

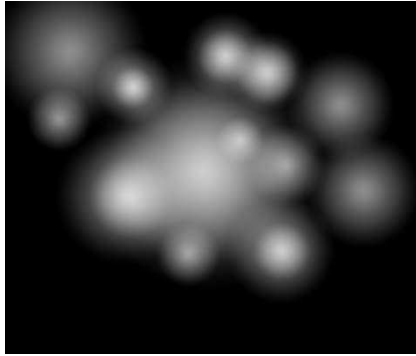
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Policy Guidelines for Using Point and Line Geometries to Build a Greener Suburb

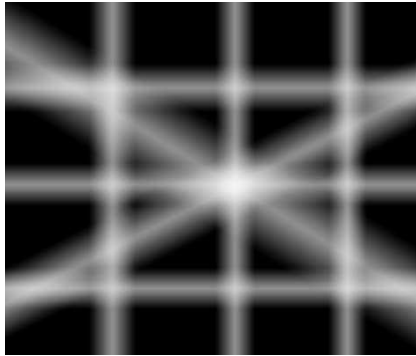
Sprawl has been defined in many ways: low density, distance between new developments, large areas of single use, among others. However, the problems of sprawl are almost universally agreed upon: freeway automotive dependency, agriculture and open-space are eaten away, commute distances increase and new housing is often at the expense of existing areas. But these are the problems associated primarily with *new* sprawl; there are also continuing problems associated with older developments, that, in their day, might have been considered sprawl if that term had existed.

Coming off the housing boom, there will be practically no new housing development in outlying, exurban areas in the next five to ten years as demand catches up with the surplus. What is built is built (and there is plenty of time to brainstorm new exurban forms for when the building industry takes off again), so at this juncture it is critical to look at the already developed areas of our suburban landscape—areas that might be approaching the end of their “high appeal” or “mint condition” life-spans—for strategies on how to adapt the existing sprawl into something greener, more functional and with a higher quality of life.

The following land use and public transportation policy guidelines are based on two competing abstract forms for the shape of uses and intensity in a city: the point and the line. The “point city” is one where uses and intensity change with radial distance from a point; the “line city” is one where uses and intensity change with perpendicular distance from the line. All cities are, of course, a combination of these two abstractions, but, with the rise to ubiquity of the



automobile, the “line city” is practically all that is built any more. In fact, the “line city” model can explain many of the continuing problems associated with suburban sprawl: residents who don’t walk anywhere, dependence on “big-box” stores for goods and services and the ineffectiveness of TODs to combat traffic.



The “point neighborhood” is ideal for public transit. Stations define the “point,” where there is a modal change from riding to walking. Areas on the transit line between the stations are completely irrelevant to the experience of the rider,

and so tend to be of low density and intensity. The pedestrian, once she has disembarked, is free to travel in whatever direction she wants, and is not easily contained by hierarchical paths. The resulting characteristics of an ideal “point neighborhood” are as follows:

- 1) Gradually decreasing intensity of use with distance from the station in all directions
- 2) A comfortable walking environment including
 - a) Canopies and trees
 - b) Small parcels and parcel frontages with small signs
 - c) Many intersections and route choices
 - d) Few traffic signals
 - e) Small commercial and office uses (i.e., nothing that requires a shopping cart)
 - f) Narrow roads and slow traffic
- 3) A density of population, exposure and activity that is spatial rather than temporal (i.e., more people in a certain area at a certain point in time)

The “line neighborhood” is ideal for cars. The boulevard defines the line; every point between where you get on the boulevard and where you get off is equally accessible. It is the hierarchical path that everyone must go to in order to get anywhere, and, as such, the drop-off of intensity with distance from the line is much faster than with distance from the point. The node, where two or more lines intersect, has only the intensity of use as the sum of the intersecting lines: there is no modal change. Additionally, the node makes a poor point; uses and intensity do not change with distance (imagine a single family home neighborhood in the crook of the arms of intersecting boulevards). The characteristics of a “line neighborhood” are as follows:

- 1) Linear high intensity of use, decreasing rapidly with distance from the line
- 2) A comfortable driving environment including
 - a) Few visual obstructions
 - b) Large parcels and long frontages with large signs
 - c) Few intersections; hierarchical routes
 - d) Large commercial uses (big-box stores and malls), automobile-centric commercial and industrial
 - e) Wide roads and fast traffic
- 3) A density of population, exposure and activity that is temporal rather than spatial (i.e., more people going by a certain point in a certain time frame)

Though the point and the line are competing structures, they are not incompatible in a city. This is because the “point neighborhood” fits perfectly in the spaces between the lines. The whole city does not need to be rebuilt, nor do we need to “revitalize” areas that already function magnificently for automotive travel. The answer is to focus the energy of intensified land use on

those areas farthest from the boulevards that define the line: the very center of suburban tracts, which, for the most part, already conform to the “point neighborhood” paradigm.

Our single family home neighborhoods were not designed for the car. They were designed to emulate the countryside, with winding roads, bumps and every other contrivance to get people to slow down. And every idyllic dream of the countryside has its town center, where the basic necessities and social vitality are to be found: a place of spatial intensity of population and services, and the place where most local residents can best connect with the outside world.

Fundamentally, a suburban public transit system must give residents a choice: travel out to the boulevards when you need to get somewhere by car, or in to the center of your neighborhood when you want to use point-based transit.

There are characteristics of existing public transit modes that can be combined (if positive) and excluded (if negative) to create an ideal system for connecting the centers of suburban neighborhoods.

- Positives for buses
 - 1) Inexpensive to service and operate, due to relative ubiquity
 - 2) Highly adaptable, due to universality of roads
- Negatives for buses
 - 1) Slow: stops at nearly every block and must obey traffic signals
 - 2) Waiting at stops is uncomfortable: on the street one is surrounded by strangers with no security and without the comfort of moving to a safe destination
 - 3) Frequency of stops makes them an awkward mode for the middle class: one feels that there is no discrimination against people who might make the ride unpleasant or unsafe

- 4) Because they generally travel along boulevards with such a high stop frequency, they feed into the “line city” structure
 - 5) Destination is usually just the start of an unpleasant walk, either across a mighty parking lot or along a noisy thoroughfare
- Positives for trains
 - 1) Fast: low frequency of stops and no traffic signals
 - 2) Generally already associated with “point city” areas through historic organic growth
 - 3) Loading and waiting areas off the street are easy for security to patrol and for cameras to watch
 - 4) Ticket vending expedites process; makes it easier for repeat users to obtain passes
 - Negatives for trains
 - 1) Very expensive to implement; rail locations are often limited to what is feasible, not what is best
 - 2) Generally too loud for widespread suburban use

A close examination of these lists proves that a system that incorporates the best attributes of both systems can be constructed with the following characteristics¹:

- 1) Road-based shuttles are already universally used by airports, hotels, senior centers and government, have low implementation costs, are generally quieter than even buses and can be outfitted with low-greenhouse natural gas

¹ It must be stressed in passing that no new transit system should exist at the expense of current bus routes and schedules; they are too vital for the lower income community that depends on them. The proposed system is meant to exist as a parallel system that radically improves the comprehensiveness of the entire transit network of a community.

- 2) A low frequency of stations (e.g., 2 miles between them) saves on security and station building costs, increases level of service and ensures that the resulting urban form is station- (i.e., “point-“) based and not route- (i.e., “line-“) based
- 3) Stations located off the street in comfortable, well observed areas such as parks, library and school parking lots and large roundabouts
- 4) Ticket vending machines; snack-shops and newsstands might provide security at more popular stops and be a destination for neighborhood shopping
- 5) Wireless traffic signals that allow shuttles to go through intersections at speed²

By adding residential density around these suburban parks and amenities, the shuttle system can optimize transit use for those areas already poorly served by automobile use (i.e., areas that have the farthest to go on slow residential streets to get to the boulevards). However, it is likely that strong community opposition will face any attempt to add density to suburban neighborhoods. Two strategies exist to combat this opposition: creation of individual incentives and community outreach.

Incentives can be built by allowing government entities such as redevelopment agencies to build 2 to 3 units on an existing lot in exchange for equity sharing of the proceeds from the sold units. This scheme should, in particular, benefit seniors who are underutilizing their household space and who might need an influx of money to stay in their neighborhood. It may also benefit investors who are willing to buy one house and sell three. These areas are also ideal

² Suburban neighborhoods have very few traffic signals (the proposed system would only be crossing boulevards, not moving along them), but they do have stop signs which are often necessary to slow down residential traffic. A system can be introduced along routes that replaces stop signs with flashing red lights that turn solid red (for cross traffic) when a shuttle is approaching.

for low income housing programs, but caution should be taken that the density of low income units doesn't add to the concerns of local residents. Finally, in areas immediately adjacent to the proposed stations, limited commercial, office and mixed use zoning could be allowed, increasing the potential value of those lots. Vital to community support, however, is the guarantee that lots not be combined to create super-projects that would ruin the character of the neighborhood and vastly decrease the effectiveness of the proposed system.

Community outreach begins with a thorough canvassing of neighborhoods where proposed stations might be, so that an idea of how people might use the system could be gleaned. From this, a set of destination stations could be devised, such as the centers of business parks, existing train stations and local pedestrian-oriented shopping areas. (Care should also be taken in devising the locations and land uses around stations in industrial areas, with smaller office and industrial uses closer to the stations and larger complexes, which can often afford to pick up passengers with their own shuttles, farther away).

Advantages to the system that can be stressed in community outreach include

- 1) Increased mobility for school-bound children and seniors
- 2) Greater transit mode choice for commuters and shoppers
- 3) Increased community identity, more small town atmosphere
- 4) Combined potential for higher land values and lower costs of living

Finally, it must be stressed that existing residents continue to have a voice in the form their community takes. (This is the biggest advantage of not creating super-projects: the community can respond to issues that arise as they arise and the system is ingrained with the opportunities of responsiveness and adaptability.) These communities are already defined by the

boulevards at their borders and often have good, intimate knowledge of the state of things within those borders. Outreach must be continuous to determine what community members' needs are not being met, to determine what local services could be attracted (doctors offices, post office, bank, etc.), and generally just to let people know that they don't have to be captive to the boulevards anymore.

