

Sprawl 101: How Sprawl Hurts Us All

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Sprawl Hurts Us All

"Nobody in this town has ever said "No" to a developer. We spend tax dollars to encourage sprawl, and then it comes back to us as air pollution."

- Don Steuter, air-conditioner repairman and avid hiker who fights sprawl in Phoenix, Ariz.

Poorly planned development is threatening our environment, our health, and our quality of life. In communities across America, "sprawl" - scattered development that increases traffic, saps local resources and destroys open space - is taking a serious toll. From Connecticut to California, sprawl is increasing air and water pollution, devouring wetlands and forests, and burdening our communities with the social and economic costs of unplanned growth.

Significant and sound science to assess the efficacy of standards established over 30 years ago with the Clean Air and Clean Water Acts indicates that the underlying projected benefits of the standards reflected in early environmental law was too optimistic. The two-fold danger and implications are that 1). the initial standards did not go far enough in attempting to contain the adverse impacts of petroleum-based internal combustion transportation engines that fuel the mobility of our society, and 2). The phenomenal increase in number of trips traveled and number of miles traveled per household has skyrocketed in the past two decades as the country has, with tax dollars, built more and more roads, paving America's penetration of its exurban landscape.



The result of these developments is the acceleration in the decline of environmental quality, the decline of the very quality of life our government was developed to define and defend. And these developments occur at a time when media and political interests are squarely focused on maintaining the status quo, and expending the harvest and consumption of fossil fuels at the expense of our values, our environment, our experiences and the quality of our lives.

Runaway growth and environmental damage is not inevitable. Hundreds of urban, suburban and rural neighborhoods are choosing to manage sprawl with smart growth solutions. These solutions, including establishing urban growth boundaries, preserving farmland and green space, investing in alternate forms of transportation, and building compact pedestrian-friendly neighborhoods, can help manage growth and control sprawl.

The downturn has accomplished what a generation of designers and planners could not: it has turned back the tide of suburban sprawl. In the wake of the foreclosure crisis many new subdivisions are left half built and more established suburbs face abandonment. Cul-de-sac neighborhoods once filled with the sound of backyard barbecues and playing children are falling silent. Communities like Elk Grove, Calif., and Windy

Ridge, N.C., are slowly turning into ghost towns with overgrown lawns, vacant strip malls and squatters camping in empty homes. In Cleveland alone, one of every 13 houses is now vacant, according to an [article](#) published in March, 2009 in The New York Times magazine.

The demand for suburban homes may never recover, given the long-term prospects of energy costs for commuting and heating, and the prohibitive inefficiencies of low-density construction. The whole suburban idea was founded on disposable spending and the promise of cheap gas. Without them, it may wither. A study by the Metropolitan Institute at Virginia Tech predicts that by 2025 there will be as many as 22 million unwanted large-lot homes in suburban areas.

The suburb has been a costly experiment. Thirty-five percent of the nation's wealth has been invested in building a drivable suburban landscape, according to Christopher Leinberger, an urban planning professor at the University of Michigan and visiting fellow at the Brookings Institution. James Howard Kunstler, author of "The Geography of Nowhere," has been saying for years that we can no longer afford suburbs. "If Americans think they've been grifted by Goldman Sachs and Bernie Madoff, wait until they find out what a swindle the so-called 'American Dream' of suburban life turns out to be," he wrote on his blog in March, 2009.



So what's to become of all those leafy subdivisions with their Palladian detailing and tasteful signage? Already low or middle-income families priced out of cities and better neighborhoods are moving into McMansions divided for multi-family use. Alison Arieff, who blogs for *The New York Times*, visited one such tract mansion that was split into four units, or "quartets," each with its own entrance, which is not unlike what happened to many stately homes in the 1930s. The difference, of course, is that the 1930s homes held up because they were made with solid materials, and today's spec homes are all hollow doors, plastic columns and faux stone facades.

There is also speculation that subdivision homes could be dismantled and sold for scrap now that a mini-industry for repurposed lumber and other materials has evolved over the last few years. Around the periphery of these discussions is the specter of the suburb as a ghost town patrolled by squatters and looters, as if Mad Max had come to the cul-de-sac.

If the suburb is a big loser in mortgage crisis episode, then who is the winner? Not surprisingly, the New Urbanists, a group of planners, developers and architects devoted to building walkable towns based on traditional designs, have interpreted the downturn as vindication of their plans for mixed-use communities where people can stroll from their homes to schools and restaurants.

Richard Florida, a Toronto business professor and author of "*Who's Your City?: How the Creative Economy Is Making Where to Live the Most Important Decision of Your Life*," argues that dense and diverse cities with "accelerated rates of urban metabolism" are the communities most likely to innovate their way through economic crisis. In an article published in the March, 2009 issue of *The Atlantic*, he posits that New York is at a relative advantage, despite losing a chunk of its financial engine, because the jostling proximity of architects, fashion designers, software writers and other creative types will reenergize its economy.

Sprawl increases traffic.

Sprawl lengthens trips and forces us to drive everywhere. The average American driver spends 443 hours per year - the equivalent of 55 eight-hour workdays - behind the wheel. Residents of sprawling communities drive three to four times as much as those living in compact, well-planned areas. Adding new

lanes and building new roads just makes the problem worse - studies show that increasing road capacity only leads to more traffic and more sprawl.

There are 4 million miles of public roads in the United States. Laid end-to-end, they would circle the globe more than 157 times, or go to the moon and back more than 8 times.

The Interstate Highway System accounts for only 1 percent of all highway mileage, but carries 25 percent of the total vehicle miles of travel. The longest highway in the Interstate System is I-90, whose 3,085 miles stretch from Seattle to Boston. The shortest is I-97; its 18 miles connect Baltimore and Maryland's capital city, Annapolis.

In 1999, 3,800 miles of urban interstate highways carried more than 100,000 vehicles a day while 15,000 miles of rural interstate highways carried more than 20,000 cars a day. The Transportation Equity Act for the 21st Century, signed into law on June 9, 1998, authorized \$23.8 billion for interstate maintenance and \$28.6 billion for the 163,000-mile National Highway System, which includes the Interstate Highway System, through 2003.

There are 4,788 miles of toll roads, bridges and tunnels in the United States. Of the nearly 600,000 bridges on all roads nationwide, about 29 percent were found to be structurally or functionally deficient in 1999.



In 1997, total vehicle miles traveled by automobiles in Japan, France, Germany, Sweden, Italy, Canada, and the United Kingdom combined equaled 1.6 trillion. In that same year, total vehicle miles traveled by automobiles alone in the US were 1.4 trillion. U.S. households spend, on average, 19 percent of their income on transportation -- less than housing but more than food.

For nearly half a century, transportation has accounted for about one-fourth of total U.S. energy use and two-thirds of total oil consumption. Petroleum supplies about 97 percent of the energy used in transportation. The transportation sector consumes about one-fourth of the energy used in North America with road uses comprising about four-fifths of the U.S. transportation sector's total energy use. According to the U.S. Department of Energy's Energy Information Administration, transportation sector carbon dioxide emissions in 1999 were nearly 15 percent higher than 1990, although carbon dioxide is not considered a pollutant.

The prevalent pollutant from cars are smog precursors -- Nitrous oxides (NOx) and volatile organic compounds (VOCs). NOx are also emitted by coal-burning power plants and VOCs by certain types of trees. When exposed to sunlight, these emissions react to form smog. Smog can be seen in the air as haze. It can damage plants, particularly after chronic exposure, and has both chronic and acute effects on human health ranging from shortness of breath and asthma to heart attacks in the most extreme cases. In order to improve the public health and general air quality, the Clean Air Act amendments of 1990 included schedules for those areas in non-attainment (i.e. exceeding specific criteria for air quality) to clean up their act, or lose federal transportation funding. The Bush administration reversed and weakened the Clean Air Act, and neglected to fund its enforcement.

Sprawl pollutes air and water.

As sprawl increases our reliance on cars and driving, it makes our air dirtier and less healthy. Cars, trucks and buses are the biggest source of cancer-causing air pollution, spewing more than 12 billion pounds of

toxic chemicals each year, or almost 50 pounds per person. Our wetlands - nature's water filters - are also under attack. Each year more than 100,000 acres of wetlands are destroyed, in large part to build sprawling new developments. Since wetlands can remove up to 90 percent of the pollutants in water, wetlands destruction leads directly to polluted water.

Sprawl increases the risk of flooding. Development pressures lead to building on floodplains and the destruction of wetlands, natural flood-absorbing sponges. In the last eight years, floods in the United States killed more than 850 people and caused more than \$89 billion in property damage. Much of this flooding occurred in places where weak zoning laws allowed developers to drain wetlands and build in floodplains.

Sprawl destroys more than one million acres of parks, farms and open space each year. This threatens America's productive farmland, and turns our cherished parks and open spaces into strip malls and freeways.

Sprawl wastes our tax money.

Our tax money subsidizes new sprawling developments, rather than improving our existing communities. Sprawl costs our cities and counties millions of dollars for new water and sewer lines, new schools, and increased police and fire protection. Those costs are not fully offset by the taxes paid by the new users. Instead, sprawl forces higher taxes on existing residents and hastens the decline of our urban tax base.

Sprawl creates crowded schools in the suburbs and empty, crumbling schools in center cities. New development puts more children in suburban schools, but does not pay for the new schools that inevitably must be built. According to Florida's Department of Education, 17,738 temporary or trailer classrooms are currently in use in that state, and a report by the Conference Board claims that 20 percent of school kids in California learn in temporary classrooms.

People should live where they choose but they should also bear the cost. Sprawl is not the result of romantic frontierism so much as subsidies for suburbanites.



“For many years our government has pursued albeit unintentionally, a policy of de-urbanization. Some of the key players have been interstate highways, artificially low oil prices, cheap land and the willingness of legislators to cater to the every whim of housing developers.”

Charles Selbert, St. Louis Post-Dispatch, 2/17/98

“The public works bill for the St. Louis region's extreme helter-skelter development — roads, water lines, sewer systems, fire houses, schools — has been high. The rest of the region has paid dearly through taxes, utility fees, loss of industry and jobs, mounting traffic congestion and health-impairing air pollution.“

Neal Peirce and Curtis Johnson, "St. Louis: Exploded Galaxy?", St. Louis Post-Dispatch, 3/16/97

“Taxpayers, however, shouldn't have to pick up the tab for other people's preferences for suburban living, yet that has been the effect of the federal interstate highway program since the mid-1950s. The construction of free beltways and expressways has subsidized suburban development.”

Howard P. Wood, "How Government Highway Policy Encourages Sprawl", <http://www.cato.org/dailys/8-18-98.html>

Tolls, gasoline taxes, and other user fees cover about 70 percent of the direct cash costs of building and maintaining the nation's road system. The rest--amounting to tens of billions of dollars per year--is financed by general revenues.

And this subsidy is only a tiny fraction of what drivers actually receive. Driving imposes other external costs on the American economy, from damage caused by air pollution to the cost of mending people injured in traffic accidents to the need for strategic involvement in oil-producing regions of the world. It's impossible to do an exact accounting of these external costs, but even conservative estimates show them adding up to at least 22 cents for every mile Americans drive. As urban planner Reid Ewing notes, that number implies that a gas tax of \$6.60 a gallon would be necessary to make drivers fully pay for the cost that car travel imposes on the economy.

In a low-density tract development, the cost of most government services goes up. Sewer lines must be longer, school buses must travel farther, and more fire stations and miles of road are needed to serve a given population. Sprawl also forces governments to spend money on new schools and other capital projects that would not be needed if residential patterns remained more compact.

The residents of new low-density developments pay taxes, of course, but are rarely charged the full cost of the government services they consume. Instead those costs are usually averaged across a whole region or state, in effect charging the people in the older areas for the costs of sprawl.

Alternatives and Solutions

Smart growth provides a range of solutions to the problem of sprawl. Smart growth means planning our communities so that our streets will be safer, our neighborhoods will be nicer places to live, our air and water will be less polluted, and our parks, farms and open space will be protected. Smart growth includes:

- Enacting growth boundaries, parks and open space protections - like those in Oregon, Tennessee and Colorado - which allow growth without creating sprawl;
- Planning pedestrian-friendly development where people have transportation choices, such as commuter trains and bus service;
- Directing new highway transportation dollars to existing communities to improve safety for walkers, bicyclists and drivers, and to promote public transportation choices;
- Reversing government programs and tax policies that help create sprawl. The U.S. EPA practiced smart growth by denying permits for the proposed Legacy Highway near Salt Lake City - a highway that would destroy wetlands, increase air pollution and promote sprawl;
- Saving taxpayers money by having developers pay impact fees to cover the costs of new roads, schools, water and sewer lines, and requiring property tax impact studies on new developments;
- Advocating for revitalization of already developed areas through measures such as attracting new businesses, reducing crime and improving schools;
- Preventing new development in floodplains, coastal areas and other disaster-prone areas.

What is Urban Sprawl?

Urban Sprawl is low density, automobile dependent development beyond the edge of service and employment areas. It is ubiquitous and its effects are impacting the quality of life in every region of America, in our large cities and small towns.

Urban sprawl can be measured using the [U-Index](#) (Human Use Index). The U-Index is a measure of the total watershed area that is covered by either urban or agricultural lands. Based upon the information provided by the U-Index, the greatest areas of urbanization in the Mid-Atlantic region occur in the Chesapeake Bay area.

The Hidden Toxicity of the American Dream:

Since the end of World War II, the American Dream has been defined as a house in the suburbs and two cars in the driveway. Sparked by a series of federal and state government policies, including home buying subsidies provided by the GI Bill, massive road building projects and community planning designed around the car, Americans abandoned the cities for greener pastures in suburbia. It is clear that public spending can, and does, affect private decisions about where to live, where to work, and where to build.

The trend has been to rapidly develop farms and forests into housing developments or strip malls. And the rate of development is accelerating. The American Farmland Trust reports that an astounding 70 percent of prime or unique farmland is now in the path of rapid development.

Population growth is the most significant factor effecting urban sprawl in the Mid-Atlantic region. As population size increases, so does the amount of land required for residential and commercial needs. In the Chesapeake Basin alone, between the years of 1950-1980, the percent of land used for residential and commercial purposes increased nearly 180% while population increased about 50%.

Based upon current trends in Maryland, in a recent six-month period, approximately 5,000 people left Baltimore City; 3,000 septic permits were issued; and nearly 10,000 acres of forests and farmlands were lost. If these trends continue, Maryland could use as much land for development in the next 25 years as it has used in the entire history of the state.



Likewise, in Northern Virginia, development is expanding beyond the current service areas of public water supplies provided by the Potomac River. Specifically, Northern Virginia's Loudoun County's population has increased by nearly 150 percent from 57,000 in 1980 to nearly 140,000 today, with the landscape changing from rural to suburban. Ground water is being utilized to support the uncontrolled growth. Yet, no assessment has been conducted on groundwater availability and how aquifers are being impacted by suburban sprawl.

In its path, sprawl consumes thousands of acres of forests and farmland, woodlands and wetlands. It requires government to spend millions extra to build new schools, streets and water and sewer lines. In its wake, sprawl leaves boarded up houses, vacant storefronts, closed businesses, abandoned and often contaminated industrial sites, and traffic congestion stretching miles from urban centers. There are over 700,000 kilometers of [roads](#) connecting urban areas within the Mid-Atlantic region! As a result, we suffer from increased traffic congestion, longer commutes, increased dependence on fossil fuels, crowded schools, worsening air and water pollution, threatened surface and ground water supplies, lost open space and wetlands, increased flooding, destroyed wildlife habitat, higher taxes, and dying city centers.

Moreover, sprawl is creating a hidden debt of unfunded infrastructure and services, social dysfunction, urban decay and environmental degradation. Despite the fact that Prince William County, Va., in metropolitan Washington, DC, has the highest property tax rate in the state of Virginia, the cost of

providing services to new developments is so high, the county is experiencing a \$1,688 shortfall for every new house built.

Perhaps more important is the loss of community: People visiting with one another on front porches; neighbors helping neighbors; everyone keeping an eye on each other's children. This simply cannot happen on 5 acre lots where people live for years without ever knowing their neighbors!

Now we are running out of greener pastures and many Americans consider urban sprawl to be the fastest growing threat to their local environment and quality of life. They are starting to question the wisdom of growing faster than infrastructures can support or service. They are starting to recognize that decades of road building have yet to and may never alleviate traffic congestion. Some communities that once welcomed development with open arms now consider the cost of lost farm land not worth the benefits of a new strip mall.

First Steps:

The U.S. Geological Survey and the EPA are partnering to develop a joint initiative to address urban sprawl. Increased cooperation is being sought with other federal, state, and local agencies. By example, the Baltimore-Washington metropolitan area was selected as a pilot area to help focus activities to:

- improve mechanisms for sharing data
- learn from previous studies
- develop predictive models and assessments
- develop an initiative to address sprawl

State and local governments must begin to reverse the inefficient and often costly pattern of development that has been the standard in this country for the past half century. They must implement "Smart Growth" or "Sustainable Development" programs which have the following goals: to save our most valuable remaining natural resources before they are forever lost; to support existing communities and neighborhoods by targeting state resources to support development in areas where the infrastructure is already in place (or is planned) to support it; and to save taxpayers millions of dollars in the unnecessary cost of building the infrastructure required to support sprawl.

These programs are premised on a simple but profound principle: that taxpayers' dollars should not be spent on programs that either promote sprawl or damage the environment. They encourage development and economic expansion, but only in locations where it makes the most sense and where the infrastructure is in place (or planned) to support it.

What You Can Do:

- Make sure that government agencies are conducting the critical assessments to determine whether or not adequate and safe water supplies of surface and ground water are available now and for the future to support suburban development.
- Make sure that your state and county planning agencies conduct reviews of local land-use plans and zoning laws to determine if they are adequate to protect the landscape and natural resources from the impacts of urban sprawl.
- Make sure that reference sites supporting fish and wildlife are protected from sprawl in order to maintain measurable environmental indicators of healthy conditions. Can we continue to pave over our landscapes?

The Ecology of Sprawl

The suburban development of Antelope Valley in California and its negative environmental impact has been well documented because it took one of the country's most beautiful landscapes and desecrated it. And it represents an illustrative case study in the dynamics of Sprawl. In our own back yard, we can look at Solon and Westlake and see similar results and effects. And it is continuing to churn up farmland in Geauga and Lorain counties at an alarming rate.

Several others factors bear mentioning. Perhaps the most obvious is the reliance on automobiles. Pursuit of the single-family home has pushed thousands of people into automobiles for hours each day, with all of the aforementioned social consequences. The environmental impacts are likewise alarming. Automobile travel in and out of the Antelope Valley, as well as across its expanse, has created a considerable degree of air pollution in the formerly pristine high desert air basin. Both ozone and particulate pollution are noted in the cities' general plans as a problem requiring mitigation. As one resident sage, speaking about the reliance on long-distance commuting, said, "You can't have people forever sucking gasoline driving up and down a mountain." Indeed, the suburban sprawl community's dislocated job base is critically reliant on cheap gasoline. It wouldn't be unreasonable to expect convulsions again in the Suburban economy should the price of gasoline ever come to reflect its many externalized costs.

The 1994 Northridge earthquake jolted many commuters in the Antelope Valley into reexamining their work situation. In that tremor, the crucial Interstate 5–Interstate 14 interchange collapsed and in a furious instant the concrete umbilical to Los Angeles was severed. Commutes that took well over an hour each way suddenly doubled or tripled as drivers were forced to take winding mountain roads or make wide diversions to distant freeways such as Interstate 15 to the east. After the quake, the Metropolitan Transit Authority (the Los Angeles regional transit agency) quickly established commuter rail service



to Lancaster, using Southern Pacific Railroad's tracks. The commuter rail line, an extension of the relatively new Metrolink, previously reached only as far north as Acton (some ten miles into Soledad Pass from Palmdale).

Since the freeway interchange was rebuilt, most commuters have returned to their autos. Palmdale planners point out, however, that the freeway breakage has resulted in an increase in work-at-home situations. Telecommuting was the first response to the earthquake damage for those whose work permitted it. Others have changed employment modes altogether and are establishing service businesses based in their homes. The last year and a half has seen an increase in these so-called "home occupation" businesses, typically established by workers unwilling to commute but unable to find sufficient local employment. [#53]

At the same time that the Antelope Valley's air quality is coming under assault, so too is its groundwater. For years, the Antelope Valley's considerable aquifers have been over-tapped by agricultural and domestic users. This has resulted in a water table that drops several feet each year, or some 200 feet since it was first tapped. The Los Angeles County Waterworks, the main water supplier in the Valley, is currently engaged in the most comprehensive study yet of the Antelope Valley's groundwater reserves, which should result in an understanding of the safe yield of the aquifers. Clearly, though, the safe yield has long been exceeded; I will discuss the problems associated with groundwater overdraft in a later section.

Attempts to control groundwater withdrawal are hampered by several factors. *Anyone* can drill a well and pump out water—indeed, the Los Angeles County Waterworks, Palmdale Water District, and Quartz Hill Water District are only the three largest suppliers in the Antelope Valley; dozens of other small districts and hundreds of individual wells dot the Valley. Depending on the depth of the aquifer tapped,

groundwater pumping can cost approximately \$85 an acre/foot. With State Water Project water costing \$175 an acre/foot, there is considerable financial incentive to use groundwater rather than aqueduct water.

For most residential uses, though, water is just something that comes through the tap. The three largest water purveyors are the agencies deciding whether to tap the California Aqueduct or groundwater to meet demand. This decision is based on cost and availability. During the recent drought years, water users over-drafted groundwater just as the Valley's State Water Project deliveries were reduced. In 1994, a year considerably wetter than preceding years, SWP water accounted for 58% of total water production in the entire North Los Angeles County area. [#57]

Water will continue to be a critical factor in the Antelope Valley's future. The current study is an attempt to quantify just what degree of development available water resources can support. With the full build-out of the SWP a highly unlikely event, the Antelope Valley will be forced to confront the realities of water scarcity. The logic of temperate landscaping in the Mojave Desert will deservedly be challenged.

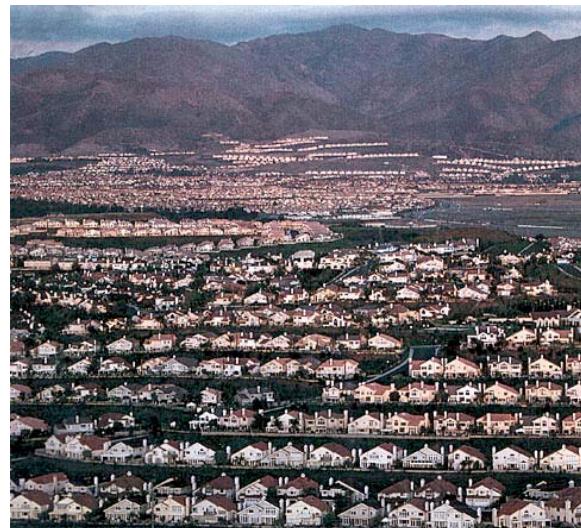
Neither local planners nor the Waterworks have authority to limit water use. As a result, Antelope Valley households have a consumption rate many times higher than households in non-desert areas. Average daily consumption in Lancaster is 1,100 gallons per housing unit, or 415 gallons per person. [#58] Considering that during the height of the recent drought, Marin County residents in the San

Francisco Bay Area made do with fifty gallons per day per person, water use in the Antelope Valley is nothing short of gluttonous. Summer use skyrockets to 1,600 gallons per day per dwelling unit. Most of that undoubtedly goes to maintaining green lawns and temperate climate trees in the scorching Mojave sun.

At best, Palmdale planners have responded to the realities of their desert locale by "encouraging" xeriscaping (low-water use landscaping). But they lack the power to enforce this by financial incentives; a few pages in the city plan and some demonstration xeriscaping on city property is as far as the city can push water conservation. With pumping water for residential use both legal and relatively affordable, neither financial nor governmental structures exist to bring about a more sustainable, bioregion-specific water use pattern.

The fragility of the Antelope Valley's water supply is underscored by several factors. First is its reliance on the SWP, a 444-mile long link to Northern California. As this aqueduct runs through the Antelope Valley, it straddles the San Andreas Fault. Should there be a rupture on the aqueduct because of an earthquake, State water engineers expect that the aqueduct will be out of commission for a minimum of three months. In 1995, a section of the aqueduct in the Valley collapsed after its embankment was undermined by storm flooding. A visit to the channel showed stagnant water sitting far below the usual waterline. Repairs were underway and flow was cut off for at least a month. The aqueduct's fragility pointedly illustrates that the Antelope Valley, dependent as it is on imported water, is vulnerable to the loss of this crucial resource.

Second is the Valley's misuse of its groundwater reserve. With recharge waters mainly supplied by runoff from the surrounding mountains, properly managed aquifers may be able to supply the greater portion of residential needs if those residences can drastically cut their usage. Even so, groundwater is known to be threatened by more than just overdraft. "Fertilizer leaching, fuel leaks, improper disposal practices at military bases, ... runoff from landfills, and toxic discharges in the Rosamond area" [#59] all threaten the usability of groundwater in the Antelope Valley. Should the region acquire the level of manufacturing



industries it is currently seeking, groundwater contamination could become a very serious, and potentially debilitating, problem indeed.

The Alternatives to Sprawl

TO SAY THAT THE ANTELOPE VALLEY'S RECENT DEVELOPMENT was misguided may be a truism, but it leads us to another question: how could it have been different? Given the context of growth in California —when six million people were added to the population in the 1980's, and a half-million more each year in the early 1990's—did the Antelope Valley have any choice but to accommodate its new residents? More importantly, what plausible forces need to exist to bring about a different development pattern that are aligned with current sensibilities about the returns on investment, the limits of government planning, and the single-family home?

One might first be prone to ask if anything is wrong with sprawl at all. A February 1995 report issued by several diverse entities led by the Bank of America confirms our anxiety about sprawl. Titled Beyond Sprawl: New Patterns of Growth to Fit the New California, this report may indicate a sea change in the corporate and public reaction to sprawl. With its economic rhetoric stressing externalized and social costs, the report, as modest as it is, does point out that the traditional patterns of suburban growth have had—and will continue to have—significant negative economic and environmental impact.

The boom in the Antelope Valley – and most suburbs like it across America - was developer-planned at the subdivision level. The cities of Lancaster and Palmdale merely reacted to their growth; they did not guide it. Indeed, under the contemporary local, state, and national policies, there are few ways in which the cities could have affected the boom. Any effort to moderate development must account for the role of investors; enlightened social objectives are not the forte of developers. Thus, if the Antelope Valley or other greenfield sites are to implement economically rational models for growth, those ideas must be framed in such a way that they are at least as attractive to investors as traditional patterns. Likewise, government's ability to influence what investments are "attractive" should not be ignored. This notion has several sides: what is attractive to investors and developers is what will sell to consumers, and that is something shaped by a variety of economic, political, and social conditions.

In order to create the context for a different form of growth, better coordination must be achieved across all levels of government and economies. In the current climate of economic sluggishness and intense regional competition, solutions to the problems of sprawl cannot be local; indeed, one area's slow-growth policy might well be the stimulus of even more insensible sprawl somewhere else. That kind of spillover undoubtedly had a part in developers' decisions to build in the Antelope Valley, where local resistance to development was nil. Solving sprawl then becomes a regional or national policy; it must be seen in the interest of society as a whole to provide an alternative to traditional development patterns.

We might frame the solution in the form a social contract, one which considers the roles and interests of capital, the government, and consumers. In order to move toward alternatives to sprawl, the consumers of housing must see it in their best interest to reject the traditional single-family home; capital must be comfortable with providing a new pattern of development; and government policies must foster investment in both the building and purchasing of these new developments. New patterns of growth are available and ready for implementation; the obstacles are, of course, numerous. As long as it is affordable to commute long distances, to buy a large single-family home, and to irrigate a green grass lawn in the desert, people will do so. Developers will build it, and they will come. As long as cities and older suburban areas are considered dangerous and crowded and their schools inadequate, developments such as the Antelope Valley will be generated and continue to degrade the vitality of society and the Earth as a whole.

Thus, the leaders of change must be a coalition of diverse interests, perhaps initiated by concern for a sustainable future but made long-lived by economic and legal structures. In the following sections, I will sketch some facets of how these structures might be created. At their heart are economic realities, for there is no room for utopian visions in the calculated atmosphere of late twentieth century America. The following sections develop in consideration of the Antelope Valley in particular, but the ideas presented may find application in a range of geographic contexts.

To date, the alternative to sprawl that has the most significant consensus is that involved with infill development strategies in developed neighborhoods. In the urban planning and development industries, infill is the use of land within a built-up area for further construction, especially as part of a community redevelopment or growth management program or as part of smart growth. It focuses on the reuse and repositioning of obsolete or underutilized buildings and sites. This type of development is essential to renewing blighted neighborhoods and knitting them back together with more prosperous communities.

Suburban infill describes the development of land in existing suburban areas that was left vacant during the development of the suburb. It is one of the tenets of the New Urbanism and smart growth trends of urging densification to reduce the need for automobiles, encourage walking, and ultimately save energy. One exception to this is the practice of urban agriculture, in which land in the urban or suburban area is retained to grow food for local consumption.

The Village of Ponderosa in West Des Moines, Iowa is a good example of suburban infill. It was formerly a 9-hole golf course surrounded by suburban West Des Moines businesses and tract homes, but starting in 2006 it was redeveloped into a relatively higher-density mixed-use community with a pedestrian friendly retail center.



Infill housing is the insertion of additional housing units into an already approved subdivision or neighborhood. These can be in the form of additional units built on the same lot, by dividing existing homes into multiple units, or by creating new residential lots by further subdivision or lot line adjustments. Units may also be used by building on lots that were previously vacant.

The advantage of infill housing is in the fact that it does not require the subdivision of greenfield land, natural areas, or prime agricultural land, nor does it require the extension of existing road, sewer or water infrastructure. Another advantage is that existing infrastructure is usually adequate to provide all the need for utility and other services. Public transportation is typically accessible.

One possible disadvantage is that structures built as infill may clash architecturally with the older, existing buildings.

The Role of Government

SINCE GOVERNMENT'S POWERS CAN BE SOMEWHAT distanced from the constraints of the market which developers and consumers face, its role is the most powerful. A regionally or nationally coordinated development policy is the most rational alternative to current patterns of sprawl. Anything less than regional policy pits economies against each other and invariably drives sprawl out to the very fringes of urbanized areas—those areas where development is cheap and easy, but where it incurs the greatest environmental damage. The absence of region-wide planning gave rise to the boom and desecration throughout the country.

Local governments in particular must realize that a different development pattern is in the best interest of their city. This could partly be achieved by democratically driven regional coordination. This would also be enforced by a recognition of booms and busts.

The Valley's nemesis is its belief, so long promoted by boosters, that it is destined to be something very big. Megalopolitan ambitions may play well to investors, but they ignore the realities of the Valley's minor position in relation to Los Angeles. The long-held notion that the Valley is on the verge of urban greatness fueled the cities' unquestioning acceptance of the sprawl which visited them. The unchallenged concept of growth as an economic necessity disarmed the Antelope Valley and left it vulnerable to the bust which inevitably came. It also left the Valley, and the Los Angeles region as a whole, saddled with the consequences of another layer of distant suburban development.

Policies implemented at the local level would have the most direct effect on the form growth takes; zoning is the tool cities have at their disposal. Allowing and encouraging greater residential density would be one of the first steps to reducing sprawl.

Both Palmdale and Lancaster have significant rural portions where people have a strong desire to maintain very low densities. Residents of these areas usually keep horses and want to maintain their "country" lifestyle which once dominated the Valley; these regions should be preserved. But sections near existing urbanization—especially those along the i-14 corridor—must be zoned for higher density development. This would require the abandonment of density limits such as Palmdale's 7,000 square foot minimum lot size. Homeowners also need to overcome resistance to mixing with multi-family dwellings. Apartments, condominiums, and trailer parks have been stigmatized in the public eye, which has made these crucial dwelling types appear detrimental to residential neighborhoods. A greater variety of housing type, from owner-occupied single-family home to rental apartment, increases social diversity and guards against the severe economic, social, and racial stratification found along typical urban–suburban transects.

Unfortunately, the general preference of many suburban dwellers is for homogeneity. Overcoming race and class prejudices is a crucial component of implementing new development patterns, one which will have to be worked around by economic incentive. I recently spoke with the mayor of Westlake, OH at a civic reception. He had no idea what the movement to reduce lot sizes was about and had no clue that sprawl had negative environmental and social consequences.

Zoning must also consider mixed-use developments. Newer development in the Antelope Valley is frequently of monolithic tracts of single-family homes, widely separated by the degraded desert scrub of former agricultural land. These kinds of neighborhoods require residents to use cars for nearly every daily errand. Denser developments that have basic stores within one-quarter to one-half mile of homes would encourage walking for many chores (and walking in general), greatly reducing local automobile trips. Palmdale has already taken a step toward mixed-use by allowing home occupancy (people who work out of their home, as previously mentioned). The greater mingling of work, home, and consumption spaces will do much toward forming stronger neighborhood ties and reducing the consequences of commuting.

Though the 1950s-style family with a working dad, a housewife, and two-point-three kids is a statistical relic today, the national "consuming unit definition" seems to successfully deny that. Building for the automobile-based nuclear family was the norm in every region, despite a trend away from that in real demographic. While builders would be wise to adjust developments to the changing realities of Americans—more single people, more childless couples, more working parents, more single parents—every community's build-out ostensibly satisfied a demand for traditional homes. And those single-family detached homes grew in size as did the lots they were placed upon, exacerbating sprawl and its consequences.

In many ways, the exurban areas are typically bastions of conservative, Republican, and very conventional families. The fact that demand for condominiums and apartments is so low in exurban America indicates that most areas are simply too far removed from urban amenities, economic opportunities, and social

support networks for anything but the self-contained nuclear household to thrive in. In this sense, the geographic distance of the Suburb from the City precluded non-traditional families or even singles from settling unless their job was there; the pattern of homebuilding in the 1980's and 1990's merely reflected this demographic reality. [#60]

Requiring that development happen on infill lots or at the immediate edge of current development could have reduced sprawl by many times in urban and suburban centers.

As it happened, developers were free to buy land wherever they wanted and conjure up new subdivisions—often on the cheapest lots far from existing urbanization. Annexing the subdivisions became a competitive game between Lancaster and Palmdale, each vying for the title of “biggest” city. Each city also sought the most tax revenue-generating retail developments; car dealers were the biggest prize, and Palmdale’s regional mall was a major coup. But civic egos—the Lancaster mayor told a reporter in 1988 that he wanted “to see our city limits reach all the way to Gorman - about 40 miles away. That’s how far west I’d like to go” [#61]—had their price, in stretching city services over a wide area and generating countless automobile trips. Developers could even have saved money on outlays for infrastructure had they been required to build on existing city tracts or at the immediate fringe. Starting in 1987, some cities finally began to require that developers pay for the cost of infrastructure improvements when the subdivision lay outside the current city limits. [#62]

The zoning changes described are not likely to go unchallenged; all require some sort of deviation from strictly market-driven development patterns. Property owners are a likely source of resistance, especially those who, expecting to sell land to developers, may never realize profits if their land lay outside possible annexation. The tight relations between developers, zoning boards, and politicians also conspire against decisions which would reduce development opportunities and reign in sprawl. In an environment driven solely by the profit motive, growth is indeed likely to happen less than optimally. Most Palmdale and Lancaster residents see no problem with further growth; no “slow growth” movement exists and there is no active group attempting to influence the cities’ development. Because so many Antelope Valley residents have been the beneficiaries of sprawl, [#63] it is incumbent on government to create the conditions which could make a different growth pattern the sensible—and profitable—choice.

Rationalizing Prices and the Hidden Subsidy

BY ALL ACCOUNTS, THE UNITED STATES courts a natural resource addiction second to none in the history of civilization. The single-minded dependence on petroleum has led to horrific acts of violence (the Gulf War) and environmental devastation of unparalleled scale. Weaning this country off petroleum should be a national priority, with positive consequences for the national debt, the environment, pollution, individual health, and national security and self-sufficiency. Yet, since the OPEC crises of the early 1970s, virtually nothing has been done to end our reliance on oil or at least to treat it like the non-renewable resource of tremendous value it is.

Bringing America’s petroleum consumption into line with its true cost is most often referred to as the process of internalizing externalities, or rationalization. Externalities are those costs associated with a commodity for which the consumer does not directly pay in the exchange required to buy the commodity. Right now, national energy policy is skewed toward continued reliance on petroleum, a stance that, even in a best-case scenario, can sustain us at best for two generations, with calamitous eventualities. The



most effective way of getting the U.S. off its petroleum habit would be to price it out of the market, a move that would necessarily have repercussions through all economies.

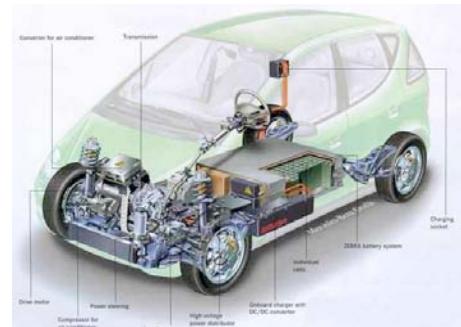
And the best way to price petroleum is to account for most but not all of the massive external costs not currently born by consumers. Those costs, which amount to a multi-billion dollar subsidy funded on national debt, include the sustenance of a massive military presence in the Middle East, the three trillion dollar price tag of the Iraq War and the loss of human life in those wars. External costs must also account for the environmental damage due to petroleum use: oil spills and the damage to fisheries and wildlife; atmospheric carbon dioxide buildup and global warming; the effects of acid rain, ozone pollution, and smog; and the degradation of human health.

And, rationalization of costs must account for the very finiteness of the petroleum reserve. In short, the price to the consumer for petroleum is only a fraction of its true toll. All of the external costs of that tankful of gas need to be bid into the price so that economic incentives can have their singularly convincing effect on consumption decisions.

How can this be accomplished? Not easily, but it is possible. The gargantuan powers of the petroleum, automobile, and allied industries have a tremendous stake in maintaining a cheap, plentiful oil supply. The present resistance of the automobile industry to California legislation requiring that 2% of new cars sold in 1998 be electric powered points out how resistant the auto makers are to new ways of doing business - and how *incapable* the present corporations are of providing the solutions society needs.

Developers of suburbs also rely on cheap gas to make their product affordable. How, then, can change be effected? Again, it is incumbent on government to create the conditions where alternatives are at least as profitable as the status quo.

California and the nation must continue to impose petroleum taxes, which would have the effect of internalizing petroleum's costs. These revenues must be dedicated to projects that reduce petroleum consumption, not merely to mitigating the effects of current consumption patterns. Reducing petroleum dependency could be aided by spending on projects such as rail and other mass transit, and retrofitting of existing autos to electric-power. Automobile manufacturers are virulently opposed to electric cars, maintaining that present technologies do not meet consumer's expectations of price and performance. However, anecdotal evidence suggests that virtually every two-car household would not be at all hampered if at least one of those cars was electric powered, even using currently existing electric battery technology (which researchers cite will soon be vastly improved).



With adequate alternatives—mainly, feasible electric vehicles and extensive mass transit services—incrementally increasing gasoline prices would move many commuters out of their cars and lead them to seek housing alternatives which involve lower traveling costs. The revenues from gas taxes could also be used to provide economic stimuli to businesses developing high-efficiency gasoline and electric vehicles. Revenues could also go toward stimulating development of higher density mixed-use suburbs, though rationalization of petroleum costs in conjunction with municipal zoning changes would produce an adequate net effect.

Petroleum is not the only resource subsidized by society as a whole; so timber, so minerals, so water. Subsidies to the timber industry take the form of undervalued selling of Federal forest products to timber companies. The U.S. Forest Service, comprising 40% of the U.S. Department of Agriculture's employees, exists in its essence to aid the timber industry. [#64] Besides allowing timber companies to log at a net *loss* to the government, the Forest Service actually constructs the thousands of miles of logging roads that are

required for logging. In its zeal to help the timber industry reap their harvest, to “get out the cut,” the USFS has subsidized clearcutters to the tune of four billion dollars in the last decade alone.

What this amounts to is a massive subsidy to the price of new homes as that wood comes to the market at well below what it would actually cost an industry to reap. Add to this the huge subsidies effectively granted mining operations thanks to the indefatigable 1872 Mining Law, and it is easy to see that the price of a single-family home in the Antelope Valley is deeply subsidized by national debt taken on in the name of efficient resource extraction. The studs, wiring, and piping of the resource-intensive single-family home have hidden costs of epic proportions; only by rationalizing these, bidding them into the price of the final product, can economic realities shape how that product is consumed.



The allocation of water in the Antelope Valley provides an excellent case study with which we can examine in greater detail the complexities of natural resource issues relating to suburban development. As I have already described, the Valley’s water supply could be one of the pivotal factors affecting its continued viability. Fundamentally, the Antelope Valley would be wise to acknowledge the hydrologic limits of its desert environment rather than rely on State Water Project deliveries; water from the SWP should only be expected to *decrease* in the long term. Lancaster and Palmdale must create incentives to limit water use, particularly in landscaping, which typically uses the greatest portion of a household’s yearly consumption. That proportion is undoubtedly very high in the desert climes of the Antelope Valley.

It would be particularly useful for the communities of the Antelope Valley to determine what a sustainable groundwater yield is; my suspicion is that, were water only to be used for the most economically beneficial purposes, and used with acknowledgement of the ecological context, the greater portion of all needs could be met by groundwater on a sustained basis. As it is, though, overdraft and reliance on the aqueduct are inevitable because of the profligate use of water for low-value crops and maintaining temperate-climate landscaping.

There are several reasons why the Antelope Valley should be more careful with its groundwater supply. First, the State Water Project has not achieved full build-out and cannot meet contractual obligations.

There are countless municipalities in the west which speak about their “entitlement” as if the water is there waiting for them to ask for it. The reality of the SWP, however, is that customers will probably never see the fulfillment of that entitlement, and especially not when they need it most—in the next drought. Additionally, persistent legal and environmental challenges to the withdrawal of water from the Delta region of northern California promises to limit or even reduce water deliveries to Southern California.

Part of an economic rationalization of water in the Antelope Valley would involve a cessation of agricultural activities. Having declined from its peak in the immediate post-war years, Valley agriculture is at best a livelihood for only a handful of individuals. Most of the local farmers are in fact “hobby” farmers or part-timers who have additional employment. Though a few of the old-timers practice dry farming of grains, varying their acreage depending on the year’s rainfall, most farmers use a considerable amount of groundwater to irrigate crops (onions of late). Gary Mork [#65] pointed out that nothing is grown in the Antelope Valley that could not be grown cheaper elsewhere; the fact that farming continues merely reflects its initial foothold in the local economy.

The benefits of ending farming in the Antelope Valley would be, then, a less-tapped groundwater reserve. But is this a plausible scenario? In the ever-complex world of California water rights, it is not. Economic efficiency and highest-value use of water is undermined by laws regarding groundwater; those laws allow anyone to pump water from below their property. This makes it impossible for the government to monitor

withdrawal for the good of the region as a whole. In this context, as long as energy is cheap, pumping water for agriculture is economically rational and will continue so long as farmers can profit from the latest crop. Furthermore, the multiplicity of private wells and micro-water districts in the Valley makes it impossible to protect or manage groundwater reserves without entirely new laws.

The relative cheapness of groundwater pumping, combined with the recent drought, has led to significant overdraft of the Valley's aquifers. Land subsidence, which has occurred in many areas of the Valley, has even more disturbing future implications. As aquifers in the desert are drawn down, the north and west Valley's clayey, brittle soils that compose the aquifers dry out and compress. In the most extreme cases, these soils then collapse underground with severe surface consequences. In 1991, "70 large cracks [were] charted in a 10-square-mile area of undeveloped land in Lancaster that was intended for thousands of homes. And dozens more have surfaced on the dry lake bed at nearby Edwards Air Force Base, where the space shuttle lands, forcing the closure of one runway." [#66] These fissures and sinkholes were only the most visible evidence of a serious problem of land subsidence in the Antelope Valley, where the United Nations Educational, Scientific and Cultural Organization (UNESCO) said in 1984 that "a 463 square mile area around Lancaster had sunk up to 3 feet between 1955 and 1978." A 1991 investigation found even greater subsidence, of some 5.5 feet between 1961 and 1981 in some parts of Lancaster.

The tragedy of subsidence is that it forever destroys underground water storage capacity. Once an aquifer collapses, there is nothing save an act of the Almighty to raise the earth again and let it fill with water. The loss of aquifer capacity has bleak consequences for regional self-sufficiency, and forces reliance on surface water projects which are invariably more expensive and have far higher evaporation rates. One of the great failures of this arid state is that no body of law was devised to monitor the use of its aquifers and prevent their catastrophic abuse.

The Responsibility of Capital

THOSE WHO CONTROL INVESTMENT HAVE a major role to play in the reshaping of suburban sprawl. Much of the monotony of the 1980s-style suburb was the result of extremely conservative investment decisions: not wanting to put funds at risk, developers and the banks which backed them stuck with tried-and-true subdivision designs. The shape sprawl took was guided by economics rather than malevolence or ignorance. Thus, implementing development plans that can advance beyond the usual sprawl requires that banks, developers, and federal mortgage guarantee programs see it in their interest to fund and build such places. Lenders could direct this by making traditional sprawl more expensive to finance than more efficient developments or older homes. This efficiency would be reinforced by rationalizing natural resource costs and building better mass transit systems, both of which would make non-traditional housing more attractive to consumers.

Lenders must take into account more than just the selling price of a home. Wrapped up in a home's value is its proximity to employment, the environmental impacts of its building and maintenance, and even the value of lost time through commuting. Changing the focus of what kind of development gets financed means changing how lenders evaluate the long-term returns on their investments, returns which so far have not been sufficiently examined.

Now that consumer debt in the U.S. has risen to equal the gross national product for the first time in our nation's history, nearly everyone acknowledges that consumer debt in this country is a serious economic problem, neither the government nor lenders have made moves to remedy that. Much of the economic "growth" and expansion of the standard of living of the last 25 years was nothing more than debt spending.



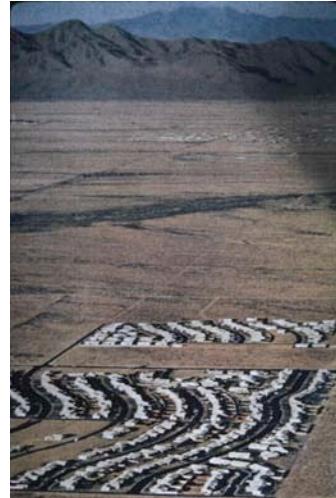
The excesses of the decades have burdened individuals, corporations, and government with debts that are a major impediment to a sound economy. Despite the fact that fewer people can afford to own homes now

than in the halcyon postwar years, Suburban America boomed across the country on the 1950's-style model of suburban development. As a consequence, buyers there took on considerable debt, taxpayers funded roads, sewer and water infrastructure expansion to make rich white developers richer, and consumers also were subjected to additional high costs in maintaining their automobiles for the long commutes. Denser development which requires less driving can save residents money, both in home ownership costs and commute costs. This opportunity for debt-reduction can be used as yet another incentive to change growth's form.

Conclusion

ANY SUCCESSFUL PROGRAM TO SHAPE HOW CITIES GROW will have to be founded on a consortium of architects, developers, lenders, builders, consumers, and the government. No segment working alone can successfully affect the scale of change needed. The most potent incentives will be codified in law and mutually reinforced by economics. No amount of proselytizing by city planners or environmentalists will convince people that sprawl must be capped and new forms of growth implemented; only a concerted, multi-interest effort can do this.

Many people are opposed to changing suburban growth patterns—especially those who have generated profit or otherwise benefited from the type of developments we see in every suburb of every city in the country. The cultural ideal of a single-family home is deeply embedded in the national psyche and will be difficult to dislodge, even by the most well-meaning critics. The promoters of sprawl have already spoken against changes: for instance, in the Building Industry Association's outraged reaction to the *Beyond Sprawl* report, or the auto industry's reactions to gas taxes and zero-emissions vehicle requirements.



And, as long as the system is structured in a way which effectively provides massive subsidies to people buying far-off suburban homes, we should not expect consumers to change their home preferences. In many ways, the dilemma of suburban sprawl reiterates Garrett Hardin's "Tragedy of the Commons:" the benefits to the direct participants in suburban growth are tangible and whole; however, the maladies—that is, the true social costs—are usually dispersed unfairly across society. Only rarely do the tolls of sprawl subtract directly from investors in a way commensurate with the wider damages generated.

Ultimately, the unmitigated spread of the single-family home will *have* to stop; neither ecosystems, natural resources, economies, nor societal cohesion can tolerate continued assaults on the urban fringe. The challenge to us now is to initiate equitable, rational, and sustainable patterns of growth in a way that does not merely leave development to the vagaries of the market. Solon, OH and Westlake, OH should stand as the *final*—not merely the latest—examples of unguided sprawl and all its deleterious consequences.

Footnotes

1. Karlovich, R. J. California's Golden Wealth. ([n.p.]: Pacific States Land Company, [n.d.; probably early 1960s]). p. 37.

2. Austin, Mary. *Land of Little Rain*. (Boston: Houghton Mifflin, 1950 [1903]). pp.1-8.

3. For the purposes of the references to Antelope Canyon, we recognize the Los Angeles–Kern County line as the northern boundary of the Antelope Valley, since it is within this political boundary rather than the physical boundary of the Tehachapis that the Antelope Valley has grown most dramatically.

4. Palmdale Chamber of Commerce. *Palmdale and the Antelope Valley: 1995 Civic and Business Planner*. (Palmdale, California: Palmdale Chamber of Commerce, 1995). p. 12.

5. California Legislature, Senate Committee on Local Government. Flood Control in the Antelope Valley: Organization and Financing—Summary of the Testimony Received at the Interim Hearing of the Senate Committee on Local Government. July 30, 1986. p. 18.
6. City of Lancaster. 1992 general plan: state of the city report. (Lancaster, California: The City, 1992). p. III-A-14; and California Legislature Senate Committee on Local Government, p. 32.
7. See Barrows, Allan G. "Roadcut exposure of the San Andreas fault zone along the Antelope Valley Freeway near Palmdale, California." Geological Society of America Centennial Field Guide—Cordilleran Section, 1987. p. 48. This roadcut is currently (March 1995) under reconstruction by road maintenance crews. Visibility of the famous twisted gneiss may no longer be possible.
8. Lancaster Gazette, Dec. 28, 1889. Reprinted in Antelope Valley Ledger Gazette 50th anniversary edition 1888–1936. December, 1936. (Lancaster, California, 1936).
9. One entrepreneur in 1886 even contracted to supply the London Daily Telegraph with paper made from the pulp of the Antelope Valley's plentiful Joshua trees. Using hired gangs of Chinese laborers to cut the trees down, his venture failed in its first year when the trans-Atlantic shipment rotted in heavy rains. (Antelope Valley Ledger Gazette. 50th anniversary edition, 1886–1936. December, 1936. Lancaster, California, 1936. p. 2.)
10. Ibid., p. 2.
11. Settle, Glen A. and Doreen B. Settle, eds. Antelope Valley Pioneers. ([Rosamond, California?]: Kern-Antelope Valley Historical Society, 1984).
12. City of Lancaster (1992), p. II-D-10.
13. Among the Pear Groves of North Los Angeles County; in Palmdale and Littlerock Creek Irrigation Districts. (pamphlet, 1920). p. 11.
14. Antelope Valley Ledger Gazette (1936), p.13.
15. Ibid., p. 14.
16. This section largely based on Kagan, Paul. New World Utopias: A Photographic History of the Search for Community. (New York: Penguin Books, 1975).
17. Lancaster General Plan (1992): III-D-1.
18. Final environmental impact report for compound plan amendment 86-001 consisting of the Antelope Valley areawide general plan, amendment 85-010 and the housing element, sub plan amendment 86-311. (Los Angeles: County of Los Angeles Dept. of Regional Planning, 1986). p. 3.
19. Antelope Valley Progress Association, Inc.: History of Antelope Valley Progress Association, Board of Trade, 1957–1980. ([Lancaster]: Antelope Valley Progress Association, Inc., 1981). Section 4 (no page numbers).
20. Southern California Edison Company. An Area Inventory of the Antelope Valley in Southern California. (Los Angeles: Southern California Edison Company, 1963). p. 2, II-2, IV-2.
21. Ibid., p. 4.
22. Antelope Valley Progress Association.
23. Ibid.
24. Later called the State Water Project.
25. Antelope Valley Progress Association.

26. Report on the Proposed City of Palmdale. County-City Services Division, Chief Administrative Office, County of Los Angeles, California, 1960.

27. Lancaster was to incorporate in 1977.

28. Ace Map Co. The Fabulous Antelope Valley: Topographic Map Book 5, Los Angeles County. (Littlerock, California: Ace Map Co., 1969). p. iv.

29. Ibid., p. iv, 68.

30. Ibid., p. 110.

31. Ibid., p. 110 [ellipses are author's].

32. Karlovich, R. J., p. 42.

33. Ibid., p. 46.

34. Ibid., p. 41–43 [ellipses are author's].

35. Ibid., p. 80.

36. City of Lancaster General Plan, 1980, p. 3–58.

37. Ibid., p. 3–4.

38. Final environmental impact report for compound plan amendment 86-001, p. IV-1.

39. North County Area Population Expected to Reach 632,000 by 1990! Los Angeles: Los Angeles County, California Regional Planning Commission, 1970.

40. Lancaster General Plan (1992): table IV-B-1.

41. Just inside the entrance to the Antelope Valley mall is a Kaufman and Broad home store, where people can purchase their home. Emblazoned over the entrance is the invocation, “Antelope Valley is a Kaufman and Broad Hometown.”

42. Mork, Gary. Personal interview 27 March, 1995.

43. California Legislature, Senate Committee on Local Government.

44. As if to underscore the bad feelings surrounding this fiasco, the city of Lancaster in 1991 purchased the remains of this development (called “Legends”), unfinished houses and all, with the intent of bulldozing it into oblivion. One contemporary observer suspected that “‘Legends’ bugged the city fathers of Lancaster. They hated the ugliness of those ruined skeletons, and—they don’t say this, it’s just my guess—they hated the reminder that the ‘80s had retreated from Lancaster and everywhere else. It was the ‘80s, after all, that created Lancaster as we know it.” (Jones, 1991). Alas, “Legends” was bulldozed, but not before a truly Hollywood outro: “People came by the hundreds,” a Los Angeles Times reporter wrote, “as if to the site of a plane crash, standing in parkas and boots in the dark frozen streets and fields adjacent to a half-built and abandoned housing tract on the outskirts of Lancaster.... Why were they waiting? ‘To see them blow the houses up.’” (Ciotti, 1992). A film company contracted with the Federal government to bulldoze the tract, but not before it was used as the backdrop for a fiery action scene in the film production Lethal Weapon III. For the honor, the company paid the Federal government \$25,000—assuredly a small fraction of the cost to society after the Feds seized the lender, Hill Financial Savings Association, in the S&L debacle.

45. Lawson, Vern. Personal interview. 28 March, 1995.

46. City of Lancaster (1992). p. IV-A-2.

47. Ullman, Paul. Personal interview. 28 March 1995.

48. Methamphetamine labs and the drug's abuse are an acute problem in the Antelope Valley. The labs, usually run by "biker" types, are often located in shanties on the edges of the Valley, far from the edges of the developed portions. Sheriffs report difficulty in cracking down on these labs because the vast spaces of the Valley makes their detection difficult. In 1990, however, several huge illicit drug operations made the news. Tipped off by unusually high electric bills at the address of a remote shack, investigators discovered giant underground marijuana farms growing 6,000 plants by the light of ultraviolet lamps. (See Chandler, John, 1990, Barker, Mayerene, 1990, and Rotella, Sebastian 1990.)

49. Ullman, Paul.

50. This is true despite a recent Los Angeles Times report which showed the Lancaster/Palmdale area as having the third highest crime rate in Los Angeles County. Sheriff's Deputy Paul Ullman told me that the Los Angeles Times mistakenly compared the Antelope Valley's full-year crime figures to the six-month totals of other Los Angeles County cities.

51. When I visited the Antelope Valley in late March 1995, a 14-year old boy was killed by a neighbor's shotgun blast to the head. That was the fourth murder within two weeks to occur in the Antelope Valley.

52. Mork, Gary P. Personal interview. 27 March 1995.

53. The post-Northridge earthquake situation is a perfect example of the modernist tenet of "creative destruction": from the earthquake's wreckage arose entrepreneurship. (Thanks to John Bakker.)

54. Lasagna, Sherry. Personal interview. 28 March 1995.

55. City of Lancaster (1992), p. II-A-5.

56. Both figures from Roedigger, Henry. Personal interview. 28 March 1995.

57. Los Angeles County Waterworks Districts Statistics, 3/28/95. Single sheet.

58. City of Lancaster (1992), p. II-A-6.

59. City of Lancaster.(1992), p. II-A-5.

60. The only other significant demographic group I have been able to detect in the Valley are retirees, many of whom live in the numerous trailer parks scattered about. While some have lived in the Valley for many years, having been employed in the aerospace industry, others moved to the Valley upon retiring to live in its high desert climate.

61. Malnic, Eric. "Polite turf war in Antelope Valley pits Lancaster against Palmdale." Los Angeles Times, January 10, 1988. II: 1.

62. Personal interview. Lawson, Vern. 28 March 1995.

63. Not everyone shares equally in the positives of Antelope Valley suburban life, particularly the children and spouses beaten and killed by stressed commuters. Nor is increased air pollution, flood risk, ecological degradation, groundwater overdraft/pollution, or lost time to commuting considered a benefit of sprawl, though every Antelope Valley resident is affected by these consequences.

64. This section based on PBS Front Line video, "Is This Any Way to Run a Government?"

65. Mork, Gary P. Personal interview. 27 March 1995.

66. This section from Chandler, John. "Pumping threatens to sink high desert's future." Los Angeles Times, March 17, 1991: B1.