



Containment Policies for Urban Sprawl

By Dr. Mason Gaffney

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OF CONSERVING ENERGY

JOINT HEARINGS
BEFORE THE
SUBCOMMITTEE ON THE CITY
OF THE
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BANKING, FINANCE AND URBAN AFFAIRS
AND THE
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OVERSIGHT AND INVESTIGATIONS
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U.S. HOUSE OF REPRESENTATIVES
NINETY-SIXTH CONGRESS
FIRST SESSION

DECEMBER 11 AND 12, 1979

Serial No. 96-42

(Committee on Banking, Finance and Urban Affairs)

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CONTAINMENT POLICIES FOR URBAN SPRAWL

by Mason Gaffney

Stephen Leacock once wrote of "Worthy Causes for which I have Eaten Dinners." I, too, have eaten for causes: civil rights, tax reform, free trade, higher education . . . but this is my first meal for "Urbanism." I'm not sure I can define it, but it sits well on an empty stomach. It is at any rate appropriate that urbanists should dine out on the Fords, whose most famous product has contributed so much to the problems we now undertake to solve.

As our M.C. indicated, I am engaged in research on agriculture in California. I, therefore, feel a little miscast in this urbane company. When speaking on the prune industry of California, I know that I speak informed, for my last audience told me I was quite full of my subject. But when speaking on cities, my claim on your attention must be in the role of the Man from Mars, or perhaps that of Rip Van Winkle, for it is true that I was a city boy some years ago.

My subject is 'containment of urban sprawl.' First I will ask "Why should we want to contain urban sprawl?" Next I will discuss what I call "negative containment policies," or the Truman Doctrine applied to our cities. Third, I will discuss the economic rationality of discouraging sprawl by graduating utility and transportation rates by distance from load centers, which I would describe as "neutral containment." Finally, I will describe positive containment or positive land-use suasion through the use of the high latent capacity of central lands as the base of ad valorem property taxation.

I. Why Containment?

A. Inroads on farmland

Why should we want to contain cities? Some of my agricultural

brethren regard the answer as too obvious to require demonstration: cities are dangerously seductive, sterile and wicked, and, like the Soviets, belong behind a Curzon Line and cordon sanitaire. The Soil Conservation Service entertains the Malthusians with endless excursions and alarms over dangerous inroads on our best cropland, and agricultural extension men rarely gather without deploring the loss of their territory to an alien power.

I quite agree with the soils fundamentalists that the loss of good cropland is often a needless waste, although I would stress much more than they the high location value of the soils invaded by our sprawling cities, and much less than they the alleged absolute world scarcity of good soil as such. The loss of soil as such is a minor part of the damage from urban sprawl, because of the high-infinite scope for intensification of use of our vast and carelessly husbanded soils remote from cities. Our economy has demonstrated a remarkable weakness for generating excess capacity in most industries, and agriculture above all.

We run no danger of running out of cropland. Consider the most extreme case, the destruction of southern California's Valencia citrus industry by the insatiable subdividers of Los Angeles. It is tragic, it is largely unnecessary, yet there remain in California, in the southern San Joaquin Valley alone, something like one million acres with thermal conditions suitable for citrus, according to a recent report from the Riverside Citrus Experiment Station. The Central Valley Project, the Feather River Project, the San Luis Project, and a rash of Engineer Corps dams on San Joaquin Valley streams are bringing water to this land. Meantime Florida has run off with the

lion's share of the U.S. citrus industry, easily filling the shortage left by Los Angeles, Italy and Israel are beginning to wonder where they will ever market the surpluses from all their new acreage soon to bear. The problem is going to be to find markets for the produce of all the new groves now coming into bearing -- groves planted closer, with better stock, and managed more knowledgeably than the declining old Los Angeles groves they are replacing. If citrus costs more it will be because urban sprawl has put more distance between producer and consumer, and producer and packing house, and not because it has preempted a few thousand acres of irreplaceable soil.

A parallel case can be made regarding the deciduous fruit industry of Santa Clara County being destroyed by San Francisco sprawl. The prunes and apricots are simply moving out to the wider horizons of the Central Valley, where there is wide scope for intensification.

The problem which urban sprawl imposes on agriculture is therefore of another sort from that which exercises the Malthusians. Horticulturalists fleeing the city bring a new high standard of intensity to the areas where they alight, and a higher standard of land values which tends to drive less intensive agriculture before them, just as they have been driven. And, as with the city, the problem is exacerbated by sprawl, for we can see a sort of citrus sprawl and apricot sprawl in the scattered and capricious development of new areas. Citrus drives out deciduous, deciduous drives out vines, vines drive out cotton and alfalfa, these drive out barley, and so on clear to the bottom of the pecking order. Thus urban sprawl sends out shock waves into the countryside which travel through the entire hierarchy of land uses. The long-term result of this is development

of excess capacity in agriculture.

I think it is fair to say there is not an acre between San Francisco and Los Angeles whose price has not been inflated by urban sprawl. When a suburban farmer sells out, the law lets him defer his capital gains tax indefinitely if he buys another farm within one year. That has sent hundreds of buyers with more money than brains, as one real estate man put it, swarming over the countryside seeking someone willing to sell immediately. It bids up prices so that no one without a special tax situation can afford to buy land unless he is willing to pay for it out of his hide, so to speak, or is willing to gamble on putting it to a more intensive use than most people have heretofore considered economic. Again, the result is a tendency toward premature intensification of many lands, in a scattered pattern that tends to develop excess capacity.

So I agree with the Malthusians that we should contain urban sprawl partly for the sake of agriculture, although I disagree with them over the nature of the damage being done.

B. Containment for the city's sake

I must also demur the Malthusians' emphasis on the paramount importance of farm soils. Damage to agriculture is severe and consequential, but cities are more important. Not only do most of our people live there, not only is most of our production centered there, but something like 80% of the country's land values are found in the city--a fact so contrary to the prevailing folklore that it bears endless repetition. It is the problems of the city that command first attention. Even as resource economists and conservationists our first concern should be for the resource called

urban land, whose market value betrays the secret, so well hidden beneath the conventional rhetoric, that our most valuable natural resource is the tiny fraction of land surface best fitted by location to bring men together for cooperation, exchange, and fraternization.

1. Containment and artificial scarcity

When I say we should contain cities for "their own sake" I do not mean for their invidious advantage over farmers which might be gained by maintaining an artificial scarcity of urban land. When planners have spoken of "maintaining urban values," I am afraid they have not usually distinguished carefully between two fundamentally different means to that end: upgrading quality and efficiency is one; limiting the total supply is the other. The former is in the general interest, urban and rural, landlord and tenant, employer and worker. The latter is for the partial advantage of urban landowners against other groups, a radically different concept. I suspect the general blurring of distinction between the two ideas is not entirely accidental, as it is so much more socially acceptable to approach the latter end by preaching the former. Let me then begin by signalising the distinction and repudiating artificial scarcity. Urban containment is desirable to enhance the quality and efficiency of urban living, but not to redistribute values to the advantage of urban landowners.

2. Containment for urban efficiency

We should contain cities in order to enhance their own efficiency. When I say "efficiency" I do not have in mind the cold-blooded narrow concept of frightful mechanistic dehumanisation that is employed by a few economists, and wrongly imputed by many sociologists

to all economists. A thing is only "efficient" in terms of some definition of output, and most economists define output ultimately in terms of human satisfactions--warm, palpitating, social, irrational, traditional, exasperating, faddy, flighty, Freudian, Veblenesque, unnecessary human satisfactions. The economist's initial concession and postulate of consumer sovereignty is calculated to disarm all those who tax him with excessive rationality, and would, if they troubled to learn about it. Efficiency to this economist means maximizing net human satisfactions, as humans are pleased to reveal them, with the resources at our disposal.

An "efficient" city is one that maximizes ease of contact among individuals, giving people, both in their character of consumer and producer, the widest choice among alternative contacts with the least difficulty. Efficiency entails sharing the cost of common facilities. In the economists' Choctaw, that is expressed as exploiting the economies of scale in decreasing-cost operations (that is, operations whose unit costs fall as the patronage rises.)

It is here I think my brother economists, or perhaps I should say my city cousins, have been remiss in failing to emphasize that decreasing cost operations achieve their economies of scale not just by finding new customers, but finding them within a given perimeter. Scale of operation and density of service area are not exactly the same. They may appear equivalent, to be sure, but what appears equivalent is not always so.

Here we have a case where two concepts are customarily treated as though they were equivalent and congruent, when they are merely overlapping. The result is loss in the power and accuracy of analysis.

Let us distinguish economies of scale, such as arise from having a larger water works plant, from economies of density, which result from close congregation of customers. Compactness of population does permit of economies of scale, by increasing the number of customers within economic reach of one load center, but is obviously incidental to the basic saving in distribution. With many utilities, distribution costs more than production, and distribution savings themselves are the paramount consideration.

Consider water distribution. If demand doubles within a fixed service area by doubling density, we need simply expand all pipe diameters -- and not by double, but by the square root of two, since cross-sections increase with the square of the radius. But if demand doubles by doubling the service area, at constant density, we must (a) double our pipe mileage; (b) double the cross section of our old system at its base, and more than double it elsewhere, to transmit the extra load through to the new extension; (c) increase pressure at the system load center to maintain it at the fringes, (especially if the new lands are higher); and (d) upgrade our pipe-joints to hold the extra pressure.

Actually these four simplest considerations understate the case a good deal. We should add the factor of peaking. The fewer customers on a given line, the higher is the usual ratio of peak demand to mean daily demand because there is less pooling of offsetting demand patterns, and more lawn sprinkling. There is also a factor of planning expansion. "Containing urban sprawl" does not imply halting growth, but holding it inside compact increments, whose ultimate density is known in advance and will be reached quickly, saving

utilities from the waste of under- or oversizing their lines in the face of uncertainty. Urban sprawl as known today not only reduces density but breeds extreme uncertainty of future density.

What about autos, I hear someone say. Auto traffic seems to have reached the density that produces congestion, and congestion is the basic cause of increasing costs. The case for higher density is not quite so immediately obvious with automobiles as with water pipes, but I think equally strong. It is a specious analysis indeed which would impute traffic congestion to high residential densities. For one thing, the more distance lies between A and B, the more miles must be covered to achieve a given level of linkage. Sprawl requires more road mileage for a given population, but the need to use it increases in proportion with the mileage, with no reduction in congestion per mile. Road funds that might be used to widen streets, bridge strategically, and overpass heavy intersections are diverted to lengthening streets. Public transit, which is a decreasing cost operation, fades away, forcing ever greater dependence on private cars. Urban sprawl is not a flight from traffic congestion but the primary source of it.

3. Containment to help cities grow larger

It may sound paradoxical, but a basic reason for containing urban sprawl is to let cities grow larger. I do not mean wider or vaster, but more populous and more wealthy.

Cities exist to bring people together. The city is an organism, a distributive organism spread over some space. That which makes it an organic city, rather than a mob of lower animals competing for light and air, is the set of circulatory systems that tie

the pieces together. These distributive networks must overcome space, essentially, and the more space there is between pieces, the harder their job becomes. If population can be kept compact, however, and if the corpuscles can be kept flowing easily through the circulatory system, there is no limit within human experience to the advantages of urban size. The variety, the specialization, the drama and excitement, the access to alternatives, the pooling of risks and sharing of common costs, the exchange of information, and other such advantages that can be achieved as a central meeting and market place grows know no limits.

Cities do meet limits, however, when it becomes so far from one side to the other that the city loses nucleation and begins, like the lowly amoeba, to reproduce by primitive fission. The amoeba's extremities are called pseudopods, false-feet, because they are only amorphous blobs of protoplasm and not specialized members integrated as parts of a coordinated higher organism. So it is with the extremities of our sprawling cities, too remote from the center to relate strongly to it and share common costs with the other extremities. It is over 100 miles across what passes for the city of Los Angeles, and that is the model toward which all are drifting.

It is becoming prohibitively expensive to tie our cities together. The New York Regional Planning Association recently estimated a cost of \$50 billion to reconnect what used to be the coherent, articulated city of New York. Los Angeles has kept open the automotive arteries to downtown, but when you get there, where are you? The automobile preempts 2/3 of the CBD, and fouls 100% of the atmosphere.

Reverting to the idiom of my profession, we may sum this up neatly by saying that cities are at once in the stage of increasing returns to scale, but negative returns to more space. The city itself would be better off to disgorge much of the undigested outlying land it has gulped, even if it had no alternative use in agriculture. And of course an important bonus then would be that farming, mining, outdoor recreation, and other land-using activities could be closer to and integrated with the cities.

4. Containment for urban flexibility

Containment is desirable to make cities more flexible. Now, our cities are becoming poorly coordinated spasms. The word "sprawl" is well chosen -- the arms and fingers are so overextended that the coordinating mechanism can hardly control them. The fixed cost of the social overhead capital is becoming so high, per capita, that we cannot afford to replace obsolete public equipment frequently.

What we need in this dynamic world is cities that are light on their feet, so to speak, that can readily face in new directions, adapt to new needs, just as we expect our industries to retool quickly in the face of new exigencies.

Let us look at the private sector. Sprawl tends to paralyze that, too. One point on which I will get little argument is that the renewal frequency of private sites is too slow in our cities -- acceleration of renewal has become recognized as a primary object of public policy in our times. Now what does it take to induce a landowner to demolish an obsolete building and replace it with a good new one? I think I have part of the answer to that question. A year or two ago I was strolling along Park Avenue and noticed them wrecking a sound old thirty-story building. Why? To salvage the

site for reuse under a new forty-story building. If the old building had been in St. Louis I am sure it would still be standing, and in Aberdeen, S.D., it would stand to the end of time. We do not wreck old buildings ordinarily to salvage the plumbing or the mortar, and we rarely break even on old stones or brick. We wreck buildings to salvage their sites for reuse. And that is only worthwhile if the site has a high reuse value which makes it expensive for the land-owner to keep it hidden under an old building.

There are many things about Manhattan Island that I do not care for, but with all its faults it is, or rather two little patches of it are among our most flexible and adaptable urban resources. These are the two high rent areas of which the English visitor remarked "It will be a beautiful city if they ever finish it." The real beauty of Manhattan is precisely that it is not finished, but constantly alive, evolving, meeting the needs of the times. A city is only finished when it is "finished" -- dead, that is.

But when we let our cities, and encourage and subsidize our cities to sprawl out all over the surrounding countryside, we release much of the pressure that would maintain central rents and land values, and we greatly defer the time when it is economical for central land-owners to clear and renew their lands. Cheap land means slow renewal frequency of sites.

That may sound funny coming from me. It even sounds funny to me, because I have long admired Tawney's dictum that a society is rich when material things are cheap, and human beings dear, and long sympathized with Turner's view of the importance of cheap land to American political and economic development. But cheap land let the pioneers sweep over the west like a swarm of locusts, and just so it

is letting our cities migrate continually outwards, leaving in their old centers, not just the desolation of the locust, but obsolescence and arrestment of development.

Such flexibility as we achieve under the present dispensation is achieved by migration rather than renewal. But that means extended lines of communication and supply and a needlessly heavy commitment of the nation's capital resources to transportation and utility distributive networks serving populations too sparse to permit of very frequent renewal of the networks themselves, and at a level of land rents and values too low to force very frequent renewal of the private lands.

No principle of city and regional planning is valid, I submit, that does not anticipate change and adaptation to it. To that end we need high land rents and values to spark private renewal, and many customers per mile of transportation and distributive network to justify frequent adjustment to modern requirements. To that end we need to contain urban sprawl.

Lest I be misunderstood, let me anticipate my policy statement and note that we can keep down the selling price of land titles, and still keep up the yearly cost of holding land, by levying heavy taxes on the base of site value. Thus land is made cheap to buy, but dear to hold, an optimal arrangement in my opinion. But of that, more later.

A new idea, so it is said, goes through three stages. In stage one, it is too ridiculous even to consider; in stage two, it threatens the foundations of the Republic; and in stage three, why, everyone has always known it and it is a Worthy Cause for which

respectable folk may Eat Dinners. The deploring of urban sprawl has arrived at stage three, I think, with startling and gratifying suddenness. How well I remember the arched eyebrows that greeted me as I labored through graduate school not five years ago with this heavy albatross about my neck. The spirit of Richard T. Ely was still abroad in the land, with his artful Pollyanna-ism about "ripening costs" which had helped so many find order and economy in the urban sprawl of the 1920's. Today, we have had so many Jeremiads against sprawl -- I'm guilty of producing one or two myself -- that we can proceed directly to stage four: what might be done about the problem.

II. Negative containment

A. Aspects of the "Truman Doctrine"

Organized society's reflexive reaction to most newly recognized problems is usually in the negative: "Thou Shalt Not!" So it was in the 'thirties that those benighted planners and political scientists who had never swayed to the higher economic rhythms revealed in Ely's doctrine of ripening costs, and saw something amiss in such facts as that enough lots were subdivided in Florida to house the entire population of the United States, looked around for ways to say "No!" The policies they espoused constituted a sort of Truman Doctrine applied to cities.

1. Subdivision control

In the negative spirit of the Doctrine, it was the active agent of sprawl, the leapfrogging subdivider and the errant builder, rather than the holdouts over whom they leaped and among whom erred,

who bore the brunt of wrath. "Block that subdivider" became the keynote; "they shall not pass Verdun." Viewing the carnage of the 'twenties from the perspective of the 'forties, planners told us we should refuse to accept new subdivisions except where they were planned for; refuse to extend utilities to unauthorized developments; and so on. Cities should get extraterritorial jurisdiction to abort unplanned building; counties should zone; suburbs should zone for low density; subdividers should bear more of their street improvement costs; etc. The ideal of ideals held forth was the "Greenbelt," a complete desert undefiled by vile man. By 1940 everyone with any pretense to literacy and keeping au courant knew that the explosive population projections had been wrong, that stagnation and maturity had set in, that the true course of future population was steady or declining, so that willful subdividers and builders would only ruin themselves, as well as the greenbelts, if left to their own devices.

2. Low-density zoning

It is hard to muster votes in a greenbelt devoid of human habitation, and so that scheme has not burgeoned. But the denizens of lands under low-density zoning have proven able to compensate in resources and enthusiasm for their small numbers, and so that kind of modified negative containment has proven much more viable. The extreme is the exclusive agricultural zone as advocated currently in Maryland and California. Landowners in such zones are assessed only on the agricultural capacity of their lands, in return for which they forego for some indefinite period the option of intensifying and converting to urban use. Only slightly less extreme and much more common is the large-lot zoning in force -- again,

for finite terms only -- in many of the horsier suburbs. Like exclusive agricultural zoning, large-lot zoning has proven an eminently workable plan wherewith to minimize land carrying costs while awaiting that intensification which the onrushing tide of population [which everyone with any pretense to literacy now knows is the true forecast] makes inevitable. Meantime, while satisfying the speculator, low-density zoning pleases the planner who still preaches negative containment for its own sake.

All zoning, indeed, partakes of this negative quality. Zoning is never mandatory, only restraining. It is effective only where it undershoots the market, never where it overshoots. It seeks to focus activities where they belong (insofar as that is the objective, and not merely a rationalisation) by interdicting them elsewhere. It can only sanction them where they belong. A sanction is not a mandate, and a zoner is only a nay-sayer.

3. Assessment discrimination

A third kind of negative containment is the assessment of lands by their use instead of their potential capacity. The practice is actually illegal, but nonetheless common for all that. The law stipulates market value as the base for ad valorem taxation; the assessor substitutes a criterion of use and development. This serves again to minimize the carrying costs of speculators and other holdouts and help them maintain a species of greenbelt -- or weedbelt -- around the growing city. It might be conceived as a form of implicit collusion, between the city fathers with interests in maintaining the values of central land and old buildings, and the weedbelt speculators: "you don't compete with us for a while yet, nor

flood our schools; we don't tax you." Often, indeed, these are the very same persons or families.

There is afoot these days a strong movement to formalize and legalize this sort of practice by classifying land according to use and ownership and letting "bona fide" farmers and country clubs continue to enjoy farm level assessments until they are ready to cash in at urban prices. I would not take this movement for legal sanction as a sign of strength of the practice, however, but the opposite. It is the breakdown of the cozy informal arrangements, and the successful demand for reassessment of suburban weedbelts, that has sparked the drive for legal sanction. Nor would I anticipate much more success in the movement, despite its Maryland victory. Any practice that will not bear analysis is bound to do better under the table than over it.

4. "Dead lands"

A fourth kind of negative containment, which was widely practiced in the 'thirties and the 'forties by many important cities and counties, was the cold storage of tax-delinquent lands. Tax-delinquency was the rule in the early 'thirties, and tax-reversion very common. Many cities embraced policies of clearing title and returning the land to private ownership at velocities varying from viscous to glacial.

B. Objections to negative containment

1. Arbitrary redistribution of land values

There are several legitimate objections to negative containment policies. Some are of a distributive nature. Containment, which grants high-density to some and denies it to others, is

discriminatory. A favored area selected by the planner for a new shopping center would become worth some \$100,00 an acre, while land reserved for open space or five-acre lots won't be worth a twentieth part of that. That may please half the owners, who are not interested in early resale, but only in low taxes. But the other half will wax full wrath. When the plan commission and the zoning board flit about sprinkling little golden showers here rather than there, they make millionaires of some and social reformers of others. How anyone could ever expect the losers to accept their fate philosophically is something that occasionally makes me wonder, even though some of my best friends are planners, if they have any idea what they are doing. The fatuity of exhorting those whose lands have been reserved for open space to forego their capital gains out of enthusiasm for the Director of Planning's vision of the "county beautiful" simply staggers one's credulity. Already several landowners have gone to court protesting that low-density zoning was depriving them of property without due process.

Low-density zoning also discriminates among buyers. It is widely observed today that large-lot zoning has proceeded to such extremes that most suburban land is reserved for a tiny fraction of the buyers, while most buyers, the lower-middle class mass market, are restricted to a narrow choice of sites at high unit prices.

2. Monopolistic abuse

Economists discovered monopoly it seems about thirty years ago, or resurrected it and went on a marathon kick. Under Chamberlin they found it in every hit erto innocent jar and tube on our shelves, and nowadays it is even becoming safe to whisper that

labor unions and organized farmers might warrant the pejorative term. Yet, somehow amid this universal imputation of sin, no one has impugned the city fathers, that community of interest of important urban landowners known as municipal government, organized as a cartel in broad daylight and with the force of law at its disposal. No Gary Dinners are needed to administer this cartel, no clandestine machinations, no secret files concealed from the Federal Trade Commission and the Anti-Trust Division. The city dads are simply engaged in protecting property values and promoting sound planning, which everyone has always known are good and desirable things.

The German Historical School of economic thought was not so obtuse on this matter. Their observations of the Hanseatic city-states exploiting their hinterlands afford us great insight into the motivations of city fathers, and every city planner should study Schmoller on Mercantilism before he goes forth to offer himself as the mercenary of modern municipal mercantilism.

As the German historians relate, the monopolistic city can exploit its customers. Frequently, many of these customers are farmers, I might say, and as a cow college professor I cannot resist gloating that I have here an answer to How to Win Deans and Influence Presidents until the last rotten borough will have been reapportioned. The city exploits its customers by stunting its own development, limiting the number of creaking doors and sagging gates through which its customers may go for supplies and services.

There is also exploitation within the city. Employers, merchants, and assorted rent-collectors are generally happy with

policies that keep out untrained interlopers who might have alien ideas about competing for labor, tenants, and customers, and in general keeping the natives restful in their compounds. Negative containment policies have an instinctive fascination for anyone whose interest is to limit competition.

There are many groups who would like to limit competition, of course. But cities tend to fall most strongly under the sway of those who stand to gain or lose most by municipal decisions, and those whose assets are irrevocably committed to the city, that is, the landowners. The rest of the citizens are by comparison mere transients, outsiders and climbers whose organization and influence is seldom commensurate with their numbers. I need hardly remind my fellow Veterans of how the "permanent party" on every military post usually contrived to secure for itself more of the good things of life than the transients. To the dominant landowning oligarchy, the permanent party of the city, few limitations on competition commend themselves with quite the same force of logic as limitations on the entry of new lands into urban use. It is therefore no accident that negative containment is the most respectable and salable kind of planning in many quarters. It harmonizes all too mellifluously with the interest of a dominant class. But from the view-point of social economy, of other interest groups, of the general welfare, of the region, state, and nation, and even of most urban landowners in their roles as workers and capitalists, negative containment is an instrument of monopoly exploitation.

3. Ineffectiveness

The most damning fault of negative containment, even from the monopolistic viewpoint, is that, like the Truman Doctrine for which I have named it, it does not contain.

Let me offer as my illustration here the whole scope of American history. Negative containment has been tried at the national as well as

the local level, with what success the present boundaries of the Republic attest. George III tried it when he proclaimed after 1763, "Thou shalt not cross the Appalachian crest." He reaped the Revolution, and settlers poured through the Cumberland Gap into Kentucky and Tennessee. They would have crossed the Ohio next, but the Federalists assumed the negative role and tried to make a Greenbelt of the old Northwest Territory - Merrill Jensen in The New Nation is the best source on this. The nation showed its gratitude by electing Jefferson who not only opened the Northwest but bought Louisiana and started the Cumberland Road. Easterners still dragged their feet, and the upshot was state subsidy of internal improvements, Old Hickory, easy money, Distribution of federal surpluses to the states, and the canal boom. Next the Southern Democrats assumed the negative, and they reaped Abe Lincoln, Oregon, homesteads, western railroads, land-grant colleges, and the rest.

There has been an ebb and flow in our westward expansion, a sort of manic-depressive alternation in the national mood. Expansion has outdone itself, followed by a bust. "In God we trusted, in Kansas we busted," is an oft-told tale. During the depressed moods, the Greenbelt forces have rallied, hoping at last to contain their fellows, but in vain. Manifest Destiny has always prevailed. You cannot fence in the American people.

The forces of containment can, however, impose, and have imposed on settlement an uneconomic scatter and sprawl. They have held back the logical areas for continuous settlement and forced the pioneers to move around and beyond them. If you examine a map of population density in the United States at any time in history, you will see that urban scatter and sprawl have their counterparts in national patterns of land use, and always have had, in spite of the Indian menace. And by 1890 the Census gave up trying to draw a "frontier," for "the unsettled area has been so broken into by isolated bodies of settlement

that there can hardly be said to be a frontier line," -- a passage, I think, which Frederick J. Turner misread as he launched from it into his "Frontier in American History." It was not the frontier that was passing, but the last vestige of orderly advance into it.

Our modern greenbelts and golf courses and exclusive agricultural zones around cities bear a family resemblance to King George's Proclamation Line -- he, too, was solicitous of preserving a low-density way of life. But the open land zones do not contain any more than did the hapless Hanover's imaginary fence. Builders leapfrog over and beyond them. And the net result, just as in Continental American history, is the opposite of the fence-builders' intent. Sprawl is worsened as settlement spreads out further and faster than it would have of its own accord.

Shall cities refuse to cooperate with outlying subdividers? These can always find a hospitable suburb or unincorporated land in the county. Shall county zoning control them? High-density zoning becomes the subject of log-rolling on the County Board, with overzoning the certain outcome. Shall city, county, and state conspire to keep tax-reverted lands forever out of private hands? Other cities, counties, and states, -- yes, and other nations -- will adopt opposite policies and attract people and capital. Negative containment does not contain. It is a repetitive exercise in futility and self-annulment. It won't work, and we wouldn't like it if it did.

III. Neutral containment

I would like now to suggest a couple of containment policies to which I think the wise and honest and economical can repair. The first I call neutral or passive containment, and it amounts to nothing more startling than desisting from subsidizing expansion. However, that seemingly innocuous and safely conservative proposal is startling once we begin to contemplate

the many ways that we have institutionalized subsidy to expansion, and the weight of interests vested in those institutions.

A. Subsidies to sprawl

Somehow we as a people have widely accepted the notion that every citizen has a right to certain basic transportation and utility services no matter where he chooses to locate, and on roughly the same terms as if he lived next to the power substation, the filter plant, the gas tanks, or other load centers. We seem to believe that squatters and nesters out in the coves and backwoods have a right to public roads at whatever cost to other farmers; and farmers generally have a right to better roads than they would pay for themselves at whatever cost to the cities.

Within cities we apply the same general notions. Outlying landowners, so long as they lie within the corporate limits, are entitled to water sewer, and streets. They may be asked to pay for extensions from the nearest trunk or main, and they will bluster and act abused, but consider: they require capacity in the trunks and mains, and in the street system, from their remote sites clear back to the center of the system. The true relative costs of service may best be grasped by envisioning each house connected direct to the water plant with its own separate one-inch pipe -- one-inch and separate all the way. And when are the outlanders ever asked to pay in that measure? The interior capacity is generally carried by the interior lands and supplied free to the outlanders who simply hook on to the end of an established system. If that system happens to have some short-run excess capacity available we insouciantly assume that the social cost is nil, even though the long-run cost has been and will again be very large.

Within franchise areas we require the same practice of utilities: postage-stamp pricing. They make money in the high-density central areas

which are also usually (not always) near their load centers: and lose money in the low-density marches and fringe lands. Thus they serve as an agency for milking the center to feed the borders, subsidizing decentralization. As the price of their franchise they must serve anyone almost anywhere. Sometimes we let them off when the partial incremental cost of an individual extension from the nearest trunk exceeds three times the expected revenue, or some such formula. But we require them to lose money, and they are willing, because they can get it all back from the centers. We let them raise rates to make their 6% on investment in any event. Their far flung money-losing networks add to the base on which they can earn 6% by soaking the high-density areas, and nail down territories for their future exploitation.

The political forces ranged behind this decentralist pattern I would guess include rural domination of our states, and many half-urban counties, plus a desire by C.B.D. landowners [who are fortune's favorites by any reckoning, and the winners in the great American game of public works for private profit,] to broaden the base of their political support by sharing some of the loot with the outer landowners. In the process they also cement a working alliance with the farmers and turn a few dollars speculating in suburban land, in which they are heavy plungers. They are aided by the fact that postage-stamp pricing is the simplest of all formulas to understand and express, and politics is often dominated by the most formulable solution and slogan. They must stifle their monopolistic impulses, described earlier, but let us give them credit for political realism. They sense the limits of power and play the game to survive -- and thrive. Beyond this I must defer to my colleagues in Political Science, while I return to the simple economics of the situation.

B. Economic graduation of rates

How would we levy an economic charge for urban transportation and utility service? I will spare you the more interesting details, such as I would like to lecture on decreasing costs (long-run and short-run), replacement policy, capitalization of consumer surplus into land values, benefit-cost analysis, etc. ad infinitum. For the instant case let us just return to the vision of each lot connected directly to a central water works with its own individual one-inch pipe. It is abundantly clear that costs are a direct function of distance from the center. And water rates should be graduated accordingly, the central lots paying very low rates and the outer ones high rates.

The structure of these rates, as between a fixed and a variable component, is a question too lengthy to pursue now. I am doing a chapter on the subject which will probably be published before this talk, and which I will cite.

Note. ----- "Land and Rent in Welfare Economics." in Clawson, Harris, and Ackerman (eds.), Land Economics Research, Baltimore: John Hopkins Press, 1962. See also Warren Hall, "A Method for Allocating Costs of a Water Supply Canal." Journal of Farm Economics, November, 1963, pp. 713-20, and works there cited.

Now it really doesn't make a great difference in the principle if the one-inch pipes, as they converge on the center, are bundled together into fascies, and if these in turn are fused into wide-caliber mains. The outermost customer still requires the equivalent of his one-inch pipe in the mains, clear back to the plant. The major difference between mains and one-inch pipes is that the latter are costlier per unit of flow-capacity, and since the outer lands require a larger share of small-caliber piping, their rates should be graduated upwards more than in proportion to lineal mileage of connecting pipes.

But, you object, the outlander may not be willing to pay so high a price. Ah, clever fellow -- that is the idea precisely! When it costs us more to carry water out to someone than it is worth to him, then we are well advised not to do it. He will be constrained not to move out into areas of high-cost water (and all other utilities), and we will have ceased to subsidize random lateral expansion, or suburban sprawl. This is the policy of neutral or passive containment. I commend it to you most sincerely.

With respect to streets, the gas tax plays a role analogous to that of a graduated water rate, and I applaud it. Only we must take the next logical step, and plan our street extensions in a neo-Kameralistic sort of way, building only those extensions that will pay for themselves (including their share of inner street capacity) from increased tax revenues. Now, our cities and urban counties and states push new streets and highways out into new territory, and upgrade the old section-line or other rural roads, without much concern for benefit-cost relations. They can afford to be generous: they tap surpluses from the congested center to underwrite low-density, deferred-demand, high-risk fringe areas. We should insist that the margins pay for themselves, if not immediately at least within a reasonably short time, discounting futurity at high market rates commensurate with the risks involved. And we should remember that they impose more than their proportionate burden on central city streets because of their greater dependence on private cars.

I do not hold with my more conservative colleagues who would have user charges cover all road and utility costs. Network extensions also raise land values, and the municipal Kameralist should certainly raise assessments promptly and count the increase of property taxes (net of decreases caused elsewhere) as part of his revenues from an extension. We need not fear that

such a policy will cause him to extend unwisely. It will in fact wondrously deflate the demand for extension, and we may end up with a problem of persuading borderlandowners to accept the public works for which many of them now clamor so greedily. That is a problem, however, that most of us would gladly exchange for the present array.

C. Objection to neutral containment

1. Complexity

A system of rates graduated by mileage from a load center does not offer the virtue of simple formularization, the moreso when there are multiple centers, peak loads, marginal costs vs. average costs, etc. But we live in an age of growing sophistication, of computers and systems analysts and moon rockets, and there is no reason why we must gear our urban structures to the lowest common denominator of the court house bench warmers of -ought-six.

And, indeed, back in -ought-six there were commuter trains with tickets rated by station, and surcharges for pumping water uphill, and other such obvious applications of graduated rate-making. It is just that since then we have focused our best talents on the glamorous problems of places as remote as possible from our own lives and problems while our neighborhoods fell into disrepair. Now that local taxes are mounting again to the "squawk level" we can certainly bear up under the strain of applying a little reason to things nearest and dearest. It might even serve some educational function.

2. Distributive equity

Some of the outlanders will object to my proposals, as devaluing their lands. Others will support me, as saving them from unwelcome premature invasion by fragments of urban sprawl, and I would pin much hope on these others to neutralize those some. But let us look for a bit just at those malcontents.

The system of postage-stamp pricing effects a species of crude communion among members of the landowning cartel, a sort of rough-and-ready distributive equity, not among all men, but among the charmed circle of those who own title to real estate. It tends to make every man's lot as good as every other. Of course, some members of this communion are more equal than others, for at \$25 a square foot the C.B.D. land outmeasures the border section at a nickel a foot by several hundred times. But most of the lands fall in a medium price range around \$.50 to \$1.00 a foot these days, and postage-stamp pricing helps assuage the feelings of the outlanders by compensating for the natural disadvantages of their peripheral position.

The feudal antecedents of this approach to distributive equity should be obvious. It harks back to the French philosophy of property, whereby the institution is not a means to allocate resources efficiently but to distribute them equitably. It harks back to an age when all social relations had to be expressed through land, when every heir had to have his own little parcel of plow land, pasture land, and courtyard, regardless of the excess hiking imposed on all parties. It harks back to when there was no medium of exchange, no organized bureaucracy, no systematic taxation, no public welfare, no continuity of government, nothing but land one could count on for sure.

Today, surely, we can do better. Granted that fortune's favorites in the C.B.D. should share with the rest of us, can we not spread the central surpluses around by some means other than wasting them on extensions that cost more than they are worth? I would like to suggest a simple means to that end, which I have described as "positive containment."

IV. Positive containment

The philosophy of positive containment is to make the central city the most attractive place for people to live and invest their capital. It is not necessary to put a fence around the city and make it a prison. The central city is already the best place for most activities of most people-- that is implicit in the high unit values that land retains there in spite of all the decentralist bias of our institutions, in spite of the atrophy of central land values brought on by years of underdevelopment, by obsolescence and degeneration of old buildings there, in spite of race and school problems, in spite of years of romantic unrealistic drivel about bucolic serenity and executive ranch houses and low suburban taxes. In spite of everything, central land commands a premium still. All that is necessary is to cultivate and develop the great potential capacity of this abused resource.

One step to that end is implicit in the neutral containment proposal, to make all utility rates very low there, and to spend a larger share of gas-tax revenues and other street funds on the center. Has it ever struck you as strange that downtown buildings should be thirty stories high while downtown streets and walks are only one level plane? C.B.D. streets are one of our most underdeveloped resources. At least we could double-deck them, grade-separate bad corners, and in some areas we might supply public vertical transportation, just as we do lateral. The condominium, after all, has taught us how to subdivide vertical space, and it isn't more than a step from that to public elevators.

None of that helps the problem of distributive equity, however, but only worsens it. The heart of my proposal for positive containment is therefore another measure, which has the remarkable quality of extracting more tax money from the center and simultaneously helping bring it to full flower. This measure is a heavy ad valorem tax on the base of site-capacity.

We have always heard that heavy taxes stifle enterprise, but that is a careless generalization. Taxes do not stifle enterprise just because they are heavy: what matters is how the tax varies when the taxpayer acts enterprising. What I am proposing is a heavy tax that is fixed according to the capabilities of a site, and does not rise when individual buildings rise nor fall as they age and obsolesce. A site-capacity tax will move up or down as environment improves or worsens, but remains frozen as individual landowner's respond to the environmental challenge. It does not tax a landowner as he improves, but as his neighbors and his government improve his opportunities.

A site-capacity tax will hit the center of town much harder than the outlands, because that is where the land values are, and where the ratio of land value to building value is highest.

Such a tax is not only permissive of site-improvement, it is downright mandatory. We see this effect in outlying areas all the time, where farmers complain that rising property taxes force them to intensify and convert land to urban use. That is what exclusive agricultural zoning is all about, is it not? What I am proposing is to apply this potent positive leverage of taxation where it belongs, in the core of the central city, to the end of accelerating its renewal and overall revival. Let central buildings match the mountain majesty of central land values, and leave the agricultural zones in their Arcadian tranquility.

At present, by taxing buildings we are taxing vertical transportation. Think how many miles of wires, ducts, pipes and conduits there are in a skyscraper, not to mention the stairs and elevators, all social overhead capital supplied at private expense, and taxed besides. If the same floor space were sprawled out laterally over a section of suburban prairie, the connecting wires et al. would not only be much longer, but supplied at public expense, and/or heavily subsidized. We tax vertical transportation and subsidize horizontal. With such a large and systematic fiscal bias at work, is it surprising we get urban sprawl? When I hear economists and others attribute sprawl to consumer tastes, and workings of the invisible hand, I am moved to paraphrase Omar the Tentmaker:

O, Thou, who didst with windfall and with waste
Beset the streets where buildings may be placed
Thou wilt not with predestined choice propel
Me outwards, then impute my sprawl to "Taste"!

Prof. Boulding need not look to his laurels, but let us look at some figures. A 3% annual property tax on a new building, if converted to a lump sum payable now, is roughly equivalent to a 50% excise tax on new construction. If what is called the "land" assessment is raised, too, when the building rises, ---and that is often the extra-legal practice --- the true rate on the building is even higher. When, at the same time, we are extending gas lines to anyone whose probable demand is great enough to pay for 1/3 of the cost of the last few rods of piping, and charging the cost to apartment dwellers who pay in rent for their last feet of pipe, it is not consumer sovereignty that determines location, but political sovereignty. The fiscal cards are stacked, and the outcome is predestined.

The reforms I have sketched out here would give us a straight deck, and the consumers' will could have full sway. The unbiased consumer would believe and the worst abuses of urban sprawl. At the same time, the needs

of distributive equity would be served.

I do not hold forth a world without problems, for the application of these economic proposals entails such detailed work. At least the blood, sweat, and tears would not be in vain. As an economist I would not quail from the analytical problems. But the economist proposes, the political scientist disposes. The disposal of my proposal "out in the brawl" may seem inauspicious. But I have enough faith in human nature to think it might at least get a hearing on its merits in this age of higher education. That is a worthy cause for which I am always glad to eat dinners.

Chairman REUSS. Thank you, Mr. Gaffney.
Mr. Woodruff.

**STATEMENT OF ARCHIBALD M. WOODRUFF, MEMBER OF THE
EXECUTIVE COMMITTEE, LAND REFORM TRAINING INSTITUTE OF TAIWAN**

Mr. WOODRUFF. Thank you, Mr. Chairman.

Having made 25 or more trips to Taiwan in the last 10 years, I qualify myself as having a superficial knowledge of the island. The island would fit conveniently within Massachusetts, Connecticut, and Rhode Island. The population is larger than the combined population of Australia and New Zealand. It is a very crowded island.

Between a half and two-thirds of that island is not subject to cultivation because of rough terrain. Therefore, the island is under great constraint to conserve its farmland and develop a national policy of conserving its farmland, which is something that the United States very sorely lacks.

The land policy, while directed toward the preservation of farmland, has had the definite effect of creating compact cities, about which I would be glad to talk further if requested.

The Government of Taiwan has done a number of things in a very positive way. One, they have built a great deal more public housing than the United States, proportionately, and I daresay ever in numbers. This housing is mostly four- and five-story walk-up apartments. Because of the dominant position of the government in the construction of apartment houses, it has been able to determine where they are going to be. They have located them in the cities, not sprawling all over the countryside.

The second thing they have done, that has turned out to be quite effective, was to limit the conversion of agricultural land, particularly rice paddies, to urban use. Because of the interest in this, I will take the liberty of reading part of this law translated from the Chinese:

Municipal governments shall designate farmland of grades 1 to 12 as agricultural land, and inform owners that they must use these lands only for the purposes of agriculture. In addition to farmhouses, owners of farmlands grade 1 to 8 are not allowed to erect buildings or use the land as fish ponds. If the owners apply to use farmlands grade 9 to 12 as factory sites, their cases shall be submitted to and approved by higher authority in charge of industry.

If the landowners apply to use those lands for building houses they shall obtain approval from the municipal government.

Aside from the above mentioned case, the change in the use of such lands and building blocks is not allowed. Lands which have been designated as farmland are under the strict control of authorities concerned, and are limited to agricultural use.

This has worked rather well. It has been coupled with a heavy capital gains tax up to 60 percent on profits from the sale of land. It was higher than that at one time. The high tax means that the landowner who is selling does not expect to get quite so rich from the sale as he otherwise might.

The passage of the law was accompanied by considerable grumbling on the part of farmers who saw themselves as overnight millionaires selling their farms for industrial sites, but the Government was adamant. The overriding national interest to preserve farmland was such that they were quite prepared to accept the grumbles. They have since called upon me, among others, to advise on the purchase of development rights, a subject on which I have some knowledge as adviser to the commissioner of agriculture of the State of Connecticut, where we have been doing it.

Aside from this, the Government of Taiwan has avoided several things which, in the United States, have led to the dispersal of population out of the cities and into the suburbs.

Much has been said this morning about differentials between the cities and the suburbs. I had the privilege of serving as vice chairman of the Allegheny County Planning Commission before I came to Washington, and I am acquainted with Allegheny County during much of the renaissance. We certainly were very well aware of the effect of higher taxes in the city of Pittsburgh than elsewhere in the county of Allegheny.

This has been absolutely avoided in Taiwan. Taxation is uniform and it doesn't make any difference whether an owner is in a city or outside it, the owner gains nothing by "going outside."

The second thing Taiwan has done is to recognize the fact that domestic transportation, buses, trains, and so on, are a public function. The level of service is way above anything that is available in this country. It is crowded, the delays are considerable, the buses are not as comfortable as our most recent ones. Nevertheless, the buses run constantly, frequently and the fare boxes exact only a limited daily tribute. The balance of the cost of running this transportation system is buried in various layers of the budget.

The third thing Taiwan has done is to avoid street crime by very much stricter enforcement of public safety laws.

They have a feeling, which many Chinese have expressed to me privately, that American courts harass the victim of crime for long delays and interrogation, and then apologize to the alleged criminal for the inconvenience.

Fourth, school systems are the same in town and out and decorum in the schools is maintained rigidly. Disturbers of the educational peace receive very short shrift.

The Taiwan cities are monolithic, they do not consist of Balkanized separate suburbs, as American cities so commonly do. Therefore, the miscellaneous incentives to move out of the major city and into a suburb simply do not exist.

Much of what I have said about Taiwan could be repeated concerning land short countries such as Holland, and Denmark, which feel the pinch and are determined to preserve their farmland.

Thank you, sir.

[Mr. Woodruff submitted a statement entitled "Urbanization and Land Use Controls" for inclusion in the record:]