as Oregon and Washington. Planners minimize the total amount of land needed to accommodate population projections by increasing densities. Minimum density requirements are used to insure compliance with the stated densities of the growth management plan, thereby reducing land consumption for urbanization.

The rationale for planning interventions into land use markets is the market's failure to allocate land efficiently or equitably. The ostensible purpose for increasing density is to reduce land consumption for urban uses, to reduce auto use, and to reduce cost of infrastructure provision. Smart growth places a premium on mitigating the adverse effects of urban growth, and if the urban land market fails to minimize them, governmental intervention is warranted. On the other hand, consumers may be willing to pay for larger amounts of land, more auto travel, and more infrastructure than planners would like. If higher densities are not attractive to consumers, they will not reinforce the mandated densification and the policies will fail. In order for densification to succeed in terms of improved efficiency, it must reinforce consumer preferences and tastes.

There are two issues associated with mandating density that need considerable discussion within the planning community, with ample public involvement. The first is the relationship between personal transportation and density, and the second is the effectiveness of density-increasing policies. These two issues are inter-related in that higher density will increase auto use and congestion within an area faster than any density effect of rising pedestrian and transit use can cause a reduction in auto use.

Personal Transportation and Density

Mandating higher densities is driven by expectations of decreasing auto use and increasing use of alternative modes. Yet, the evidence that this will occur is weak. For the foreseeable future, people will rely on the automobile to satisfy a great majority of their personal transportation needs. Regardless of the success of new pedestrian and transit-oriented developments, the vast majority of travel will continue to be by auto. In

growing urban areas, the argument that “we can’t build our way out of congestion,” or assertions that new highway capacity will only induce more travel and congest again, fails to recognize the expression of personal travel preferences. Moreover, not all of new capacity is consumed by induced travel. The majority of new capacity will serve a needed function in growing regions. The urban planning profession cannot continue to ignore the fact that about 90 percent of new trips will be by auto, and not provide for them. Dunn (2002) argues that smart growth starts with the automobile.

Smart growth, if it is to live up to its name, must be a realistic and positive framework for evaluating the major public policies that affect surface transportation and land use. Because all new policies start from the status quo, smart growth must be based on preserving the enormous benefits of automobiles, highways, and existing suburbs. At the same time it should support practical, incremental changes that improve the auto’s performance and further reduce its negative impacts on urban and suburban communities. The framework should clearly not be based on an ideological anti-auto stance whose universal response to any perceived problem is to call for reductions in auto travel.

..(S)mart growth’s proponents should keep in mind that for the foreseeable future, no transport technology has enough advantages vis-a-vis the car to displace the automobile - highway system for most trips most of the time. There are many modest ways that we can improve the design and layout of the new communities that we build each year. Bike paths, pedestrian pockets, creative clustering of homes and shops, preservation of open spaces and the like can all give our towns a more comfortable feel and enhance our choices for making local trips. But for access to the full range of opportunities in our metropolitan areas, the automobile will remain the essential vehicle, and the mode of choice for the great majority of Americans. Within this framework there is room for many useful amenities , such as bike paths, more walkable suburbs, and carefully selected investments in improved public transit, as long as it is clear that these must be *in addition to* the option of auto travel, not instead of it.

Planners need to take a more realistic stance with respect to personal transportation, particularly in suburban contexts. Planners often assume, with little or no evidence, that people will switch to transit if larger transit investments are made, and if roads are allowed to congest and land use densities are increased. In fact, transit usage continues to decline in all but a few cities, particularly for the journey to work.

Too often mandated targets for reductions in auto use and parking, and for increases in use of alternative modes gets translated into upzoning and greater land use densities. Because people are less reliant on autos in older higher density areas, upzoning and minimum density requirements are believed to be effective in meeting these mandated auto-use reduction targets, even though the effectiveness of the density tools in infill development situations in auto-oriented suburban locations may be quite minimal.

Increasing density does not obviate the need for new arterial roads. It may reduce the number of road miles, but those roads need more lanes or arterials need to be spaced closer so that the net difference in lane-miles is not great. Although shorter trips and fewer auto trips are associated with denser developments, there is not a sufficient reduction in auto travel on a per person basis to offset the additional travel of more population associated with higher densities.

Examination of Density-Related Policies

Many urban planners have embraced densification as an anti-sprawl strategy. In addition to increasing allowable densities, regulating minimum densities is seen as a way to insure that developers will build to allowable levels, i.e., not underbuild. This way of encouraging multi-family development or single-family housing on smaller lots can lead to perverse effects, particularly increasing the use of cul-de-sacs and shared driveways. It is proving difficult to discourage single-family housing. Platting practices are not leading to very desirable developments, either from the perspective of planners or developers. Examination of three subdivisions on Finn Hill, an unincorporated part of King County, WA (the northeastern suburbs of the Seattle urbanized area) illustrates implementation issues of a densification policy.

The proposed plat of Portico on Finn Hill subdivides 2.85 acres into 20 lots. The plat (Figure 1) illustrates a significant problem when R-8 zoning (eight lots per acre) is used in conjunction with single-family housing. The zoning is too dense to achieve a high quality single-family development. The lots in the plat of Portico on Finn Hill are too small and difficult to access for size of single-family housing that is being built in the area. This suggests that R-8 zoning should be confined to townhouse or duplex developments and should not be allowed for single-family developments in areas such as Finn Hill where only small infill subdivisions are possible. This infill plat produces lots that are smaller than existing lots compared to those that surround it.

Interviews with the developer and the developer's engineer/planner indicate they would have preferred to build a single-family development with larger lots, but the minimum density requirement (80 percent of allowable) forced a less preferred plat. From a planning perspective of King County planners, a preferred product would be a townhouse or a multifamily development for R-8 zoning. Rather than requiring multi-family housing, however, the County lets the market dictate housing type and accepts a plat of lesser quality, rationalizing the resulting single-family product as more affordable. But this affordability benefit has not been confirmed. The land cost saving of getting more lots per acre may be capitalized into the price of land, instead of being passed to the purchasers of the new homes in a strong market for single-family housing.

The County's densification policy is based on the State of Washington's Growth Management Act that establishes urban growth management areas that concentrates urban population, thereby protecting rural areas from urbanization. This densification of

population within urban growth management areas also attempts to reduce auto use, and infrastructure costs that are a function of the front footage of a lot.

The other two Finn Hill plats (Figures 2 and 3) in suburban King County have similar cul-de-sac designs along with shared driveways to access landlocked lots. All three plats illustrate crowded, small, and difficult to access lots in a single-family neighborhood where older subdivisions are of a more typical R-4 or R-6 densities. The second and third plats are built out, and inspection shows a crowding of single-family homes on small lots and difficult access via cul-de-sacs and shared driveways. The houses tend to be oversized in comparison to the smaller lots. The residents of this new housing do not appear to differ from current residents, but there are no data to assess whether demographics and travel behavior differ.

The developer of Ashton Gardens (now called Calibria) indicated that the mandated density coupled with stormwater management requirements makes the development process more time consuming, more difficult to obtain approvals, and more expensive to engineer. There is less room to work in providing infrastructure. He would like greater flexibility in lot sizes and feels a 7000 sq. ft. lot is more appropriate and marketable in this suburban neighborhood.

The saving in land consumption attributable to the upzoning and minimum density requirement is difficult to estimate without developing a conventional subdivision plat for the same piece of raw land. This is needed to know how many fewer housing units would result from a conventional subdivision. The amount of land needed for streets, common open space, and stormwater management will differ. The simple comparison is of the preferred lot size of 7000 sq. ft. to the 4000 to 4500 sq.ft. lots that result from application of the upzoning and the minimum density requirement. This upper level estimate of a 40 per cent reduction in land consumption is quite significant, but it must be reduced to reflect more common areas are needed in areas of higher density for streets, common open space, and stormwater management. The issue is whether the reduction of land consumption is partly or wholly offset by the negative impacts.

Achieving smart growth objectives in Finn Hill by mandating densities is questionable. It does not produce a type of housing – row houses or garden apartments – suitable for denser R-8 zoning, nor is it achieving the other objectives of smart growth, such as street connectivity. Instead it produces single-family housing on lots too small to satisfy either developers or planners. Nevertheless, the demand for single-family housing is very strong in the Seattle area and consumers are buying, but consumer satisfaction, time-on-market, and price effects have not been assessed. It will be interesting to see the strength or weakness of the housing in these plats on the resale market.

Density Incentives

Recognizing the problems of mandating minimum density in infill situations Clark County WA provides incentives in the form of reduced lot size in subdivisions of 2.5

acres or less that are bounded on at least two sides by existing development. In addition, they give incentives for duplexes as illustrated in Table 1. This incentive approach provides developers greater flexibility to increase density where they think the market will support higher density. Although this approach does not guarantee higher density, it will allow densification in areas that planners encourage it to occur and developers concur. This indicates that the bluntness of minimum density requirements can be alleviated somewhat, yet enable higher densities where appropriate.

Table 1
Minimum Parcel Area for Single-Family Dwellings
(Attached and Detached)

Zoning District	Minimum Parcel Area Detached Single Family	Minimum Parcel Area Attached Single Family
R1-5	4000 s.f.	3000 s.f.
R1-6	4500 s.f.	4000 s.f.
R1-7.5	6000 s.f.	5000 s.f.

Source: Clark County WA

R1-5 is single-family zoning with a minimum lot size of 5000 square feet. The proposed Clark County ordinance provides a density incentive by reducing the minimum lot size to 4000 square feet for detached single-family dwellings and a minimum lot size of 3000 square feet for attached single-family dwellings. This incentive approach is preferable to the upzoning and minimum density requirement used by King County, because it provides developers greater flexibility in responding to market forces. However, this incentive approach is in process of adoption in Clark County and has not produced results that can be assessed.

Density in Urban Centers

The effect of minimum density requirements in high-density residential and commercial areas differs from suburban residential infill, as discussed above. Use of minimum density requirements in commercial areas is having the effect of under-building and diverting development from those areas. Portland Metro commissioned a study to determine why urban centers were not building out at desired densities. The consultant, ECO Northwest (2001) found that:

- The primary reason for under-building in urban areas is the lack of financial feasibility. Higher densities in urban centers are not profitable under current market conditions. Current land values do not support higher mandated densities.
- Land values are good indicators of when density becomes profitable. If land becomes relatively more valuable than it is now, the private market will move toward more

density of development, and if public policy does things that increase the price of land density will happen sooner.

- Zoning is still ahead of the market. Market conditions and public policy have not made land scarce enough, have not made urban center locations superior enough in terms of transportation or amenity, and have not seen demand great enough to cause land values to rise fast enough in urban centers that rents can be demanded that make high density profitable without public assistance (e.g., land assembly, fee waivers, tax abatement).
- The cost of structured parking is the most significant financial limitation cited with respect to achieving higher densities in urban centers. The cost of structured parking exceeds what can be justified on a financial basis by any associated revenue gain in most locations outside of the central city downtown. Surface parking is substantially less costly to provide when underlying land values are low, and this reduces overall density.

Densities typically increase in response to market demand. It is not something that can be mandated successfully in absence of a strong market to drive up land prices. If densification policies weaken market demand they will inhibit the increase in land prices that are needed to sustain densification.

Conclusions

Achieving densification by regulation is difficult as illustrated by the three plats from unincorporated King County WA. Adding more regulations to deal with these problems, such as banning cul-de-sacs, would only add to the constraints imposed on developers. Minimum density requirements appear to be a problem, particularly in suburban residential infill subdivision situations. Minimum density requirements make it difficult to design developments that will sustain densification.

This examination of platting practices illustrates that blunt regulations of density aimed at the automobile and single-family-housing is not producing a shift to alternative modes of transportation, nor patterns of quality development. This approach to implement growth management objectives is not working well in areas of infill development. While mandated densification does result in higher densities for infill subdivisions initially, it may not prove to be sustainable over time, nor is it producing other aspects of smart growth, i.e., street connectivity and walkable neighborhoods.

The combination of upzoning and minimum density is reducing land consumption by up to 40 per cent. The actual reduction is likely to be less due to differences in land set aside for streets, common open space, and stormwater management. But the important issue is whether the saving in urban land consumption is worth the negative effect and the lack of achieving other objectives of densification.

In infill situations, the design process and density incentives may be preferable mandating density to curb sprawl, if indeed sprawl is a problem warranting governmental

intervention. Density increases in response to strong market demand and regulation of density tends to weaken demand. As indicated in the ECO Northwest report for Portland Metro, density increases in response to increases in land values, which occurs in response to increased attractiveness to consumers. Consequently, there is a danger in forcing density by requiring minimum densities. To the extent that it reduces attractiveness to consumers, the regulations may be counterproductive if they do not reinforce the natural tendency for density to follow an increase in land values. Similarly, subsidizing higher density developments will not be followed by a natural increase in density if it is not supported by an increase in attractiveness to consumers followed by an increase in land values. In addition there is little evidence that the benefits of density warrant subsidization.

It is difficult to achieve the objectives of smart growth by mandating density. In some instances urban designers and real estate developers may be able to achieve attractive, functional, and profitable developments, but in other instances the constraint of working under a minimum density requirement may cause development to go elsewhere or may result in poor designs that do not satisfy planners, developers, or consumers. However, this conclusion concerning consumers will require analysis of the price effect of density as measured by dwelling unit density, lot size and development type.

Housing price models are being estimated for the Portland metropolitan area. Preliminary results indicate that small lots (less than 5000 sq. ft.) have a depreciating effect on the price of new, detached single-family houses, controlling for other influences. This penalty for smaller than normal lots reflects consumers bidding less for small lots. Future research needs to compare this impact of King County's densification policy to the benefits of land consumption reduction. Similarly, research is needed to compare the demographics and travel behavior of residents of the new denser developments to residents of conventional developments.

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Figure 1. Proposed Plat of Portico in Finn Hill

Figure 2. Appletree Subdivision at Corner of NE 124th St and 84th Ave NE on Finn Hill

Figure 3. Ashton Gardens Subdivision at NE 120th St and 82nd Place NE on Finn Hill

