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Evaluating Criticism of Smart Growth

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Victoria, British Columbia is an example of a city that benefits from Smart Growth land use patterns.

Abstract

This paper evaluates various criticisms of Smart Growth. It defines the concept of Smart Growth, contrasts it with sprawl, and describes common Smart Growth strategies. It examines various criticisms of Smart Growth including the claims that it harms consumers, infringes on freedom, increases traffic congestion and air pollution, reduces housing affordability, causes social problems, increases public service costs, requires wasteful transit subsidies and is unjustified. Some specific critics' papers are examined. This analysis indicates that many claims by critics reflect an incomplete understanding of Smart Growth or inaccurate analysis. Critics identify some legitimate problems that must be addressed to optimize Smart Growth, but present no convincing evidence to diminish overall justifications for Smart Growth.

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Summary

Smart Growth refers to development principles and planning practices that create more efficient land use and transport patterns. It includes numerous strategies that result in more accessible land use patterns and multi-modal transport systems. It is an alternative to sprawl. Smart Growth is supported by diverse interest groups and professional organizations. Smart Growth has been criticized by various individuals and organizations. This paper evaluates that criticism.

Critics tend to assume that consumers prefer large single-family homes in automobile-dependent communities, and that current transport and land use policies are overall efficient and fair. As a result, they criticize Smart Growth as being harmful to consumers and the economy. This ignores evidence that many people will choose other housing and transport options if given suitable options and incentives, and that current markets are distorted in ways that increase sprawl and automobile dependency. Many Smart Growth strategies are market reforms that correct existing market distortions, increasing consumer options, economic efficiency and equity. Critics endorse some Smart Growth strategies in recognition that they increase market efficiency.

Critics often misrepresent Smart Growth and make various analytical errors which can lead to false conclusions. They often evaluate Smart Growth based simply on gross regional population density, ignoring other Smart Growth factors, geographic scales, and confounding factors. As a result, some evidence presented by critics misrepresents key issues. Specific Smart Growth criticisms are summarized below and evaluated in detail in the body of this report.

Consumers Prefer Sprawl and Automobile Dependency

Critics claim that consumers prefer sprawl and automobile dependency. But there is considerable evidence that many consumers prefer smarter growth communities and alternative transport modes, particularly if supported with suitable policies. Critics ignore many direct benefits that Smart Growth can provide to consumers, including financial savings, increased physical exercise, community cohesion, improved transport options for non-drivers, and greenspace preservation.

Smart Growth Increases Regulation and Reduces Freedom

Critics claim that Smart Growth significantly increases regulation and reduces freedoms. But many Smart Growth strategies reduce existing regulations and increase various freedoms. Overall, Smart Growth tends to increase more freedoms than it reduces, for example, by allowing more flexible development designs and providing more consumer travel options.

Smart Growth Reduces Affordability

Critics claim that Smart Growth increases housing costs by reducing land supply, but ignore various ways it reduces household costs by reducing unit land requirements, increasing housing options, reducing parking and infrastructure costs, and reducing consumer transport costs. The evidence critics use to evaluate housing affordability fails to account for confounding factors, such as higher housing costs in larger cities, and the tendency of Smart Growth to be implemented in areas experiencing rapid population and economic growth, which tends to raise housing costs.

Smart Growth Increases Congestion

Critics claim that Smart Growth increases traffic congestion and therefore reduces transport system quality, based on simple models of the relationship between density and trip generation. However, Smart Growth also increases accessibility and travel options, and provides incentives to reduce vehicle travel which reduces congestion. Traffic congestion alone is an ineffective indication of transport system quality; it is important to consider the quality of other modes. Empirical data indicate that Smart Growth reduces per-capita congestion delay.

Public Service Costs

Although many studies indicate Smart Growth can reduce development and public service costs, critics dismiss these studies, claiming that sprawl provides overall savings. But critics incorrectly measure Smart Growth only in terms of density, consider a limited set of total infrastructure and public costs, and ignore higher wages and public service quality in larger cities.

Transit Benefits

Critics claim that public transit investments are not cost effective because the costs of attracting additional riders are high and overall ridership is too small to reduce traffic congestion. This overlooks the fact that transit ridership tends to be greatest on major urban corridors where congestion is greatest, that improving public transit is often more cost effective than highway capacity expansion, that Smart Growth strategies can increase transit operating efficiency and ridership, and that transit provides many other benefits to society. When all costs and benefits are considered, Smart Growth programs that improve transit service and encourage transit ridership are often the most cost effective way to improve transportation systems.

Economic Development

Critics claim that Smart Growth is harmful to the economy. But Smart Growth can increase economic efficiency and productivity, and is associated with higher incomes and economic growth.

Critics tend to assume that consumers are inflexible, helpless and lazy, and so would be unable to accept living in more Smart Growth communities and reducing their automobile travel. However, experience indicates that people are actually quite adaptable and creative, enjoy walking and cycling, and can flourish in a wide range of land use conditions and transportation patterns.

Critics raise legitimate concerns that some Smart Growth policies can increase costs such as congestion and land prices, but such criticisms actually justify more comprehensive Smart Growth programs. For example, concerns that density increases traffic and parking congestion justifies policies that encourage use of space-efficient modes, such as public transit service improvements and more efficient road and parking pricing. Similarly, concerns that policies which favor infill development can increase land prices justify policy reforms to allow more compact development and reduced parking requirements, which reduces the amount of land needed per housing unit.

Introduction

There are many possible ways to organize a community. People can lead happy, productive lives in a wide variety of settlement patterns including dispersed rural homes, small villages, towns, and large cites. There are also many possible transport systems, ranging from car-free to multi-modal and automobile-dependent. Each development pattern and transport system has advantages and disadvantages.

Over the last century most communities have experienced sprawl development, with dispersed, low-density, automobile-dependent urban fringe expansion. These trends have been supported by various public policies and investments, ranging from generous parking requirements to major suburban highway investments. This development pattern exacerbates many problems, ranging from the economic costs to consumers and governments of an automobile-dependent transportation system, to the environmental and aesthetic costs of development that displaces greenspace.

In recent years many individuals and organizations have advocated *Smart Growth* policies which result in more compact, mixed development in accessible, multimodal neighborhoods. There is considerable debate over the merits of these different development policies, with critics arguing that Smart Growth provides fewer benefits and imposes greater costs than proponents claim. Some criticism concerns Smart Growth goals, others with the methods used to achieve these goals.

This report explores these issues. It describes Smart Growth, discusses its goals, and provides detailed analysis of Smart Growth criticism. It attempts to provide a fair and objective examination of the arguments made by Smart Growth critics, and the evidence they present to support their arguments.

Why This Issue Generates Passion

Land use policy analysis is generally considered boring, but discussions about the costs of sprawl and benefits of Smart Growth often turn passionate. Let's consider why.

Where people live impacts them in many ways, including the amount they will spend on housing and transportation, the neighbors they interact with, and how they will spend their time. When people choose a home location they choose a lifestyle.

During the last century various social and economic trends have encouraged residents to choose suburban homes, resulting in a self-reinforcing cycle of economic decline, poverty and social problems in many cities. To individual households, city living seemed difficult and dangerous; choosing a suburban home seemed responsible and rational.

However, suburban living is costly. Single-family homes cost more to build and operate (particularly to heat) than townhouses and apartments, and suburban locations require costly automobile transportation. Higher income households can bear these costs, but to many lower-income households they are unaffordable. In the U.S., the majority of all households spend far more than the recommended 45% of their household budget on housing and transportation

combined, and this portion increases as incomes decline; the lowest income quintile devotes 55% of their total income to housing and transportation, 22% more than is considered affordable. This reduces the amount that households can afford to spend on other important goods and leaves lower-income households financially vulnerable, for example, if their incomes decline, their vehicle fails or fuel prices spike.

Many common public policies encourage households to spend more on housing and transportation than is rational. Many rent or purchase larger homes and more motor vehicles than they actually need. Although they have more affordable options, such as living in an urban apartment, and relying on walking, cycling and public transit, these are stigmatized. For status sake, many moderate income households make significant sacrifices – they work more, endure unpleasant jobs, and spend less time and money on the things they enjoy – in order to maintain their single-family homes, their cars, and therefore their suburban lifestyles.

People in this situation want their suburban lifestyle validated, not criticized! It is understandable that they dislike research indicating that sprawl and automobile dependency are costly and harmful, and urban lifestyles are superior. This has created demand for evidence that sprawl imposes minimal costs and compact development provides no net benefits. Because this is an emotional issue, it is unsurprising that the standards of evidence are low.

Defining Smart Growth and Its Impacts

Smart Growth (also called *New Urbanism*) refers to various policies and planning practices that create more compact and multimodal communities, in contrast to *sprawl*, which results in more dispersed and automobile-dependent development. Table 1 compares major differences between these two land use patterns. It is important to note that density is just one of several differences between these development patterns; it is possible to have dense sprawl (high rises in automobile-dependent locations) and lower-density Smart Growth (mixed-use rural villages).

Table 1 **Smart Growth and Sprawl** (SGN 2011)

	Smart Growth	Sprawl
Growth pattern	More infill (brownfield) development.	More urban expansion (greenfield).
Density	Higher-density, clustered activities.	Lower-density, dispersed activities.
Land use mix	Mixed.	Single use, segregated
Scale	Human scale. Smaller blocks and roads. Attention to detail, since people experience the community as pedestrians.	Large scale. Larger blocks and wide roads. Less detail, since people experience the landscape at a distance, as motorists.
Transport	Multi-modal. Transport and land use patterns support walking, cycling and public transit.	Automobile-oriented. Transport and land use patterns offer poor alternatives to driving.
Connectivity	Roads, and other transport system components, are highly connected.	Road, and other transport system components, are poorly connected.
Street design	Streets designed to accommodate a variety of activities, and traffic speeds are moderate.	Streets designed to maximize motor vehicle traffic volume and speed.
Vehicle parking	Parking is priced and managed for efficiency.	Parking is abundant and generally unpriced.
Planning process	Planned and coordinated between jurisdictions and stakeholders.	Unplanned, with little coordination between jurisdictions and stakeholders.
Public space	Emphasis on the public realm (streetscaping, public parks, public facilities).	Emphasis on the private realm (yards, shopping malls, gated communities, private clubs).

This table compares various features of Smart Growth and Sprawl.

Smart Growth emphasizes *accessibility*, that is, people's ability to reach desired goods, services and activities, while sprawl emphasizes *mobility* (physical movement) and *automobility* (movement by automobile). It reduces distances between common activities (home, work, schools, services) is multi-modal, while sprawl disperses activities and is automobile dependent. Sprawl results in longer but faster automobile trips, while Smart Growth results in shorter, slower vehicle trips, and more non-automobile travel.

Smart Growth includes various policies and planning practices, such as those listed on the next page. Because their impacts are synergistic (total impacts are greater than the sum of their individual impacts) Smart Growth should be implemented as an integrated program. For example, increased density, improved walkability or increased transit service by themselves cannot be considered Smart Growth; rather, it requires a combination of these strategies.

Smart Growth Strategies (ICMA 2014; ITE 2010; SGN 2002, 2004 & 2011)

- *Strategic planning.* Establish a comprehensive community planning process so individual, short term decisions are consistent with a community's strategic, long-term goals.
- *Create mixed, self-contained communities.* Locate compatible activities close together, such as schools, shops and recreation facilities near residential areas. Establish "urban villages" that contain an appropriate mixture of housing, commercial, schools, recreational facilities.
- *Encourage infill development.* Encourage new development within already developed areas rather than in new greenfield areas.
- *Concentrate activities*. Retain strong downtowns and central business districts. Use access management to discourage arterial strip commercial development.
- *Allow more compact development.* Allow smaller lot sizes, taller buildings, multi-family housing, reduced building setbacks, reduced minimum parking requirements, and smaller street sizes.
- *Encourage mixed housing types and prices.* Develop affordable housing near employment, commercial and transport centers. Encourage secondary suites, apartments over shops, lofts, location-efficient mortgages and other affordable housing innovations.
- *Efficient tax and utility rates.* Structure property taxes, development fees and utility rates to reflect the lower costs of providing public service with more compact development.
- *Avoid overly-restrictive zoning.* Allow higher densities and more diverse land uses. Limit undesirable impacts (noise, smells and traffic) rather than broad categories of activities.
- *Increase roadway connectivity.* Create connected roadway networks with minimum dead-ends.
- *Site design and building orientation.* Encourage buildings to be oriented toward city streets, rather than set back behind large parking lots.
- *Urban growth boundaries*. Restrict urban fringe development.
- *Foster distinctive, attractive communities with a strong sense of place.* Encourage development that creates a sense of civic pride and community cohesion.
- *Improve travel options*. Improve walking and cycling conditions, public transit and taxi services, and other transportation innovations. Improve connections between modes, such as walking and cycling access to transit stops, and transit services to airports and ferry terminals.
- *Implement mobility management.* Use efficient road and parking pricing, commute trips reduction programs, and other mobility management strategies to reduce traffic problems and encourage the use of resource-efficient modes.
- *Manage parking for efficiency.* Encourage shared parking, parking maximums, and other parking management strategies. Reserve the most convenient parking for rideshare vehicles.

Smart Growth includes various policies and planning practices that result in more compact development and more diverse and efficient transport systems. Their impacts tend to be synergistic; they are more effective if implemented together. Many of these strategies reduce existing regulations (such as allow higher density development with less required parking) or respond to consumer demands (such as encouraging more diverse housing types, and improving walking and cycling conditions, and public transit services. Only one strategy (urban growth boundaries) increases regulations.

Smart Growth can be implemented under various conditions:

- *Urban*: In urban areas it emphasizes redevelopment and infill of existing neighborhoods, improving design features (such as traffic calming of urban streets), and enhancing multi-modal transport systems, particularly walking and public transit.
- *Suburban*: In suburban areas it creates medium-density, mixed-use, multi-modal centers and corridors, either by incrementally developing existing suburban communities or by master-plan developments that reflect Smart Growth principles. It encourages more complete suburban communities (more services and employment in suburban jurisdictions), and improved regional travel options such as cycling, rideshare and transit improvements.
- *Rural*: In rural areas it involves policies that help channel development and public services into accessible, mixed-use villages (for example, having schools, stores and affordable housing located close together and well connected by good walking facilities), and rural mobility management strategies such as cycling and rideshare improvements.

Figure 1 **Smart Growth and Sprawl Illustrated**

Smart Growth *Sprawl*

Smart Growth involves compact and mixed development, and multi-modal transportation systems. Sprawl involves dispersed development and automobile-oriented transportation systems where it is difficult to reach common destinations without using an automobile.

Smart Growth policies create more compact and multi-modal communities, which has various impacts including reduced per capita land consumption, improved accessibility (particularly for non-drivers), and reduced motor vehicle travel compared with sprawled, automobile-dependent development. This, in turn, has various outcomes including openspace preservation, public infrastructure and service cost savings, household transport cost savings, reduced traffic casualties, improved public fitness and health, energy conservation and pollution emission reductions, increased economic productivity and improved economic opportunity for disadvantaged residents. Figure 2 illustrates these relationships.

Figure 2 **Smart Growth Impacts and Outcomes**

Policies		Physical Impacts		Outcomes
Encourage denser and more mixed development, reduce parking requirements, more multi-modal transport planning, more investment in urban services	➔	More compact and mixed development, more multi-modal transport system, reduced vehicle travel, more use of other modes	➔	Openspace preservation, more efficient public services, reduced transport costs, traffic safety, increased public fitness and health, increased productivity and opportunity

Compared with sprawl, Smart Growth policies create more compact development and multi-modal transportation systems, which has various outcomes.

More compact, multi-modal development tends to provide various benefits and costs, as summarized in Table 2. Some of these impacts vary depending on analysis perspective and specific conditions. For example, policies that allow more compact development tend to raise urban land prices which increases single-family housing costs but reduces the costs of compact housing types such as townhouses and apartments. Similarly, increased density tends to increase congestion *intensity* (minutes of delay per peak-period trip) but by reducing per capita automobile trips and trip lengths it tends to reduce per capita congestion costs (annual delay hours per capita), and these costs are further reduced if Smart Growth includes incentives to use space-efficient modes for urban-peak trips, such as improved walking and cycling conditions, grade-separated public transit services, and more efficient road and parking pricing.

Table 2 **Smart Growth Costs and Benefits** (Litman 2015)

	Internal (To Smart Growth Residents)	External (To Other People)
Benefits	Increased accessibility, which reduces transportation time and money costs Improved mobility options, which increases independence and economic opportunity, particularly for non-drivers Reduced chauffeuring burdens imposed on drivers More affordable housing options (townhouses, apartments, accessary units, etc.) Reduced traffic risk Improved fitness and health	Open space preservation (farm and environmental lands) More efficient public services (roads, utilities, emergency response, public transit, etc.) Reduced congestion and crash risk imposed on other people Reduced healthcare and disability costs Increased economic productivity and development Reduced overall crime rates Reduced fuel consumption and pollution emissions.
Costs	Higher unit land prices (dollars per acre) Less private greenspace (lawns and gardens) Less privacy More local traffic and parking congestion More local social problems (poverty, crime, etc.) More exposure to some local pollutants	Increases in some infrastructure costs such as curbs and sidewalk

Smart Growth has various benefits and costs, including some that are internal (borne by the Smart Growth residents) and some that are external (borne by other people). These vary depending on specific conditions.

Critics argue that land use has little impact on travel activity. For example, Stevens (2016) argued that "At minimum, planners and municipal decision makers should not rely on compact development as their only strategy for reducing VMT (vehicle miles traveled) unless their goals for reduced driving are very modest and can be clearly achieved at a low cost." Several researchers responded by pointing out that Stevens analysis, which considers land use factors individually, underestimates the total vehicle travel reductions achievable with integrated Smart Growth policies, and that compact development provides other co-benefits besides vehicle travel reductions (JAPA 2017).

Part of this debate is semantic: the magnitude of impacts should be considered "small." Although all measured factors are inelastic (a percent change in a land use factor generally causes proportionately smaller changes in vehicle travel), these impacts are not necessarily small, particularly if implemented as integrated packages, which can often reduce residents' vehicle travel 20-60% compared with the amount they would drive in a sprawled, automobile-dependent area.

Although individual Smart Growth strategies may have modest impacts, their effects tend to be cumulative and synergetic (Blais 2010; TRB 2009; ICF 2011; USEPA 2013). For example, a 50% increase in development density and mix, and walking and cycling improvements, might individually reduce per-capita vehicle travel only 5-10%, but together provide 20-30% reductions (Litman 2010b). Table 3 summarizes actual examples of Smart Growth vehicle travel reductions.

Table 3 **Infill Vehicle Travel Reductions** (CCAP 2003)

Location	Description	VMT Reduction
Atlanta	138-acre brownfield, mixed-use project.	15-52%
Baltimore	400 housing units and 800 jobs on waterfront infill project.	55%
Dallas	400 housing units and 1,500 jobs 0.1 miles from DART station.	38%
Montgomery County	Infill site near major transit center	42%
San Diego	Infill development project	52%
West Palm Beach	Auto-dependent infill project	39%

Smart Growth can significantly reduce vehicle travel compared with conventional development.

Measuring these impacts can be difficult because there are often several steps between a policy (such as allowing more compact development or reduced parking requirements) and outcomes (such as public infrastructure savings or reduced traffic accidents). However, a sold body of research using various methods and data sets indicates that Smart Growth policies generally do have the expected outcomes (Bartholomew and Ewing 2009; CARB 2010-2015; Ewing and Cervero 2010; Ewing and Hamidi 2014; JICA 2011; Outwater, et al. 2014; TRB 2012). This includes models that predict how development policies affect travel activities and outcomes (Calthorpe Associates 2012). Much of this research in peer reviewed and commissioned by government agencies and professional associations.

Smart Growth is supported by various interest groups and professional organizations such as the American Planning Association and the Institute of Transportation Engineers (SGN 2001; APA 2002; ITE 2003; "Smart Growth," VTPI 2005; Ewing et al. 2007; TRB 2009). It is opposed by various organizations and individuals, called *critics* in this paper (Cascade Policy Foundation; Cox, various years; Glaeser and Kahn 2003; Gordon and Richardson 1997 and 2000; Heartland Institute; Mills 1999; Moretti 1999; Public Purpose; RailRoading America; Reason Public Policy Institute; The Thoreau Institute), and by some suburban politicians (Filion 2018). Critics can be divided into two general groups: those that oppose a particular aspect of Smart Growth out of self-interest (i.e., they or their industry will lose benefits or bear costs), and those that have an ideological opposition, on the assumption that Smart Growth increases government intervention in a free market.

Smart Growth Consumer and Economic Impacts

Critics argue that Smart Growth harms consumers (people directly affected by the policies) and the economy by reducing housing options and restricting automobile travel. The following factors should be considered when evaluating these impacts.

Demand for Sprawl Housing

Housing preference surveys indicate that most households prefer single-family homes, but they also indicate that households will accept smaller-lot and multi-family housing in exchange for travel time and financial savings (ULI 2009). For example, surveys indicate that a significant portion of households would choose a small lot single-family home or a townhouse in an urban neighborhood over a large-lot single-family home in suburbs if it provided a shorter commute, better access to public services, or a few thousand dollars in annual financial savings (Hunt 2001; NAR 2011). This indicates that at least some households would choose Smart Growth locations if they had suitable options and incentives, such as nicer urban neighborhoods, more convenient commutes (by bicycle, automobile, and public transit), and reduced development and utility fees for more accessible housing (Blais 2010).

Much of this preference for sprawl housing appears to social factors, such as perceived security, better public services, and higher social status, rather than actual physical attributes of sprawl, such as a desire to garden. To the degree that this is true, Smart Growth that improves the perceived security, public service quality and social status of more compact, multi-modal neighborhoods can satisfy consumer demands in ways that provide additional economic, social and environmental benefits. For example, improving the quality of urban neighborhood public schools may allow some households to choose more accessible, multi-modal housing rather than moving to automobile-dependent suburbs for better schools. These social attributes are partly self-fulfilling prophecies: as wealthy households fled cities, poverty and associated social problems were concentrated in urban neighborhoods, making suburbs seem more secure and affluent. In recent years, many of these trends have started to reverse, making urban neighborhoods more attractive (Litman 2009).

Consumer Costs and Benefits

Smart Growth can have various consumer costs and benefits, all of which should be considered when evaluating net impacts on individuals and groups. Two Smart Growth tend to increase consumer costs: urban growth boundaries tend to increase land prices which increase the costs of larger-lot houses, and more compact development may increase traffic and parking congestion. Offsetting these negative impacts are improvements in other housing and transport options, such as more affordable small-lot housing, better schools and shops in compact neighborhoods, improved walking and cycling conditions, and better public transit services. In addition to these direct benefits, Smart Growth can provide indirect benefits, including infrastructure and public service cost savings, energy conservation and emission reductions, open space preservation and associated environmental benefits, and improved mobility for non-drivers and resulting

reductions in motorists' chauffeuring burdens. As a result, Smart Growth can provide net consumer benefits (incremental benefits exceed incremental costs).

Table 4 summarizes the consumer and economic efficiency impacts of various Smart Growth strategies. Many strategies correct existing market distortions that reduce housing and transportation options, and so directly benefit consumers and the economy. This is not to suggest that all Smart Growth policies benefit everybody, but to the degree that Smart Growth creates more compact, accessible, multi-modal communities where residents consume less land per capita, drive less and rely more on alternative modes, it tends to provide a variety of direct and indirect benefits. All these impacts should be considered when evaluating Smart Growth net impacts.

Table 4 **Smart Growth Consumer Impacts** (Litman 2016)

Strategy	Examples	Consumer Impacts	Economic Impacts
More integrated transport and land use planning	Better sidewalks and bike lanes around schools. Commercial development concentrated along transit routes.	Tends to benefit consumers, particularly those who, due to necessity or preference rely on alternative modes.	Tends to reflect good planning and increase overall efficiency.
Location-efficient development	More affordable housing located in accessible areas.	Benefits lower-income residents who choose such housing.	Responds to consumer demand and increases efficiency.
More flexible zoning codes	Allow more compact and mixed development.	Benefits consumers who prefer more compact, affordable housing options.	Responds to consumer demands and increases efficiency.
Reduced and more flexible parking requirements.	Reduced parking requirements in response to geographic, demographic and management factors (more sharing and pricing of parking)	Benefits consumers who prefer more affordable, compact housing options, particularly those who own fewer than average number of cars.	Responds to consumer demands and increases efficiency. Can provide significant savings and benefits.
Growth control	Urban growth boundaries that limit urban fringe development.	Disadvantages some consumers who demand large-lot housing.	Increases automobile-dependency and associated costs.
Transportation funding shifts	Reduced funding for roadway expansion and increased funding for walking and cycling facilities and public transit service improvements.	People who prefer alternative modes benefit directly. Motorists may have less capacity, but can benefit from reduced chauffeuring requirements, and reduced congestion if better alternatives cause mode shifts.	Can increase efficiency if there is demand for alternative modes and if mode shifting reduces problems such as congestion and accidents.

Most Smart Growth strategies directly benefit consumers and increase economic efficiency.

Changing Paradigms

The debate of Smart Growth reflects a *paradigm shift* (a change in how problems are defined and solutions evaluated), as summarized in Table 5.

Table 5 **Old Versus New Transport/Land Use Planning Paradigm**

Issue	Old	New
Progress	Growth: expanding, getting bigger.	Development: improving, getting more efficient.
Goal of transport	*Mobility/Traffic:* considers movement an end in itself.	*Accessibility:* the ability to reach desired goods, services and destinations.
Analysis approach	Reductionist. Considers problems, impacts and solutions individually.	Integrated. Considers problems, impacts and solutions together.
Transport problem	Urban traffic congestion.	There are many different transport problems.
Roadway function	Traffic flow: values the cheapest way to move the maximum amount of traffic.	Multifunctional: values diverse activities on roads, including walking and socializing.
Roadway users	Streets are for vehicular traffic.	Streets are for people.
Resident perspective	Residents are mobile consumers who are quick to leave troubled areas and move to a "better" community.	Residents are community members who want to improve existing neighborhood and make their community a better place to live.
Transportation perspective	Motorists' perspective.	Motorists, transit users, cyclists, pedestrians, residents and businesses.
Role of non-motorized modes.	Usually of little importance. Mainly recreational. Can generally be ignored.	Is critical for system connections, mobility for non-drivers and personal health.

This table compares the old and new transportation paradigm.

Sprawl reflects the old paradigm, which assumes bigger and faster are always better. Smart Growth reflects the new paradigm, which focuses on efficiency, accessibility and comprehensive analysis. For example, the new paradigm supports more compact and mixed development, transit priority and traffic calming, since they improve accessibility, But the old paradigm tends to oppose these strategies because they reduce traffic speeds and provide benefits beyond those considered in traditional transport planning.

Path Dependence – Implications for Planning

Path dependence refers to patterns that become "locked in." For example, traditional measuring units (feet, miles, pounds) are well established, so many people and industries find it difficult use metric, despite potential benefits. Land use and transport patterns tend to exhibit path dependence: once an area becomes automobile-dependent it is difficult to create a more balanced transport system. As a result, a short-term perspective often supports continuation of current trends, while a long-term perspective may support changes from current trends in order to achieve better future conditions.

Smart Growth debates often reflect these differences. Critics argue that policies that continue automobile-oriented development are best, based on analysis of current demand, while advocates argue that Smart Growth can better respond to long-term future demands.

Measurement and Evaluation Issues

Many Smart Growth debates reflect differences in how impacts are measured and evaluated, as discussed below. In some cases these violate proper research and analysis practices (Litman 2004; Dudley 2010).

Misrepresenting Smart Growth

Critics often misrepresent Smart Growth. They claim incorrectly that it requires:

- High density urban development. In fact, Smart Growth principles can be applied in urban, suburban and even rural areas.
- Extremely high development densities. In fact, Smart Growth policies can be applied to many levels of density.
- Eliminating automobile travel. Although Smart Growth creates a more diverse and efficient transport system, it still accommodates automobile travel for many trips.

Cox (2010) argues that the Smart Growth policies make cities unaffordable. To support this claim he cites five papers, four published by his organizations and one by the World Bank, which argue that *prescriptive land-use regulations* significantly increase housing costs. This misrepresents the issues. Cox assumes that Smart Growth increases *prescriptive land-use regulations*. In fact, it increases some but reduces many others. Although Smart Growth policies may include various regulations and incentives that discourage urban expansion, they reduce other regulations, including limits on building density, height, setbacks, mix, and minimum parking requirements. These regulatory reforms tend to increase housing affordability by reducing land requirement and construction costs per housing unit, and by significantly reducing transportation costs, Smart Growth tends to reduce combined housing and transportation costs, as discussed in the "Rail Transit Harms Poor People" section of this report (CNT 2010). Academic studies indicate that Smart Growth has mixed or positive impacts on housing affordability (Nelson, et al. 2002).

Much of the empirical evidence indicating higher housing costs in Smart Growth communities reflects increased consumer demand and inadequate supply. This suggests that the best way to increase overall affordability, including housing and transport, is to increase housing supply in accessible, multimodal areas (Reconnecting America 2004). O'Toole (2012) cites the study, *Impact of Zoning on Housing Affordability* (Glaeser and Gyourko 2002) as evidence that Smart Growth policies increase housing costs, but this misrepresents the research. The study actually found little correlation between lot size and price, as would be expected if all households want large-lot homes; instead it found that restrictions on parcel subdivision, which prevent larger-lot single-family parcels from being converted to more compact housing types within existing urban areas, increase housing costs. Under such circumstances, Smart Growth policy reforms tend to increase housing affordability (Levine 2006; Litman 2010).

Extrapolating Trends

Critics often extrapolate trends inappropriately. For example, critics argue that since home size and vehicle ownership rates generally increase with income, sprawl is inevitable. But such trends do not diminish the value of Smart Growth. There are many exceptions and counter-trends, such as many wealthy people's preference for more urban homes and alternatives to driving. For example, critics are wrong to claim that because Europe is suburbanizing, Smart Growth is futile, since most European suburbs have far more efficient land use and transport patterns than in the US due to Smart Growth features. Smart Growth can significantly reduce per capita land consumption and vehicle travel compared with what would otherwise occur, and so could still be considered successful even if total land use and vehicle travel increase.

Measurement Units

Critics often select measurement units to support their arguments. For example, there are more than a dozen ways to measure congestion, including roadway Level of Service (LOS) ratings, per-capita congestion delay and average commute travel time, some of which reflect a *mobility* paradigm and others an *accessibility* paradigm (TRB 1997; Litman 2009). Denser areas tend to have higher roadway LOS ratings (more intense congestion on a particular roadway) but relatively low per-capita congestion delay because shorter trip distances and improved travel options reduce per-capita vehicle mileage, while sprawled areas tend to have less intense congestion but more per capita delay because residents drive more miles (Litman 2016). Critics claim that density increases traffic congestion may be correct if measured *per square mile*, but not if measured *per capita*. Similarly, there are many possible ways to measure and compare impacts such as housing affordability, pollution emissions and health risks. Inevitably, critics choose the units that make Smart Growth look bad and sprawl look good.

Confounding Factors

Many land use and transportation factors are interrelated, so simplistic analysis can lead to inappropriate conclusions. For example, development regulations tend to be implemented in response to rapid population growth, which can partly explain the positive relationships between regulations and housing prices (Saks 2004). Density, congestion, commute distance, income and wages, transit mode share, parking prices and home rentals rather than ownership all tend to increase with city size, so it is wrong to suggest that Smart Growth *causes* increased congestion, longer commute times, higher transit operating costs or increased housing costs; these costs might have been higher without Smart Growth policies such as investments in public transit. Critics often ignore these factors and assume that statistical correlation proves causation.

Density

Researchers have developed Smart Growth indices that reflect factors such as clustering, land use mix, street connectivity and transport diversity (Ewing and Hamidi 2014), but critics often evaluate Smart Growth based simply on jurisdictional density (e.g., city, county or state population per square mile) or county-level growth patterns, giving inaccurate results. As mentioned above, since population density tends to increase with city size, it is easy to find spurious relationships and reach incorrect conclusions. Finer-scale density data and more comprehensive statistical analyses are needed to give meaningful information about Smart Growth impacts.

Role of Automobile Travel

Critics argue that alternative modes (walking, cycling and public transit) are of little importance in wealthy countries because more than 90% of households own a motor vehicle and more than 95% of personal travel is by automobile. But these statistics are incomplete and biased. For example, although only about 2% of total US trips are made by public transit, about 5% of adults report that they rely primarily on public transit, about 12% used public transit at least once during the previous two months, and many households contain at least one member who uses public transit. Similarly, although most travel surveys indicate that only about 5% of trips are made completely by walking, 16-33% of urban trips involve at least one walking link. Most people can expect to rely on alternative modes at some periods during their life, for example when they are too young to drive, if they become economically or physically disabled, or when they live or travel to transit-oriented areas. Filion (2018) argues that suburbs tend to have a self-reinforcing pattern of automobile-oriented planning which creates automobile-dependent lifestyles which can create a political culture which criticizes and opposes Smart Growth policies such as more multi-modal planning and diverse housing options.

Ignoring Accessibility Benefits

Smart Growth tends to increase accessibility by increasing land use density and mix and improving transportation options, particularly affordable modes such as walking, cycling and public transit. This can provide substantial savings and benefits, including reductions in the number of vehicles households must own and their annual mileage needed to achieve a given level of accessibility. However, mobility is much easier to measure than accessibility and so is the focus of most transportation system performance indicators, such as average travel speeds, roadway level-of-service, fuel prices and parking supply. The savings and benefits of improved land use accessibility are virtually invisible using these indicators.

Ignoring Diversity

Critics claim that Americans (or Canadians, Britons, etc.) want to live in suburbs and drive automobiles, without acknowledging the diversity of preferences. Although some people prefer large-lot homes and driving, others prefer smaller homes and more balanced travel patterns, or would change if given modest incentives, such as improved urban neighborhoods, improved transit service, better walking and cycling conditions, and financial benefits to people who use alternative modes.

Problems Versus Solutions

Many objections raised by critics are actually justifications for more comprehensive Smart Growth. For example, critics argue that increased development density increases traffic congestion, which is a justification for implementing additional Smart Growth strategies to improve accessibility and encourage use of non-automobile modes in urban and suburban areas experiencing growth, so this problem can be avoided. Critics often assume that obstacles are unsolvable, rather than challenges to address. For example, critics see poor transit service quality (slow, infrequent, uncomfortable, etc.) as evidence of the inferiority of transit, while Smart Growth advocates see this as justification for transit improvements and incentives to increase ridership and operating efficiency. Similarly, critics see infrastructure and social problems in urban neighborhoods as evidence that development should shift to suburbs, while Smart Growth advocates see this as justification for investing more resources in urban redevelopment. It is not surprising that individuals perceive such problems to be unsolvable, since most consumers can do little to improve transit service or address urban degradation, but Smart Growth public policies can address these problems, and so are justified as solutions.

Outdated References

Critics often use selective, biased and outdated evidence. For example, Mills cites a 1985 study to conclude that motor vehicle user fees cover all roadway costs (other studies find that they do not) and Cox claims that there is no evidence that transit reduces traffic congestion, although many studies find such effects ("Transit Evaluation," VTPI, 2005). Similarly, Fruits (2011) relied on outdated studies to reach the conclusion that "compact development is not a useful tool for reducing greenhouse gas emissions." He claimed that "some studies have found that more compact development is associated with greater vehicle-miles traveled," citing a 1996 paper which simply speculated that increased roadway connectivity could sometimes increase vehicle travel; subsequent empirical research disproved this idea (Litman 2011).

Analysis Scope

Critics often misrepresent Smart Growth and consider only a small portion of total Smart Growth policies, impacts and outcomes, as illustrated in Table 6. As a result, a comprehensive Smart Growth program which includes a variety of integrated policies tends to provide far greater impacts and benefits than critics acknowledge. For example, if a 50% density increase reduces vehicle travel and associated emissions by just 5-10%

(Boarnet and Handy 2014), then a comprehensive program that includes a various Smart Growth policies can reduce affected residents' vehicle travel by 20-50% (CARB 2010-2014), providing larger and more diverse benefits than critics recognize.

Table 6 **Critics' Scope of Analysis**

	Considered by Critics	Generally Ignored by Critics
Policies	• Urban growth boundaries • Urban driving restrictions and fees	• Allow smaller higher densities and more mixed development. • Allow more compact and affordable housing types (townhouses, multi-family, accessory units, lofts, etc.) • Reduced and more flexible minimum parking requirements • Lower impact and utility fees for compact, infill development • More integrated and multimodal transport planning • More efficient traffic and parking management
Impacts	• Increased density, reduced per capita land consumption	• More infill, less urban expansion • More mixed development • More affordable housing types, such as townhouses and apartments with reduced parking supply • More connected road and paths • Reduced parking supply, more sharing of parking facilities • Improved walking, cycling, public transit and carsharing • Reduced vehicle ownership and use • More walking, cycling and public transit
Outcomes	• Farmland preservation • More efficient public services • Higher single-family housing prices • More intense traffic and parking congestion • Energy conservation and emission reductions	• Habitat preservation • Reduced public infrastructure and service costs • Reduced impervious surface and stormwater management costs • More urban greenspace • More affordable housing options • Household transportation cost savings • Reduced traffic casualty rates (deaths per captia) • Improved mobility for non-drivers, reduced chauffeuring burdens • Reduced time spent driving and less per capita congestion delay • Improved public fitness and health

Critics tend to focus on a few Smart Growth policies and impacts, and ignore others.

What Is Optimal?

What land use pattern is best? What level of automobile travel is optimal? According to economic theory the optimal level of consumption (land, vehicle travel, etc.) is what consumers would choose in an efficient market, with adequate consumer options, cost-based pricing, and neutral public policies (Litman 2006). Several current market distortions encourage sprawl, such as those listed in the table below. Some distortions are obvious with relatively easy-to-measure impacts, but others are more subtle with impacts that can be difficult to quantify (Barros, Lewyn and Paulsen 2005; Blais 2010; Gaffney 1964; Lewyn 2000a & b; Litman 1995).

Table 6 **Market Distortions Favoring Sprawl** (Levine 2006; Litman 2006)

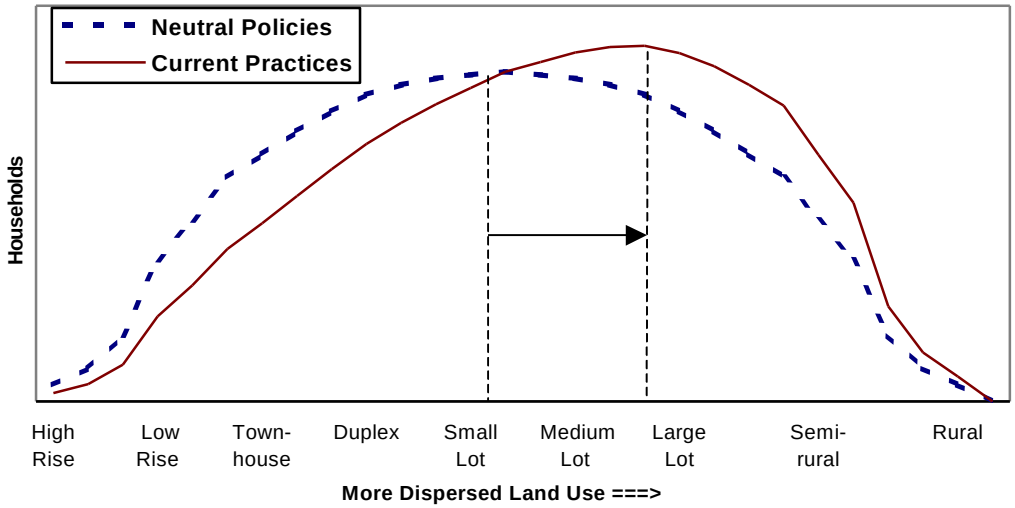
Market Distortion	Description
Underpricing Location-Related Costs	Although public service costs tend to be higher for sprawl development, development charges, utility fees and local taxes do not generally reflect these location-related costs.
Excessive Parking and Roadway Requirements	Most zoning codes and development standards require generous road and parking capacity. This encourages lower-density, urban fringe development where land is cheaper, and underprices vehicle travel.
Roadway Right-of-Way	By convention, land use for public roads and parking facilities is exempt from rent and taxes. Economic neutrality implies that land used for roads should be priced and taxed at the same rate for competing uses.
Planning and investments that favor suburbs	Many current planning and public investment practices favor new, lower-density, automobile-dependent development over urban infill.
Undervaluing Nonmotorized Modes and Transit	Transportation planning practices tend to undervalue nonmotorized transport modes and transit services, and so underinvest in them.
Residential Lending Practices	Mortgage lenders usually treat car ownership as a financial asset. As a result, lower-income households are encouraged to purchase homes in automobile-dependent suburban areas rather than in multi-modal urban locations.
Underpricing Automobile Travel	Automobile travel is underpriced through underpricing of road use, free parking, fixed insurance and registration fees, and various external costs.

This table describes market distortions that encourage sprawl and automobile dependency.

Land use and transportation choices involve many tradeoffs. For example, when selecting a home location households often must balance lot size, housing costs, proximity to services, quality of public services (such as schools), neighborhood livability and prestige, commute distance and other factors. Consumer decisions tend to follow a bell curve, with some preferring more urban, multi-modal communities, and others preferring more dispersed, automobile-dependent communities. Some current public policies cause consumers to choose more sprawl and automobile travel than they otherwise would (Glaeser 2001). Figure 2 illustrates the resulting shift in development patterns. For example, zoning codes limit development densities and require generous amounts of parking, and various market distortions underprice low-density development and automobile travel, increasing sprawl and automobile dependency. Conversely, Smart Growth policies can help correct existing market distortions,

encourage urban redevelopment and use of alternative travel modes, which shifts consumer decisions toward more efficient land use and transportation patterns.

Figure 2 **Current Policies Shift Consumer Decisions**



Current land use and transport market distortions encourage consumers to choose more dispersed, automobile-dependent communities than they would in a more neutral market. Smart Growth helps correct these distortions, resulting in more efficient decisions that increase consumer welfare.

Current land use and transport patterns reflect various economic "traps," in which individuals have incentives to act in ways that make society worse off overall. For example, many jurisdictions have exclusionary development policies, such as restrictions on secondary suites and multi-family housing, intended to minimize local costs associated with lower-income residents. But such policies simply shift such costs elsewhere, reducing housing affordability, increasing segregation and associated social problems, and increasing transportation costs. Similarly, although total congestion delays would decline if more peak-period travelers shifted from driving to ridesharing and public transit, individuals have little incentive to shift unless there are HOV facilities or congestion pricing. Where such traps exist it is wrong to assume that the resulting land use and transport patterns are economically optimal; they increase sprawl and automobile travel while making society worse off overall.

Smart Growth critics argue that sprawl provides benefits (more private space and high levels of mobility) which offset costs. Certainly such benefits exist, but the existence of such benefits does not prove that at the margin (i.e., compared with current conditions) increased sprawl provides greater benefits than Smart Growth. The benefits of sprawl must be evaluated in detail, for example, disaggregating the value of suburban living into those benefits that actually depend on large lots (such as larger gardens and workshops) and social attributes (such as perceived increased neighborhood security and prestige) that can be achieved with less land consumption. Many homebuyers might choose a smaller lot home if it is well designed, and located in a safe and

attractive neighborhood. Similarly, many motorists may prefer to drive somewhat less and rely more on alternatives, provided that they are convenient, safe and affordable.

Smart Growth – Consumer's Perspective
Smart Growth changes public policies to encourage more efficient land use and transportation patterns. Critics often present these in a negative way, focusing on increased regulations and consumer prices, but such changes also provide direct consumer benefits (in addition to direct benefits from improved economic efficiency and environmental quality). For example, critics describe location-based development and utility fees as increased costs to residents (those who choose sprawled locations), but these can also be described as a new opportunity for residents to save money (by choosing more accessible locations). Similarly, critics describe road tolls and parking fees as consumer costs, although without such fees consumer bear road and parking facility costs indirectly; tolls and parking fees finance these facilities directly, which allows consumers a new opportunity to save money when they reduce their vehicle ownership and use.

Critics assume that current practices are neutral and fair, and so Smart Growth policy changes are harmful and inequitable. But many current practices are distorted in ways that favor sprawl and automobile dependency. Correcting these distortions increases efficiency and equity. Smart Growth reforms reward consumers and businesses that choose more efficient land use and transport patterns, making them better off overall as a result. For example, consider how the following policy changes affect consumer:

- *Parking Cash Out*. Whenever a business offers free or subsidized parking space, consumers can choose to receive the cash equivalent if they use another travel mode.
- *Paying for parking directly rather than indirectly.* Housing and tax costs are lower, and each time a motorist uses a parking space they pay an hourly fee.
- Vehicle user fees increase by 50-100% to cover all roadway costs and pay for property taxes on land used for roads and parking facilities, while property taxes decline by a third.
- Vehicle insurance is priced by the mile, so motorists save 5¢ each mile they drive less.
- Residents who choose infill housing save an average of 20% on utility fees and property taxes compared with sprawl locations.
- Federal and state funds that are now dedicated to highway construction become available for urban redevelopment projects that reduce automobile dependency, and mobility management programs that reduce vehicle traffic problems.
- Zoning codes are reformed to eliminate minimum parking requirements, building setbacks, density limits and restrictions on multi-family housing, and development policies change to favor high-quality urban infill.
- Transport planning and management changes improve walking conditions, in recognition that 10% or more of trips involve at least some walking on public facilities.

These reforms are revenue neutral. An average consumer who continues with current housing and transport choices pays no more overall, but those who choose less sprawl and reduce their automobile travel would save money – allowing individual consumers to capture the savings that result when they choose more efficient transportation and land use options. As a result, consumers are better off overall.

Experience with such incentives indicates these reforms increase Smart Growth development and reduce automobile travel. Consumers can still choose sprawl and automobile travel, but they would have more and better alternatives and must pay the incremental costs directly.

There are many indications that in a more efficient market consumers would choose more accessible locations and drive less, and be better off overall as a result (Lewyn 2000a and 2000b; Litman 2002). For example, the city of Lancaster, California has development impact fees that reflect the infrastructure costs of a particular location, calculated by a civil engineering firm. A typical new house located near the city core is charged $5,500, while the same house located one mile beyond the core would be charged $10,800, reflecting the additional costs of providing more dispersed city infrastructure. Since this fee structure was implemented in 1993, no new development has occurred outside the central core. These fees only represent a portion of the total public costs that increase with more dispersed development (costs of school busing and utility maintenance are not included), so even greater land use changes would likely occur if residents could capture even greater savings from Smart Growth. This indicates that given efficient pricing, consumers actually prefer Smart Growth over sprawl.

Similarly, when commuters either pay for parking or have a Cash Out option (they can choose cash instead of a parking subsidy), 15-25% typically shift modes, indicating that many motorists prefer travel alternatives if existing market distortions are removed ("Commuter Financial Incentives," VTPI 2005). Many Smart Growth strategies reflect market principles that increase overall efficiency and fairness (Table 7). Smart Growth critics actually support many of these reforms (Mills 1999; Cox 2000; O'Toole 2001).

Some critics claim that an equal set of distortions favor urban development and alternative modes, although the only examples they identify are urban renewal projects, subsidized urban sports facilities and rail transit projects (Gordon and Richardson 2000). Such policies do little to reduce sprawl and automobile dependency (for example, many urban renewal projects ultimately harmed cities, many subsidized sports facilities are located in suburban areas, and Park & Ride rail transit may increase lower density urban fringe development), and their total value is small compared with various policies and subsidies that favor sprawl and automobile travel (Lewyn 2000b).

Although it is difficult to predict exactly how much sprawl and automobile travel would decline if all market-justified reforms were implemented, their total effects are likely to be large, resulting in 30% or greater reductions in per capita vehicle travel (Litman 2002).

Table 7 **Market Principles Evaluation** ("Smart Growth Reforms," VTPI 2005)

Strategy	Reflects Market Principles?
Establish comprehensive development plans	Yes, if it results in more predictable decision-making and more efficient use of public resources.
Reform zoning codes (remove restrictions on denser development, more flexible parking requirements, etc.)	Yes. Tends to improve consumer choice and remove market distortions.
Support planning and development that reflects Smart Growth principles	Depends on conditions. May be justified to correct past distortions that favor sprawl and automobile dependency.
Tax and utility pricing reforms (lower rates for locations that are cheaper to service)	Yes, to the degree that they improve consumer choice, result in more cost-based pricing, and remove market distortions.
Favor public expenditures that support Smart Growth (fund infrastructure that supports clustered, multi-modal development)	Yes, if it results in more predictable decision-making and more efficient use of public resources.
Growth control and development caps (restrictions on greenfield development)	No, tends to violate market principles, but may be justified as second-best until existing market distortions are corrected.
Encourage urban redevelopment and brownfield rehabilitation (support urban redevelopment and brownfield cleanup projects)	Mixed. May be justified to leverage more efficient use of resources such as urban land and infrastructure.
Encourage greenspace preservation (regulations and tax incentives to preserve farms and wildlife habitat)	Mixed. May be justified to protect valuable resources and correct existing distortions that favor greenfield development.
More neutral transportation planning and funding practices (least-cost transportation planning, more comprehensive evaluation and planning)	Yes. Improves consumer choice and removes existing distortions that favor sprawl and automobile dependency.
Travel reduction programs (employers and local agencies support alternative commute modes)	Mixed. Tends to improve consumer choice and correct existing distortions that favor automobile commuting.
Increased funding for alternative modes (walking, cycling, public transit)	Usually. Tends to improve consumer choice and correct existing distortions that favor automobile travel.
Transport pricing reforms (use-based road and parking pricing, pay-as-you-drive fees, etc.)	Yes, improves consumer choice and creates more efficient pricing.
Property tax reform (split-rate property taxes)	Mixed. Depends on assumptions and how it is implemented.
Educate professionals and develop better tools to evaluate land use impacts	Yes. Tends to improve decision-making and remove distortions.

Many Smart Growth reforms tend to reflect market principles.

Existing market distortions are well established and often difficult to correct. For example, in most communities it will take considerable effort and time to remove restrictions on higher-density development, and implement cost-based development and utility pricing. As a result, blunter reforms may sometimes be appropriate. For example, until pricing reforms are implemented and existing policies that favor sprawl corrected, greenfield development restrictions may be justified on "second best" grounds (they are not ideal but better than doing nothing).

Smart Growth Criticism

Specific issues of Smart Growth criticism are discussed below.

Consumer Preferences

Critics claim that sprawl reflects consumer preferences, so Smart Growth harms consumers and contradicts market demand. But consumer preferences are diverse and include attributes of both sprawl and Smart Growth. For example, although market surveys indicate that most households want single-family housing, they also indicate that many households value features such as accessibility and transportation diversity (Litman 2009; Molinaro 2003). Consumers are therefore best off with the combination of community design features that best meets their individual needs.

Table 8 **Market Forces and Trends Affecting Development Patterns**

Supports Sprawl	Supports Smart Growth
• Increased wealth increases demand for mobility, residential space and privacy. • Increased automobile ownership. • Major highway investments from 1950-70's. • Large portion of households with children during Baby Boom period.	• Population growth concentrated in major metropolitan areas. • Safer and more livable cities. • Growing consumer preference for more urban lifestyles. • Declining portion of households with children. • Increasing traffic congestion and rising costs to expand road and parking capacity. • Suburban communities becoming urbanized. • Increased preference for walking and cycling. • Growing concern over economic and environmental costs of sprawl. • Preference for more diverse transportation system.

Some market forces and trends support sprawl. Others support Smart Growth.

Suburbs exclude "undesirable" people, such as those with mental and economic problems, since there are often few public services, limited public space, and high housing and transportation costs. This creates a self-fulfilling prophesy called *social drift*: if urban areas become undesirable, people with resources leave, concentrating problems such as drug addiction, crime, poverty, homelessness and begging in urban neighborhoods. Urban public service providers (police, schools, social agencies, etc.) tend to be overwhelmed, so the quality of services declines, continuing this cycle (Litman 2016).

Critics sometimes cite the various problems concentrated in urban communities as evidence that urban living is harmful, but these problems really reflect the failure of suburban communities to meet the needs of disadvantaged people. In other words, many of the "costs" of urban location are actually economic transfers, social and economic burdens that suburbs impose on cities.

From an individual household's perspective there are often significant direct benefits from a suburban location. Suburban communities are safer, have fewer social problems and better public services. Suburban homes tend to be newer and larger, with larger lawns and gardens. Property values tend to be more stable, and suburban locations tend to be more prestigious than urban homes.

To evaluate the true consumer benefits of suburban location it is important to differentiate between *physical* features that actually require lower-density, automobile-dependent land use patterns, and *economic/social* features that could be provided in Smart Growth communities, either by urban redevelop or by building more compact, multi-modal suburbs.

In fact, only a minority of the attributes that consumers typically cite as justifications for choosing suburban locations are physical features that cannot be replicated in a more urban setting, as indicated in Table 9. Even attributes such as large lawns for residents who enjoy sports can be achieved in urban settings by sharing lawns among several households, and by public parks; although private lawns have advantages (residents have more control over how they are maintained and used), they also have disadvantages (higher maintenance costs per household).

Table 9 **Attractive Attributes of Suburban Location**

Physical	Economic and Social
	Newer housing stock.
	Lower rates of crime and drug problems.
Larger lots – larger lawns and gardens	Better public services (schools, policing).
More parking at destinations.	Traditional lifestyles.
Wider roads.	More prestige.
Excludes "undesirable" people.	More stable property values.

Consumers find suburbs attractive for a number of reasons, some of which results from the physical attributes of lower-density, urban fringe location, and others resulting from current economic and social conditions.

Providing more of these attributes in urban neighborhoods tends to increase consumer benefits by providing more diverse housing options to better satisfy individual preferences. For example, currently some households live in suburbs because they want lower crime rates, good schools and prestige, although they do not really enjoy gardening and appreciate the benefits of more compact development. They would be happier if they could choose an urban neighborhood with crime rates, schools and prestige comparable to their suburban location.

Rural areas tend to retain more traditional lifestyles and values, and have greater community cohesion, which many people find attractive. This results because rural communities are physically isolated, so residents tend to attend the same schools,

churches and stores; because residents tend to move less frequently and are more likely to stay in one location for multiple generations; and because incomes are lower and households produce more of their own goods (such as gardening) and trade among themselves. However, suburban residents generally lack these habits even when located in traditional rural areas; they generally lead modern, mobile, consumerist lifestyles. By increasing community cohesion (opportunities for neighbors to interact in positive ways), Smart Growth can help provide community attributes in urban communities.

Of course, some households do want the physical attributes of larger-lot homes, perhaps because they enjoy gardening or have large pets. These households can also benefit from Smart Growth to the degree that it makes more compact development more attractive, shifting some of the potential competition away from the limited supply of larger parcels.

There are many indications that with more efficient markets many consumers would choose Smarter Growth communities (Litman 2009). For example, there is considerable demand for housing in older urban neighborhoods that are considered safe and prestigious. New Urbanist communities command a price premium (Eppli and Tu 2000; Smith and Gihring 2005; Song and Knaap 2003; Reconnecting America 2004). Myers and Gearin (2001) conclude that demand for such housing is likely to increase.

A U.S. Federal Reserve Board study found that, after a four year lag, each 10% fuel price increase leads to a 10% decrease in demand for homes in locations with longer average commute relative to locations closer to jobs (Molloy and Shan 2011). Similarly, a market survey found that Calgary households are willing to shift from single-family suburban homes to urban townhouses if they save an average of CA$130 (US$90) per month (Hunt 2001). This premium is comparable in magnitude to the higher public costs of dispersed development, indicating that many households would choose smarter growth residences if development fees and utility charges reflect location-related costs. As previously described, when the city of Lancaster implemented cost-based development fees, lower-density urban expansion stopped because consumers preferred a Smart Growth location if they could save a few hundred dollars a year in housing costs.

Consumer preferences appear to be shifting toward more urban living (Hughes and Seneca 2004; Litman 2009). Many economic and demographic factors that contributed to sprawl, such as increasing per capita vehicle ownership and the portion of households with children (and therefore preferring housing with large lots) began to decline in the 1990s, increasing the value of Smart Growth features such as accessibility. Although most U.S. cities lost population from the 1950s through the 1970s, this trend has since reversed. During the 1990s, downtown population grew by 10 percent, a resurgence following 20 years of overall decline (Birch 2005). Downtowns have relatively high rates of young adults, and are home to some of the most and least affluent households of their cities and regions.

Levine and Inam (2004) surveyed 676 U.S. developers concerning their perceptions of the market demand for Smart Growth development. Overall, respondents perceive considerable market interest in such development and believe that there is inadequate supply demand due principally to local government regulation. Levine and Frank (2007) analyzed the transportation and land use preferences of Atlanta, Georgia regional residents using a survey that compared their current and preferred neighborhoods. The results indicate that far more residents of automobile-dependent communities prefer more walkable environments than residents of walkable environments that prefer more automobile dependent neighborhoods. This suggests an undersupply of compact, walkable, and transit-friendly neighborhood types relative to current demand.

Popular television and cinema characters such as Seinfield, Friends and Fraser live in urban communities. Many younger adults and retirees consider New Urbanist locations attractive. The potential demand for Smart Growth housing is probably greater than indicated by current consumer surveys because many North Americans have little experience with successful, urban, multi-modal communities, and so under-appreciate the benefits they can provide. Many of the reasons consumers cite for preferring suburban housing reflect social attributes, such as personal security, higher-quality public services (particularly schools) and greater property value security, rather than the physical attributes of sprawl. Smart Growth policies allow consumers to choose urban neighborhoods that have attributes currently only available in suburbs, making consumers better off overall.

Similarly, many consumers want alternatives to driving, provided that they are convenient and safe. For the last five years, U.S. transit ridership has grown faster than automobile mileage, as described later in this paper. Many consumers indicate that they would like to walk or bicycle more for transportation. The most popular tourist destination in Texas is the Riverwalk in downtown San Antonio, where visitors stroll and enjoy urban activities. All of this suggests that consumers value having greater transportation diversity, and will use alternative modes more if they are available.

Consumer Preferences
Most people would probably say that they prefer dining at a gourmet restaurant over eating a sandwich, but that does not mean that sandwich shops are harmful to consumers. Consumer benefits are maximized when individuals can make tradeoffs between costs and benefits: although consumers may prefer gourmet food if somebody else pays, they are often better off overall when they can save money by choosing a cheaper option.

Similarly, many consumers say they prefer single-family, suburban homes over higher-density homes, and driving over walking and public transit, but this does not prove that consumers benefit overall from policies that favor sprawl and automobile travel. At least some consumers would choose more accessible housing and alternative travel options given better housing and travel options, and more efficient pricing.

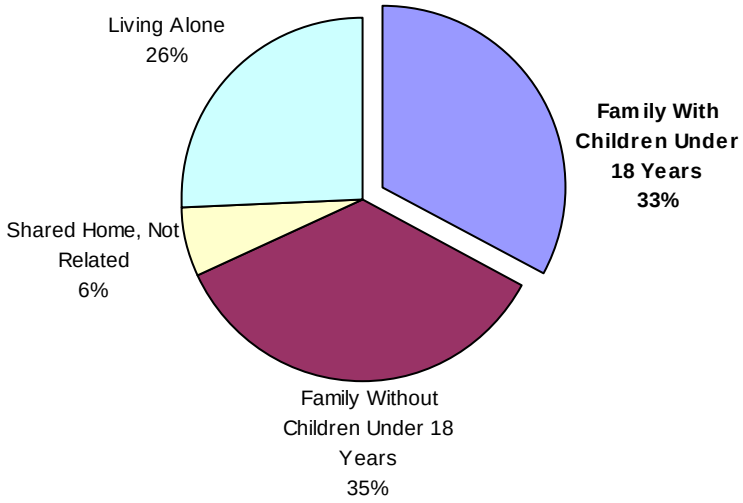
Many Smart Growth strategies improve consumer options, result in more efficient pricing and remove market distortions that favor sprawl and automobile use. Although these practices may reduce consumption of more "desirable" goods, such as single-family homes and automobile travel, they actually make consumers better off overall, because they allow individuals to make tradeoffs between costs and benefits.

Smart Growth critics claim that land development and transportation trends in other countries demonstrate that sprawl is unavoidable without "draconian" restrictions on consumer choice. But trends during periods of rapid economic growth cannot simply be extrapolated, since vehicle ownership and land use dispersion eventually saturate. More detailed analysis shows that although vehicle ownership, vehicle travel and suburbanization tend to increase with wealth, this ultimately stabilizes at a level that depends on various public policy decisions. Residents of some cities own significantly fewer motor vehicles, drive less, rely more on alternative modes and consume less land than what occurs in other communities with comparable wealth and resources.

Critics sometimes claim that Smart Growth cannot respond to the needs of busy, modern families that must rely on automobile travel to accommodate their busy schedules. This objection is misplaced since many Smart Growth strategies provide time savings. For example, it increases accessibility so travel distances are shorter, improves travel options so parents spend less time chauffeuring children, and improves walking and cycling conditions so residents can exercise while commuting or running errands.

While it may be true that most households with young children prefer single-family, suburban homes, these only represent about a third of total households (Figure 7), and this portion is declining. A significant portion of most peoples' lives are conducive to higher-density housing, including as young adults, single adults and during older periods. Smart Growth does not require a major shift from single-family to multi-family housing, rather, it requires clustering the multi-family housing that will be developed, along with small-lot single-family housing and appropriate commercial facilities, into mixed-use urban villages.

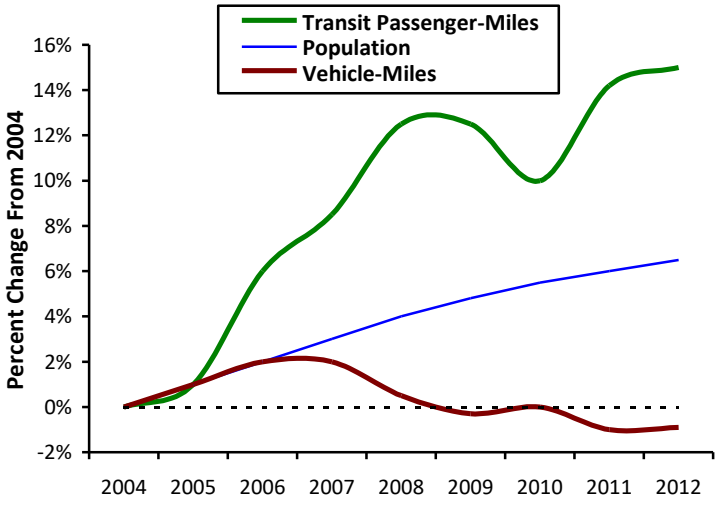
Figure 7 **US Household Types** (2000 Census, www.census.gov)



Only about a third of all households at any one time have children under 18 years of age.

Smart Growth critics are now fighting a rear-guard action in response to evidence of growing consumer preferences for Smart Growth neighborhoods. For example, Cox frequently publishes blogs intended to demonstrate that most growth continues to be suburban; this misses the point. An increasing portion of suburban development reflects Smart Growth principles.

Figure 8 **U.S. Public Transit Ridership** (APTA 2013, Figure 2)



Between 2004 and 2012 the U.S. population grew 6%, transit ridership increased 14%, and motor vehicle travel declined 1%.

These trends indicate that automobile travel demand is peaking, while demand for other modes is growing. Although few people want to give up driving altogether, many people would prefer to drive less and rely more on walking, cycling and public transit, provided they are convenient, comfortable and integrated.

Infringement on Freedom

Critics argue that Smart Growth reduces personal freedom, imposes excessive regulation, and constitutes "social engineering." They portray Smart Growth as oppressive bureaucrats restricting property owners' rights. But thee planning decisions involve trade-offs between different types of freedoms: your freedom to make noise infringes on my freedom to enjoy quiet, and your ability to park for free conflicts with my housing affordability. Such conflicts are particularly intense in growing urban-fringe areas were less-restrictive rural land use policies are replaced by more restrictive urban policies. Not surprisingly, many property owners resent new restrictions and wish for the best of all worlds: minimal regulation of their activities but strong restrictions on their neighbors'. Smart Growth critics often see only one side of this issue.

Smart Growth policies may reduce some freedoms but increase others, as summarized in Table 10. For example, Smart Growth can reduce excessive restrictions on housing activity and type (home offices, secondary suites, multi-family housing) and land use mix (commercial activities within residential neighborhoods), and costly parking requirements. Smart Growth increases consumer freedom by improving overall accessibility and affordability. It also increases the range of solutions available to address common conflicts. For example, parking management expands the range of responses to parking conflicts, so property owners are not required to subsidize motorists through excessive parking requirements.

Table 10 **Smart Growth Impacts on Personal Freedom**

Reduces Freedoms	Increases Freedoms
	Allows higher density, more infill development.
	Allows more mixed land use.
	Increases housing options (small-lots, multi-family).
	Preserves existing neighborhoods and communities.
Restricts urban expansion	Allows more flexible parking requirements
Reduces traffic speeds	Reduced parking subsidies.
Increases parking fees	Improved travel options, particularly for non-drivers (walking, cycling, public transit, taxi services).
Requires design standards and review	

Smart Growth reduces some types of freedom but increases others.

How much regulation is optimal? Regulations tend to reduce some freedom but protect other freedoms and provide other benefits. Private, masterplan developments and neighborhood association covenants often have extremely strict regulations; many specify the types of buildings that can be constructed, allowable materials and colors, garage sale frequency and clotheslines. These regulations restrict some freedoms, but control activities considered undesirable. Lewyn and Jackson (2014) found that regulations forcing Smart Growth are actually rare. In a review of all 2,622 zoning districts in Connecticut, Bronin (2021) found that single-family housing is allowed in 90.5% of zoned land, compared with just 2.5% that allow three-or-more-family homes.

Equity Impacts

Critics argue that Smart Growth is regressive and unfair to disadvantaged people because it prices them out of desirable housing and transport options (single-family homes and automobile travel). They justify subsidies for sprawl and automobile travel on equity grounds. These arguments tend to be incorrect for the following reasons.

- Smart Growth includes many features that directly benefit lower income people, including improved housing and transport options, and financial rewards. For example, location efficient development allows households to save money and choose more accessible locations, parking cash out provides financial benefits to non-drivers, and carsharing and Pay-As-You-Drive insurance make automobile use more affordable.
- Transportation costs tend to be most regressive in more sprawled communities. While the highest income quintile spends just 13% of income on transportation, the lowest quintile spends 40% (STPP, 2003). McCann (2000) found that households in sprawl regions spend 54% more on transportation than households located in Smart Growth communities.
- Disadvantaged people, particularly children, tend to benefit from living in more accessible, multimodal and mixed neighborhoods (Ewing and Hamidi 2014; Levy, McDade and Dumlao 2010).
- Many disadvantaged people cannot drive or drive with difficulty due to disability or age and so benefit less from automobile-oriented subsidies than from subsidies that can be used for other modes or to choose more accessible housing locations.
- Subsidizing automobile ownership is a mixed blessing to lower-income people since there are substantial additional costs and risks, including maintenance and repairs, insurance, crash costs, fines and parking fees.
- Land use and transportation alternatives tend to experience economies of scale, so incentives to redevelop urban neighborhoods and increase walking, cycling, ridesharing and public transit can improve the quality of these options.
- Smart Growth that encourages urban redevelopment and improves urban transportation tends to benefit residents of disadvantaged communities.
- Equity impacts of pricing reforms depend on how prices are set and how revenues are used. For example, road pricing can be overall progressive if revenues are used to reduce regressive taxes or support programs that benefit lower-income people.
- Smart Growth programs can be designed with features that address equity concerns. For example, land use development policies can encourage development of more affordable housing and mixed neighborhoods, and road or parking pricing can include special exemptions, discounts or subsidies for disadvantaged populations.
- Many lower-income people value indirect benefits of Smart Growth, such as reduced crash risk, community cohesion and environmental quality.

This is not to say every Smart Growth strategy benefits every lower-income person, but when all impacts are considered, Smart Growth can provide benefits that are overall progressive, and Smart Growth programs can be designed to support equity objectives (Arigoni 2003).

Failed Policies

Critics sometimes cite a particular underachieving project or program as evidence that Smart Growth has been tried and failed. But there are many Smart Growth successes, both when strategies are evaluated individually and when Smart Growth and sprawl communities are compared (Ewing, Pendall and Chen 2002; "Success Stories," VTPI 2005; CNU; Ewing and Cervero 2010; NAHB, various years). As with any innovation, Smart Growth has had its share of problems, but for every project considered a failure there are others that meet or exceed expectations. As planners become more familiar with Smart Growth, success rates should increase and unintended consequences decline.

Some people conclude that Smart Growth is justified but futile because of social traps that motivate residents to oppose change despite overall benefits (Downs 2003). Rather than being a criticism, this is a challenge to develop innovative policies that provide suitable options and incentives to address such obstacles and gain acceptance among residents ("Smart Growth Reforms," VTPI 2005).

New Urbanist Residents "Walk the Walk" (www.lclark.edu/~podobnik/orenco02.pdf)
Portland's Orenco Station shows evidence of high suburban transit use, other "Smart Growth" goals; gets high marks from residents for livability.

HILLSBORO, OR - Will Americans be happy in walkable, transit-oriented communities as an alternative to suburban sprawl? A new study by Dr. Bruce Podobnik, a sociology professor at Lewis and Clark College in Portland, Ore., suggests the answer is yes.

Dr. Podobnik studied the residents of Orenco Station, a New Urbanist community on Portland's Westside MAX light rail line. Residents were asked a variety of questions about life in the community, some five years after its founding. Ninety-four percent said that they now find the Orenco Station superior to typical suburban communities, even though its homes cost up to 30% more than comparable homes. 90% reported being very pleased with the design of the community.

Residents were asked to name up to three things they liked and didn't like about the community. Residents said they liked the overall design (13%), greenspaces and parks (12%), Town Center (10%), garages on alleys (9%), pedestrian-friendly streets (6%), and access to light rail (5%). Features residents didn't like included none (20%), dog problems (11%), and traffic problems outside Orenco (8%).

As for transit use, 22% of the residents reported using light rail or the bus to commute to work or school far higher than the 5% average for the region. Sixty-nine percent of Orenco Station residents reported that they use public transit more often than they did in their previous community. G.B. Arrington, a public transit expert with Parsons Brinckerhoff, is quick to point out that these numbers are totally off the charts for conventional suburban development.

Orenco Station's tree-lined streets and public spaces also seem to facilitate social interaction among neighbors. Seventy-eight percent of residents state that there is a higher sense of community than in their previous neighborhood, and 40% reported participating in neighborhood activities. Concludes Podobnik, "this study clearly demonstrates that New Urbanist designs can play an important role in improving the quality of life and sustainability of neighborhoods in Portland and elsewhere It stands as a promising beacon for advocates of dense rather than sprawling urban landscapes."

Traffic Congestion and Air Pollution Impacts

Critics claim that by increasing density, Smart Growth increases traffic congestion and air pollution (Cox 2003a; Melia, Parkhurst and Barton 2011). This criticism might be legitimate if Smart Growth consisted only of increased density and if automobile travel speed was the only factor affecting accessibility, but by increasing development density and mix, which reduces the distances that people must travel to destinations, and improved walking, cycling and public transit, which reduces automobile trip generation, Smart Growth can improve overall accessibility and reduce total congestion costs.

How congestion is measured has a major effect on how land use is considered to affect congestion. For example, compact, multi-modal cities such as New York, Boston and Philadelphia tend to have more *intense* congestion (greater peak-period speed reductions), but lower *congestion costs* (fewer annual hours of delay per capita) due to lower auto mode shares and shorter trip lengths, which reduces congestion *exposure* (the amount residents must drive during peak periods). More dispersed, automobile-oriented cities such as Houston, Atlanta and Detroit tend to have less intense congestion but greater congestion costs. Compact cities rank worse if evaluated by congestion intensity indicators such as the Travel Time Index (TTI) but better if evaluated by congestion costs, as shown in Table 11.

Table 11 **City Rankings Change Depending On Indicators** (TTI 2013)

Congestion Intensity (Travel Time Index)	Congestion Costs (Delay Hours Per Commuter)
1. Los Angeles-Long Beach-Santa Ana CA (1.37)	1. Los Angeles-Long Beach-Santa Ana CA (44.9)
2. New York-Newark NY-NJ-CT (1.33)	2. Washington DC-VA-MD (44.3)
3. Washington DC-VA-MD (1.32)	**3. Houston TX (41.0)**
4. Boston MA-NH-RI (1.28)	**4. Atlanta GA (39.4)**
5. Houston TX (1.26)	5. San Francisco-Oakland CA (37.7)
6. Philadelphia PA-NJ-DE-MD (1.26)	6. Dallas-Fort Worth-Arlington TX (36.6)
7. Seattle WA (1.26)	**7. Miami FL (36.5)**
8. Dallas-Fort Worth-Arlington TX (1.26)	**8. Boston MA-NH-RI (36.3)**
9. Chicago IL-IN (1.25)	9. Chicago IL-IN (36.2)
10. Miami FL (1.25)	**10. Philadelphia PA-NJ-DE-MD (35.4)**
11. Atlanta GA (1.24)	11. Detroit MI (33.6)
12. San Francisco-Oakland CA (1.22)	12. Seattle WA (33.4)
13. Detroit MI (1.18)	**13. New York-Newark NY-NJ-CT (29.7)**
14. San Diego CA (1.18)	14. San Diego CA (28.0)
15. Phoenix-Mesa AZ (1.18)	15. Phoenix-Mesa AZ (26.7)

More compact urban regions (blue) tend to have more intense congestion but lower congestion costs than sprawled, auto-oriented regions (red). Rankings change depending on which indicator is used.

Other empirical evidence suggests that more compact and multimodal development can increase overall accessibility and reduce per capita congestion costs. A study by the Arizona Department of Transportation analyzed the relationships between land use patterns and traffic conditions in four Phoenix travel corridors, including three older, high-density, mixed-used urban areas and a more contemporary, lower density suburban area (Kuzmyak 2012). The urban corridors had considerably less congestion

despite many times higher densities than the suburban corridor. This appears to result from better mix of uses, particularly retail share, which leads to shorter trips, more transit and nonmotorized travel, fewer vehicle miles of travel (VMT), and a more connected street grid, which allows for better route options and enables more walking.

Ewing, et al. (2017) evaluated the relationships between a standard Compactness Index, and per capita annual of delay per capita for 471 US urban areas, controlling for variables including reginal population, income, fuel prices, road and transit service supply. They found that compactness reduces but concentrates vehicle travel, which roughly cancel each other out. This suggests that neither sprawl nor compact development by themselves reduce congestion. They conclude that more compact development with more transit service may help at the margin, but significant congestion reductions require more surface street capacity or higher highway user fees.

As a result, Smart Growth tends to increase overall accessibility: analysis of the number of destinations that can be reached within a given travel time by mode (automobile and transit) and purpose (work and non-work trips) for about 30 US metropolitan areas indicates that increased geographic accessibility associated with more compact and centralized development is about ten times more influential than vehicle traffic speed on a metropolitan area's overall accessibility (Levine, et al. 2012).

Critics are wrong to claim that Smart Growth increases air pollution or that highway widening reduces emissions (Lewyn 2017). Such claims confuse per-acre, per-mile, per-trip and total emission rates. Although density may increase emissions per acre, most vehicle air pollutants are harmful regardless of where within a region they are released, and so total regional emissions must be reduced to improve air quality. To the degree that Smart Growth reduces per capita vehicle trips and mileage, it reduces total emissions (Ewing et al. 2007; TRB 2009). Critics claim incorrectly that highway widening reduces vehicle emissions by reducing congestion. Although extreme congestion increases per-mile emissions, a moderate degree of congestion (i.e., from LOS B or C) can reduce per-mile emissions by reducing traffic to a more efficient speed. Highway widening induces additional vehicle travel which increases emissions. Roadway capacity expansion may reduce emissions in the short term, but these tend to be offset over the long-run due to induced travel (TRB, 1995; Stathopoulos and Noland 2003).

The evidence presented by critics is actually a justification for implementing more Smart Growth features in growing urban and suburban areas to reduce traffic congestion and air pollution problems that would otherwise occur by improving land use accessibility and travel options, increasing roadway connectivity, and in other ways increasing transportation system efficiency.

Public Security

Some critics (O'Toole in particular) claim that Smart Growth increases crime by expanding the public realm and increasing roadway connectivity, which they claim violates the principle of "Crime Prevention Through Environmental Design," (CPTED), that *controlled* spaces are safer. But CPTED also emphasizes natural surveillance ("eyes on the street"), minimizing isolation, and maximizing community interactions and therefore community cohesion (positive interactions among people in a community), all of which Smart Growth supports ("Address Security Concerns," VTPI 2005). Critics exaggerate the negative features and never mention these positive features of Smart Growth. Researchers Hillier and Sahbaz (2006) find that Smart Growth design features such as compact development and connected streets tend to increase natural surveillance and community interactions, and so reduce crime. By increasing community cohesion and social mixing (as opposed to concentrating low income and minority populations in certain neighborhoods separated from employment opportunities), Smart Growth can reduce total crime, rather than just shifting criminal activity from one location to another.

It would be more accurate to say that Smart Growth should incorporate CPTED design features to maximize its public security benefits. Geographic analysis of crime patterns indicates that areas with more integrated street system and more pedestrian traffic tend to have lower crime risk provided that there is adequate surveillance and visibility. When all types of violence are considered, urban residents tend to be much safer than suburban residents, because any increase in crime risk in cities is more than offset by increased risks from traffic accidents in suburban areas (Lucy 2002).

O'Toole also claims that traffic calming is dangerous because reduced traffic risk is offset by slower emergency response. But there is plenty of evidence that traffic calming significantly increases safety, and any emergency response delays are minimal since traffic calming is not applied on emergency routes ("Traffic Calming," VTPI 2005). Overall, urban locations have far faster emergency response times than suburban and exurban locations (Sorensen and Esseks 1998).

Density And Social Problems

Urban density is associated with social problems such as poverty, crime and conflict, but to evaluate this impact it is important to distinguish between *density* (people per acre) and *crowding* (people per room). For example, expensive high-rise housing is dense but not crowded, while impoverished rural households have crowding but not density. Poverty and social problems are associated with poverty and crowding, but not with density (Holleran 2022; Litman 2016). The U.S. Census measures rates of crowding (housing with more than one person per room) and severe crowding (housing with more than 1.5 persons per room). Crowing is associated with poverty, which explains why some low density area, such as Alaska and Texas, have high rates of crowing. There is no evidence that increasing development density itself increases social problems (1000 Friends 1999a; Ramsden 2009).

As mentioned earlier, many urban problems reflect economic traps, that is, situations in which individuals have incentives to act in ways that are overall harmful to society. For example, suburbs tend to exclude disadvantaged people, by prohibiting multi-family housing, and by creating automobile-dependent transportation systems, which concentrates poverty and social problems in urban neighborhoods (Litman 2016; Meyer 2013). According to Glaeser and Sacerdote (1999), about half of all urban crime is explained by the concentration of poverty in cities. Smart Growth that brings wealthier residents to urban neighborhoods and increases accessibility and economic opportunity for lower-income residents, should reduce urban murder rates, providing overall benefits to society. There is no physical reason that urban neighborhoods cannot be as safe and prosperous as suburbs. Smart Growth includes strategies that address such problems directly (such as programs to improve security and public service quality in urban neighborhoods), and it can reduce social problems overall by increasing social interactions and economic opportunities for disadvantaged urban residents.

Increased density and clustering, and the increased accessibility that results, can provide a variety of economic and social benefits, called *agglomeration* benefits. Activities that involve interaction among numerous people, such as education, finance and creative industries, are particularly affected by agglomeration. Although these benefits are difficult to measure, they appear to be large (Anas, Arnott and Small 1997). One published study found that doubling a county-level density index is associated with a 6% increase in state-level productivity (Haughwout 2000).

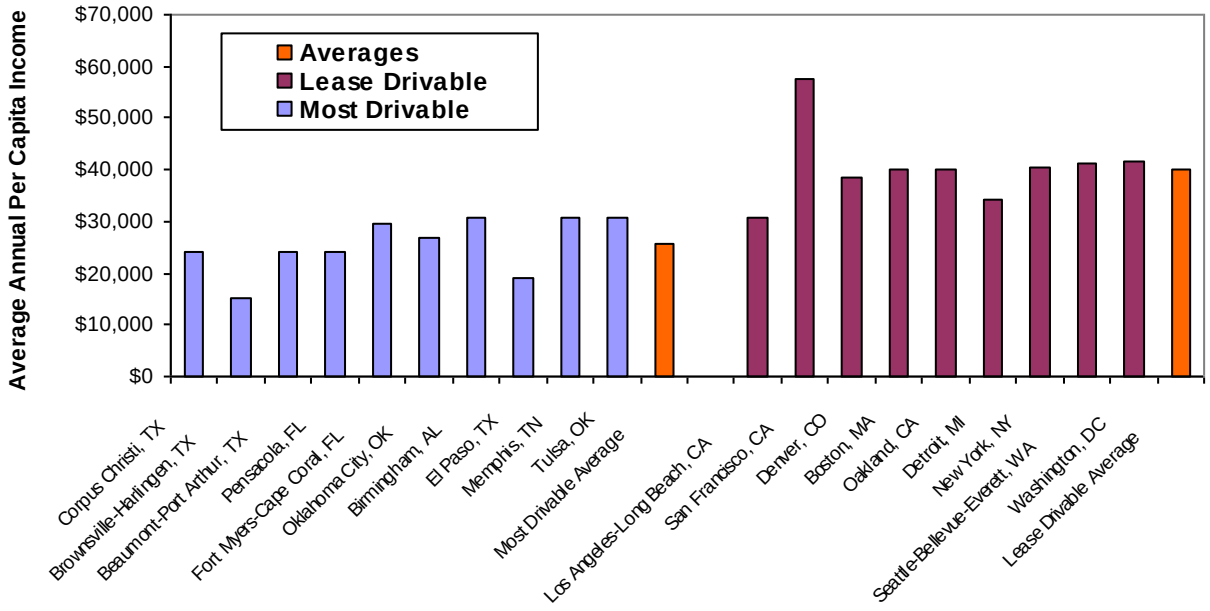
Overall, sprawl tends to increase traffic deaths and health problems associated with sedentary lifestyles. All told, residents of denser city neighborhoods are safer, even taking into account other risks that increase with urban living, such as pedestrian traffic injuries and homicide (Durning 1996; Lucy 2002; Lucy and Phillips 2006).

Smart Growth can create development patterns that offer the best of all worlds: improved accessibility, cost savings, security, quality public services, durable property values and increased economic productivity.

Economic Development

Critics sometimes assume that since motor vehicle travel tends to increase with income, sprawl contributes to economic growth and Smart Growth must be economically harmful, but this confuses cause and effect ("Economic Development," VTPI, 2005). Many countries experience their greatest economic growth when per capita automobile use is relatively low, and economic growth rates decline as households become wealthy enough to afford more consumer goods such as private cars. Regions with balanced transport systems appear to be most economically productive. Cities that are considered "most drivable" have relatively low incomes, as indicated in Figure 9.

Figure 9 **Annual Per Capita Income**



This shows US cities rated most and least drivable based on road surface quality, traffic flow, gas prices and climate, by "Sperling's BestPlaces" (www.bestplaces.net/drive/drive_study1.asp). The most drivable cities have average incomes far lower than the least drivable cities. (Average Annual Per Capita Income, from www.bea.gov.)

Under some circumstances, highway investments can reduce transportation costs and increase productivity, but only if other conditions are ripe and vehicle transport costs are a significant economic constraint. Building the first highway to a region can significantly increase economic activity, but once a region has a basic paved road system, additional roadway capacity provides declining benefits (SACTRA 1999). Smart Growth can provide cost savings and efficiency gains that support economic development including transportation and infrastructure cost savings, agglomeration efficiencies, fuel savings that reduce petroleum import costs, and support for various industries including tourism and agriculture (IEDC 2006; Muro and Puentes 2004).

Housing Affordability

Critics claim that Smart Growth reduces housing affordability by reducing urban land supply (QuantEcon 2002; Cox 2003b; Demographia 2009). There is little doubt that regulations increase development costs (Cheshire and Vermeulen 2009) but it is wrong to assume that Smart Growth consists primarily of more restrictive land regulations, in many ways it reduces regulations and costs (Litman 2010). Demographia (2008) compare single-housing prices between what they call *Prescriptive* (i.e., smart growth) and *Responsive* (i.e., sprawled) housing markets, but this analysis ignores geography: all the *Prescriptive* cities are coastal and geographically constrained, while all of the *Responsive* cities are inland.

Table 12 **Housing Markets** (Demographia 2008)

Prescriptive	Responsive
Boston	Atlanta
Portland	Dallas-Fort Worth
San Diego	Indianapolis
Washington DC	Kansas City

Demographia assumes that higher single-family housing prices in Boston, Portland, San Diego and Washington DC result from regulations, ignoring geographic constraints such as oceans and mountains. In such cities, policies that limit infill development contribute to housing inaffordability.

Smart Growth can increase affordability by allowing smaller lots, making underutilized urban buildings and land available for redevelopment, allowing subdivision of existing parcels, allowing more diverse housing types (smaller lots, secondary suites, lofts, etc.), reducing parking requirements, reducing development costs, and providing financial discounts for infill development (Jia and Wachs 1998; Litman 1998 and 2008a; Arigoni 2001; Goldberg 2003; 1000 Friends 2005b). It also provides transportation cost savings that can offset housing costs (McCann 2000; CTOD and CNT 2006; Leinberger 2008). More Smart Growth strategies reduce rather than increase household costs, as illustrated in Table 12. This suggests that Smart Growth can increase overall affordability or at least should not be blamed for reduced housing affordability.

Table 12 **Smart Growth Household Affordability Impacts**

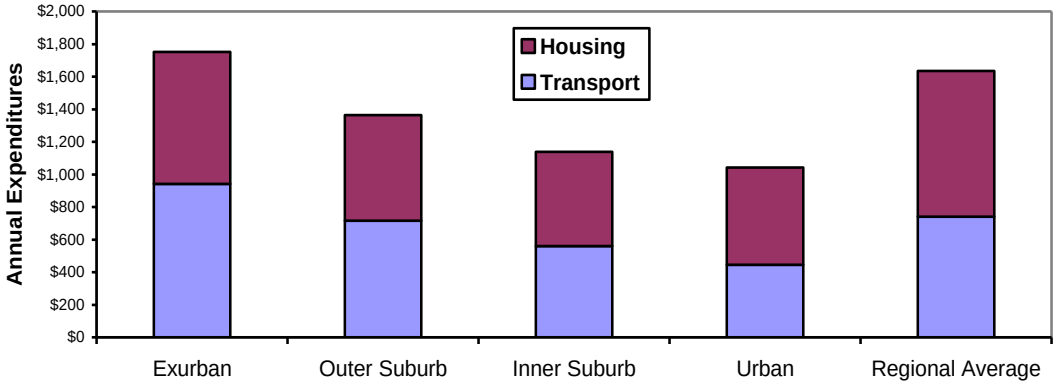
Reduces Affordability	Increases Affordability
• Urban growth boundaries (reduces developable land supply) • Increases infrastructure design requirements (curbs, sidewalks, sound barriers, etc.)	• Increased development density (reduces unit land costs) • Reduced parking and setback requirements (reduces land requirements per housing unit) • More diverse, affordable housing options (secondary suites, apartments over shops, loft apartments) • Reduced development impact fees and taxes (if Smart Growth includes pricing reforms) • Reduced transport costs.

Many Smart Growth strategies can increase housing affordability.

Smart Growth tends to be implemented in regions that have a combination of rapid growth, geographic constraints on development and high environmental amenities (such as shorelines, mountains or limited water supply), which tend to increase housing prices, particularly larger-lot single-family homes, due to a combination of strong demand and limited land supply. As a result, it is unsurprising that coastal cities such as Boston, Portland and Seattle have higher housing costs than Southern and Mid-west cities where more developable land is available or growth is slower. But this does not mean that Smart Growth causes such price increases. As previously mentioned, some Smart Growth features (such as urban growth boundaries) increase housing costs and others that reduce housing costs (such as more allowable density, reduced parking requirements, and lower development and utility fees for infill). Most comprehensive studies indicate that Smart Growth itself does not necessarily reduce housing affordability (Nelson 2002; Nelson et al. 2002; Fregonese and Peterson 2003; Wassmer and Baass 2005), and various studies indicate that Smart Growth locations tend to be more affordable overall, considering housing and transport costs combined.

A detailed study comparing housing and transportation costs in a typical Midwest urban area (CTOD and CNT 2006), found that although average housing expenditures are similar in different geographic locations, transport spending is much higher in outer suburbs and exurban areas than in inner suburbs and cities, as illustrated in Figure 10. It found that transportation costs average 19% of household expenditures overall, but range from about 10% in multi-modal communities up to about 25% in automobile dependent communities. To the degree that Smart Growth reduces household transport costs it can increase overall affordability and can offset increased housing costs.

Figure 10 **Affordability Index** (CTOD and CNT 2006)



Transportation expenditures are much higher in outer suburbs and exurban areas than in inner suburbs and cities, reducing overall affordability.

Analysis by Miller, et al. (2004) indicates that in the Toronto region, suburban locations tends to cost more in combined housing and transport costs than city locations. They estimate that for households located 50 kilometres outside Toronto, annual

transportation costs increased $1,600 for one-car households and about $5,800 for two-car households compared with city residents.

The *Wharton Residential Land Use Regulatory Index* (WRLURI) quantifies the intensity of development regulations (Gyourko, Saiz and Summers 2008). Ganong and Shoag (2012) used this Index and other indicators in a study which found that land development regulations tend to increase housing costs, which contributes to inequality by excluding lower-income households from economically productive urban regions. Critics imply these results indicate that Smart Growth harms lower-income households and is inequitable (Postrel 2012; O'Toole 2012b), but that misrepresents the research. Many of the development restrictions considered in these studies are sprawl-inducing restrictions on development density and multi-family housing. The Regulatory Index tends to be:

- Negatively correlated with population density. Lower density towns often have the strictest regulations.
- Lower in central cities than suburbs. "The mean WRLURI value for central cities in our sample is -0.14, with the median being -0.25. There is considerable heterogeneity across central cities, but they have a less restrictive land use regulatory environment on average than their suburbs." (P. 23)
- Strongly positively correlated with indications of wealth (median family income, median house value and share of adults with college degrees).
- Higher in coastal states than in the Midwest and Southern states. This probably results in part from natural development restrictions, such as shorelines and mountains rather than regulations.
- Positively correlated with direct community democracy in the form of town meetings that require land use issues to be put to popular vote.

This suggests that the regulations which increase housing prices are primarily restrictions in suburban communities intended to exclude lower-income residents and preserve local amenities (limit traffic and parking congestion, and preserve greenspace) rather than Smart Growth regulations by large city governments intended to encourage more compact and resource efficient development and protect regional environmental quality. Proponents of exclusionary policies often justify them based on claimed Smart Growth or general environmental benefits, but this is often inaccurate. It is inaccurate to suggest that Smart Growth policies are the main cause of housing unaffordability.

Some specific strategies can help integrate household affordability objectives into Smart Growth policies including reforms to allow higher density, more diverse housing types, more flexible parking requirements, price reforms that provide savings for infill development, location efficient development, and improvements to affordable transport options (Arigoni 2001; Russo 2010; Litman 2010).

Cost of Living

As mentioned earlier, Smart Growth tends to reduce consumer transportation costs (McCann 2000; STPP 2003; Dunphy, 2003; Litman 2008b). Critics claim that such savings are small and offset by higher housing and food costs. For example, Cox groups U.S. cities into four categories based on population density and finds that total transport, housing and food costs are higher in the denser cities, as indicated in Table 14.

Table 14 **Household Expenditures by Density** (www.demographia.com/db-ce2000.htm)

	Number	Density	Transport	Housing	Food	Total	Relative to Sprawl
Least Sprawl	2	4,500 & Over	$8,714	$13,886	$6,466	$29,066	30%
Less Sprawl	5	3,500-4,499	$7,816	$12,042	$5,718	$25,576	15%
More Sprawl	12	2,500-3,499	$8,036	$11,217	$5,673	$24,926	12%
Most Sprawl	7	1,500-2,499	$7,433	$9,711	$5,190	$22,334	0%

According to this analysis, Smart Growth increases household costs. The least sprawled cities have 30% higher combined transport, housing and food costs than the most sprawled cities.

This analysis contains two major errors. First, incomes tend to increase with city size and density, so much of the increase in household expenditures in higher density cities is explained by increased wealth. The results of Cox's analysis change significantly if the analysis is based on portion of income rather than total dollars. Second, as discussed earlier, gross population density is an inaccurate indicator of Smart Growth. According to the Sprawl Index (Ewing, Pendall and Chen 2003), residents of the Smart Growth cities are actually shown to devote 6% *less* to combined transport, housing and food than residents of the most sprawled cities, as indicated in Table 15.

Table 15 **Percent Income Devoted to Transport, Housing and Food**
(Analysis Spreadsheet Available From The Author On Request)

	By Density		By Sprawl Index	
	Percent Income	Relative to Sprawl	Percent Income	Relative to Sprawl
Least Sprawl	78%	+16%	68%	-6%
Less Sprawl	76%	+13%	73%	+1%
More Sprawl	73%	+9%	73%	+1%
Most Sprawl	67%	0%	72%	0%

Residents of Smart Growth cities actually spend a smaller portion of income on combined transport, housing and food than residents of sprawled cities.

O'Toole (2003) argues that Smart Growth reduces consumer affordability by eliminating the efficiencies of bulk retailing, but many bulk retailers are successful in urban locations, and as discussed earlier, Smart Growth does not eliminate automobile travel. To the degree that bulk retailers provide sufficient efficiency gains (lower prices and increased convenience), they can attract customers and provide consumer benefits in Smart Growth communities.

Smart Growth Forces People To Give Up Single-Family Homes and Driving

Critics claim that Smart Growth forces people to give up single-family homes and private vehicle travel, and therefore makes consumers worse off (Orski 2003). This is untrue (Litman 2009). Smart Growth mostly applies positive incentives that directly benefit consumers, as discussed in a previous section on consumer preferences.

Relatively small changes can provide large benefits. In the example illustrated in Table 16, residential land consumption is reduced by half if the majority of households shift from large and medium size lots to city and small lots. In this example, only 15% of households shift from single-family to multi-family housing, resulting in three quarters of households in the Smart Growth option living in single-family homes. *Multi-family* consists primarily of duplexes, townhouses and low-rise condominiums and apartments; it does not require large numbers of high-rise units.

Table 16 **Housing Mix Impacts On Land Consumption**

	Large Lot (1 acre)	Medium Lot (1/2 acre)	City Lot (100' x 100')	Small Lot (50' x 100')	Multi-Family	Totals	Single Family
Homes Per Acre	*1*	*2*	*4.4*	*8.7*	*20*		
Sprawl							
Percent	30%	25%	25%	10%	10%	*100%*	90%
Number	300,000	250,000	250,000	150,000	100,000	*1,000,000*	
Total Land Use (acres)	300,000	125,000	57,392	11,494	5,000	***451,497***	
Standard							
Percent	20%	20%	20%	20%	20%	*100%*	80%
Number	200,000	200,000	200,000	200,000	200,000	*1,000,000*	
Total Land Use (acres)	200,000	100,000	45,914	22,989	10,000	***378,902***	
Smart Growth							
Percent	10%	10%	20%	35%	25%	*100%*	75%
Number	100,000	100,000	200,000	350,000	250,000	*1,000,000*	
Total Land Use (acres)	100,000	50,000	45,914	40,230	12,500	***248,644***	

Even modest shifts from larger to smaller lots can significantly reduce land consumption. With the Smart Growth option, 3/4 of households continue to have single-family homes, yet land requirements are reduced by half compared with sprawl.

To the degree that Smart Growth uses positive incentives to shift households with marginal preferences to choose more urban locations, it reduces demand for lower-density, suburban housing, reducing their costs for people who truly prefer such locations. For example, if you enjoy gardening, you benefit if compact housing options become attractive, so there is less competition for large-lot housing by people who would otherwise choose it simply for social attributes such as status and neighborhood security. Similarly, most TDM programs involve strategies that provide direct positive benefits to users, and relatively small shifts from driving to alternative modes under urban-peak conditions can provide significant benefits. Those travelers who truly need or prefer to drive are better off if other peak-period travelers shift mode, therefore leaving more road and parking space.

Public Service Costs

Smart Growth can reduce development and public service costs by reducing the length of roads and utility lines, parking requirements, and travel costs to provide public services such as garbage, policing and school access ("Land Use Evaluation," VTPI, 2005). More than a dozen studies, many by leading research organizations, indicate that Smart Growth can provide such savings (Burchell, et al. 2000; Burchell, et al. 2005; CMHC 2006; Muro and Puentes 2004; Litman 2015).

Critics claim that Smart Growth increases public service costs (Gordon and Richardson 1999; Cox 2003). They cite research by Ladd (1992) showing that per capita public service expenditures increase in higher-density counties. Similarly, Cox and Utt (2004) found that per capita local government expenditures do not always decline with population density, that density explains only 30% of observed differences in such expenditures, and that any savings are insignificant. But these studies have major errors:

- They ignore other indicators of sprawl besides density.
- Smart Growth affects density and design at a finer geographic scale than Ladd or Cox & Utt analyzed. City, county- and state-level analysis indicates little about Smart Growth impacts. Neighborhood- and site-level analyses are needed.
- These studies only consider government expenditures. Total per capita expenditures are higher in lower-density areas because residents provide more of their own water, sewage and garbage services privately (SC 1999).
- Higher government expenditures in denser, more urbanized areas are partly explained by higher wages (so urban-rural differences are smaller when measured as a portion of income) and higher quality services (more public parks, libraries, etc. in urbanized areas).
- Cities incur additional costs because they contain a disproportionate share of residents with special needs that impose additional public service costs. In 1990, large U.S. cities comprised 12% of the nation's population but 17% of its poor, and as a result spent an average of $364 per capita on health, hospitals, and public welfare, or 30% of local tax revenues, while smaller cities and suburbs spent only $40 per capita on those poverty-related categories, or 9% of local taxes (Gyourko and Summers 1997).

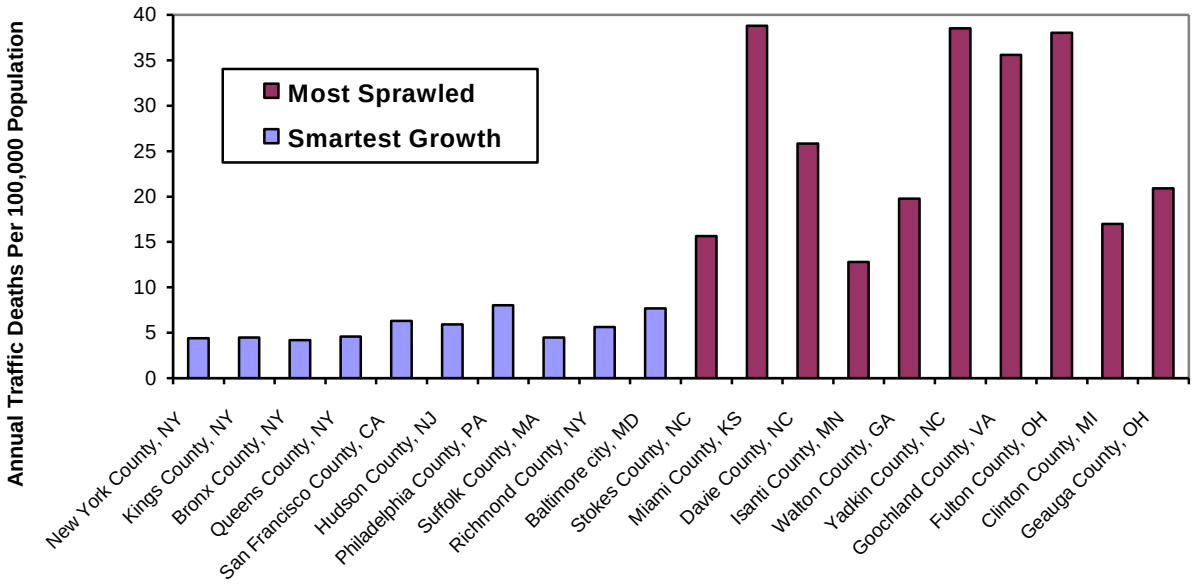
Smart Growth sometimes increases short-term costs but reduces long-term costs. For example, it may add costs for cleaning up brownfields and installing new infrastructure within urban areas, but provides transportation cost savings and reduces future public service and utility maintenance costs because activities are less dispersed.

Smart Growth can impose some additional development costs, including special design requirements (such as additional pedestrian and structured parking facilities, and aesthetic features), higher costs for retrofitting infrastructure in high-density developed areas, and additional costs that may be needed to improve public services in urban neighborhoods in order to attract middle-class residents (Ewing 1997). As a result, actual cost savings will vary depending on the particular situation.

Health Impacts

Transportation and land use patterns impact human safety, health and fitness ("Health and Fitness," VTPI 2005; Litman 2003b; AJPH 2003, AJHP 2003; Frank, Kavage and Litman 2006). Ewing, Schieber and Zegeer (2003) find higher per capita traffic deaths in sprawled communities (Figure 11). They estimate that each one percent increase in their sprawl/Smart Growth index reduces the area's traffic fatality rate by 1.5%. Ewing, Pendall and Chen (2003) find that sprawl communities have about 50% higher maximum ozone levels. Durning (1996) and Lucy (2002) found that the higher crash rates of sprawled communities overwhelm other personal risks, making urban locations safer that sprawled suburbs. Frumkin, Frank and Jackson (2004) identify several health problems that sprawl tends to exacerbate.

Figure 11 **Annual Traffic Death Rate** (Ewing, Schieber and Zegeer 2003)



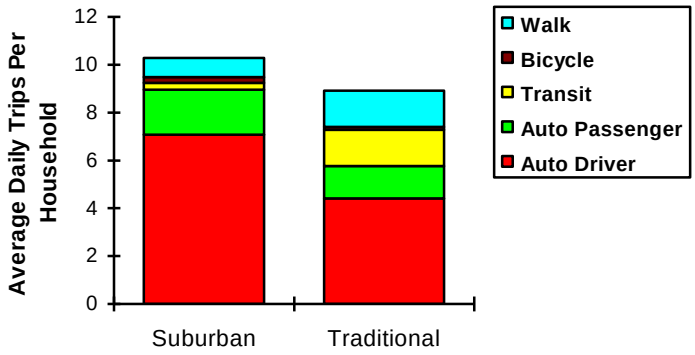
The ten U.S. communities ranked least sprawled have much lower annual traffic fatality rates than the ten communities that are ranked most sprawled.

Critics claim that Smart Growth provides no health benefits (Schwartz 2002; Utt 2003). However, numerous studies also show higher rates of active transportation (walking and cycling) and improved health outcomes in Smart Growth communities (APA 2003; AJPH 2003; AJHP 2003; Killingsworth, De Nazelle and Bell 2003; Ewing, et al. 2003; Bell and Cohen 2009).

Cox (2003c) and Utt (2003) dismiss research by Ewing, et al. (2003) showing that sprawl is associated with obesity by arguing that the association between sprawl and excessive weight is insignificant and spurious. Their arguments miss several important points:

- Weight differences are only one indicator of health risk. A much more important factor is the effects of sedentary lifestyle, that is, a lack of regular physical activity.
- Other studies show that residents of Smart Growth communities (i.e., areas with more clustered land use, multi-modal transportation systems and walkable neighborhoods) tend to walk and cycle more than residents of sprawled areas, even when demographic and income are taken into account. For example, the 1995 National Personal Transportation Survey indicates that urban residents average 0.59 walking/cycling trips per day as opposed to 0.21 made by suburban residents. Figure 12 also indicates the much higher levels of walking that occur in traditional neighborhoods. For more studies of the relationships between community design and public health see AJPH, 2003 and AJHP, 2003, and the *Active Living By Design* (www.activelivingbydesign.com) website.

Figure 12 **Household Travel by Neighborhood Type** (Friedman, Gordon and Peers, 1995, citied in "Land Use Impacts on Transportation," VTPI 2005)



Residents of traditional-style neighborhoods walk about twice as much as residents of suburban neighborhoods.

- Ewing, et al. analysis was performed at a county level. Much greater differences in health factors are likely to occur at a more disaggregate level, such as when Smart Growth and sprawled neighborhoods (rather than counties) are compared, or when communities which have made concerted efforts to improve walking and cycling conditions are compared with automobile-dependent communities.
- Critics claim that Smart Growth health impacts can be explained by income: residents of sprawled communities tend to be poorer, and poverty is associated with health risks such as obesity and inadequate physical activity. If this is true, then it further demonstrates economic benefits of Smart Growth: either Smart Growth raises residents' incomes or it attracts wealthier people, indicating that consumers prefer Smart Growth over sprawl.

Greenspace Preservation Benefits

Smart Growth helps preserve greenspace (farmland, wildlife habitat, wetlands, parks and other forms of environmentally beneficial land uses), which provides a variety of economic, social and environmental benefits. Critics claim that efforts to preserve greenspace are unjustified, since they claim that only a tiny portion (3-5%) of America's total land area is developed. This reflects a misunderstanding of greenspace and its value to society.

Although only 3-5% of America's total land area is officially designated as "urban," a much larger portion is affected by development. For example, agricultural areas such as California's Central Valley and unique habitat such as the Florida Everglades are classified as "non-urban" but still threatened by low-density development. The impacts of development often extend beyond site borders, an impact called the "urban shadow." For example, residents of new suburban developments often complain about farming practices such as noise, dust, pesticide use and driving farm equipment on roadways, leading to constraints on farming activities. As a result, sprawl threatens local and regional agricultural economies. Similarly, human activity, including noise, roadway corridors and various pollution emissions can disturb wildlife habitat over a wide area.

Urban development tends to occur in particularly valuable agricultural and environmental areas because many growing cities are located in fertile valleys or along coastlines. As a result, urban fringe development threatens prime farmlands, wetlands and unique wildlife habitat, each of which can provide unique economic, social and environmental values. An acre of Iowa farmland or Vermont forest does not substitute for an acre of land in California's Central Valley or Florida Everglades.

Greenspace provides a variety of economic, social, cultural, environmental and aesthetic values. Greenspace preservation helps improve water quality and groundwater recharge, reduce stormwater management costs, and reduce heat island effects. Many people value having traditional farm activities in their communities, and value being able to purchase locally produced food. Many people value the preservation of historic sites, unique natural features and attractive views, and these are important to the economy of many communities (for example, as tourist attractions). Many geographic areas have unique ecological features and habitats that are threatened by sprawl. Urban sprawl and excessive vehicle traffic can threaten the attributes that make a place special and attractive, and therefore increase land values and economic activity. These are all additional values from greenspace that Smart Growth can help preserve, which are not recognized by critics.

For more discussion of these values and methods for quantifying them see *European Union's Environmental Economics Website* (europa.eu.int/comm/environment/enveco), the *International Society for Ecological Economics* (www.ecoeco.org), and "Quantification Techniques," Chapter 4 of Litman, 2009.

Transit Cost Efficiency

Critics argue that transit projects, particularly new urban rail, are ineffective and wasteful. They cite examples of transit projects that exceed projected costs or failed to meet ridership goals, but ignore other examples of projects that exceeded goals and are considered successful (Ridlington and Kellet 2003; O'Toole 2004). However, analysis by Litman (2004) and others indicates that transit projects are often the most cost effective way to improve transportation on a corridor, when all benefits and costs are considered. Critics tend to focus on just one or two transit objectives such as congestion or emissions reductions, and ignore other benefits, and so undervalue transit. The table below lists the full range of benefits that should be considered when evaluating transit.

Table 17 **Transit Benefits** ("Transit Evaluation," VTPI 2005)

	Description
Mobility Benefits	**Benefits from increased travel that would not otherwise occur.**
Direct User Benefits	Direct benefits to users from increased mobility.
Government Benefits	Direct benefits to government agencies from increased mobility.
Productivity	Increased productivity from improved access to education and jobs.
Equity	Improved mobility for economically, socially or physically disadvantaged people.
Option Value	Benefits of having mobility options available, in case they are ever needed.
Efficiency Benefits	**Benefits from reduced motor vehicle traffic.**
Vehicle Costs	Changes in vehicle ownership, operating and residential parking costs.
Chauffeuring	Reduced chauffeuring responsibilities by drivers for non-drivers.
Vehicle Congestion	Reduced motor vehicle traffic congestion.
Barrier Effect	Reduced traffic delay to pedestrians.
Parking Costs	Reduced parking problems and non-residential parking facility costs.
Safety, Security and Health	Changes in crash costs, personal security and improved health and fitness.
Roadway Costs	Changes in roadway construction, maintenance and traffic service costs.
Energy and Emissions	Changes in energy consumption, air, noise and water pollution.
Travel Time Impacts	Changes in transit users' travel time costs.
Land Use	**Benefits from changes in land use patterns.**
Transportation Land	Changes in the amount of land needed for roads and parking facilities.
Land Use Objectives	Supports infill, efficient public services, clustering, accessibility, land use mix, and preservation of ecological and social resources.
Economic Development	**Benefits from increased economic productivity and employment.**
Direct	Jobs and business activity created by transit expenditures or attracted to a particular area.
Shifted Expenditures	Increased regional economic activity due to shifts in consumer expenditures to goods with greater regional employment multipliers.
Agglomeration Economies	Productivity gains due to more compact, accessible land use patterns.
Transportation Efficiencies	More efficient transport system due to economies of scale in transit service, more accessible land use patterns, and reduced automobile dependency.
Land Value Impacts	Higher property values in areas served by public transit.

This table summarizes potential transit benefits. All of these should be considered when evaluating a particular transit policy or project.

Critics argue that transit improvements are a luxury which cannot be justified if resources are limited for essential roadway maintenance, such as fixing potholes and replacing deteriorating bridges. But transit projects are a substitute for roadway capacity expansion, not for basic road maintenance, and transit is a necessity for some people. If society wants to improve economic opportunity for people who for any reason cannot drive, basic transit service is essential. Once transit service is provided, additional riders can usually be accommodated with a relatively low marginal cost.

As an area becomes more urbanized (denser, more mixed land use, higher land prices, and less unpriced parking), transportation diversity tends to increase, with a greater portion of trips by walking, cycling and public transit. Where service quality is good, transit carries 10-20% of peak-period commuters on major urban corridors and 20-60% to central business districts. Critics argue that transit is declining in importance, citing long-term travel trends, but in recent years transit has become more important for several reasons:

- During the 1990s many cities experienced redevelopment and population growth, and some trends (smaller households, more elderly people, increased popularity of urban loft apartments, increased value placed on walkability, etc.) support increased urbanization.
- Many cities that previously relied on automobile transport have reached a size and a level of travel demand that makes transit the most cost-efficient way to improve mobility.
- Many areas previously classified as *suburban* are becoming more urbanized due to population growth and infill, and so experience increased congestion, commercial clustering, land values and parking problems that make transit cost effective.
- Many suburban areas have commercial centers, malls, campuses and industrial parks with sufficient trip generation to justify public transit service.
- Various combinations of aging populations, traffic and parking problems, and environmental concerns are motivating suburban, semi-rural and resort communities to use transit services.

Transit tends to be most efficient on corridors with the worst traffic problems, because demand is concentrated, and expanding road and parking capacity is costly. Transit improvements are often the most cost effective way to improve mobility on these corridors, providing benefits to transit users and motorists, who gain from reduced traffic and parking problems, chauffeuring demands and pollution (Weyrich and Lind, 2001).

Incremental Costs of Urban-Peak Automobile Travel
Adding urban highway capacity typically costs $2-4 million per lane-mile, and more if land costs are high or intersection reconstruction is needed. This represents an annualized cost of $100,000-250,000 or more per lane-mile. Divided by 2,000 to 4,000 additional peak-period vehicles per lane for 250 annual commute days indicates costs of 10-50¢ or per additional peak-period vehicle-mile of travel, plus 5-10¢ per vehicle-mile for maintenance and traffic services, indicating roadway costs of $3-10 for a 10-mile highway trip. Urban parking typically costs $2-10 per day, so total facility costs to government and businesses average $5-20 per day for an urban-peak automobile commute.

Critics argue that individual transit improvements do little to reduce regional congestion (Charles and Barton, 2003), but the same could be said of individual roadway projects: impacts are small compared with total regional traffic problems. Transit does help reduce roadway congestion (Litman, 2004a). When transit is faster than driving a portion of motorists shift to transit. On a congested highway, even a small reduction in traffic volumes can provide a large reduction in congestion delays. As a result, the faster the transit service, the faster the traffic speeds on parallel highways (Mogridge, 1990; Lewis and Williams, 1999). Comparisons between cities, and experiences when urban transit service is disrupted, indicate that good transit service reduces traffic congestion (STPP, 2001). The Texas Transportation Institute estimates that U.S. urban traffic congestion delays would increase about 30% if public transit service were not available (TTI, 2003).

Critics claim that transit has excessive costs and public subsidies. They often cite figures indicating that 40-50% of transport expenditures are devoted to transit, but this is inevitably a single funding category (such as regional capital investments), not total expenditures. Total transit costs and subsidies are small compared with those of automobile travel. For example, U.S. transit expenditures total about $30 billion annually, of which two-thirds are subsidies, compared with $120 billion spent on roads of which $50 billion are subsidies (from general taxes), plus $30 billion in general taxes spent on traffic services, $270 billion in parking subsidies and $600 billion spent on private motor vehicles (Litman 2008). Transit expenditures represent about 3% of total motor vehicle expenditures, and transit subsidies represent about 10% of automobile financial subsidies (money spent on roads, traffic services and parking not charged directly to users), not counting other external costs such as uncompensated crash damages and environmental impacts.

Even this does not tell the whole story because about half of transit service is *equity justified* (intended to provide basic mobility for non-drivers) rather than *efficiency justified* (intended to reduce traffic congestion or pollution). Thus, efficiency-justified transit subsidies total about $10 billion annually, or about 5% of automobile subsidies, approximately equal transit's share of urban trips. Transit users travel less on average than motorists, so their per capita annual subsidy is lower than what motorists receive.

Critics often use average values when calculating cost per passenger-mile, but if some transit service is provided to insure basic mobility for non-drivers, the incremental costs of accommodating additional riders is often quite low ("Transit Evaluation," VTPI 2005). Critics often use a relatively short time period for evaluation, which exaggerates highway benefits and understates transit benefits. Highway congestion and air emission reductions tend to be greatest right after capacity is added, but decline in a few years due to increased vehicle traffic and induced travel, while transit projects tend to provide relatively small benefits during their first few years, but these increase over time as ridership grows and land use patterns change.

Critics claim that extreme population densities (e.g., 50,000 residents per square mile or 78 per acre) are needed for public transit to be cost effective. But Smart Growth includes many features that increase transit efficiency and ridership, such as clustered commercial centers, increased rider comfort, affordable fares, improved user information and marketing, improved walkability, parking cash out, road tolls, and Park & Ride facilities. A particular land use density may be inadequate to support transit service by itself, but becomes adequate if implemented with suitable Smart Growth programs, increasing cost efficiency and total benefits.

Cox claims that density increases transit costs (www.demographia.com/db-ptcitysub.htm), measured as operating costs per transit-vehicle hour. This is not surprising since larger cities have more congestion delays and higher wages. However, larger cities also have higher transit load factors, reducing per passenger-mile costs and subsidies, so transit system efficiency tends to increase with density.

There is evidence that many consumers would prefer to use transit more and drive less. U.S. transit use has increased faster than automobile travel in recent years, although this period coincided with a growing economy and declining real fuel costs, both of which should favor driving over transit travel. This suggests that public transit ridership could increase more with suitable Smart Growth strategies.

Induced Traffic Impacts

Because Smart Growth critics support roadway projects to address traffic problems, they have challenged claims that increased roadway capacity causes generated and induced vehicle travel which reduces congestion reduction benefits. Many specific claims made by critics concerning induced travel misrepresent the issue. For example, they claim that the existence of induced travel is unproven or too small to be significant (Cox, 2003b). But induced travel impacts are well documented (Cervero and Hanson 2000; Litman 2001). A significant portion (40-60%) of added roadway capacity tends to be filled by induced travel over the long-run, and even more under highly congested condition. Induced travel does not mean that road capacity projects provide no benefits, but current planning practices that ignore these impacts tend to overstate highway capacity expansion benefits and understate the benefits of alternative congestion

reduction strategies. Road projects considered cost effective by conventional models may actually make society worse off overall, while other strategies would provide greater net benefits when generated travel impacts are considered.

Jobs/Housing Balance

Jobs/Housing Balance refers to the ratio between employment and residents in a community. Smart Growth proponents support efforts to balance jobs and housing, referred to as creating "more complete communities," in order to reduce transportation problems and improve employment opportunities. Smart Growth critics argue that this is unnecessary and harmful, since housing and employment are now so dispersed through an urban area, workers frequently change jobs and home locations, most households contain multiple workers, and many jobs are highly specialized so workers cannot simply accept a nearby job (Giuliano, 1991). Critics point to surveys indicating that "only" 20% of homebuyers rank proximity to employment as their most important factor in choosing home location (Cox, 2003b).

But there are a number of justifications for Jobs/Housing Balance not recognized by critics. A number of studies indicate that average commute distance and time is lower for residents of communities with a more balanced jobs/housing ratio, and this may be particularly important for lower-income workers (Levinson, 1998). In addition, Job/Housing Balance tends to increase local services, improving access to services and reducing non-work travel. Even if "only" 20% of house buyers consider proximity to work as a *primary* priority, this is a significant portion of the market and implies that a far larger portion of homebuyers consider employment proximity a moderate priority.

Speed of Change

Smart Growth is sometimes criticized because land use change is slow, and so impacts and benefits take many years to be achieved. In most communities only 1-4% of land is developed during a typical year, so it often takes decades before significant regional travel impacts are achieved. But these changes can provide many benefits and are extremely durable once implemented. Smart Growth therefore provides a long-term legacy of increased accessibility and community livability for the future.

Considering Alternatives

Critics sometimes attack Smart Growth programs without providing specific alternatives for comparison. For example, critics argue that public transit projects have excessive costs per additional rider, although highway projects would have even higher costs per additional trip when road construction, parking and vehicle expenses are all considered. Similarly, critics sometimes oppose infill development on the grounds that this is unpopular with residents, without acknowledging that the alternatives (prohibiting development or increasing low-density sprawl development on existing greenspace) are also unpopular, and so Smart Growth may be the most popular of available options.

Duranton and Turner (2018) argue that Smart Growth is an ineffective emission reduction strategy, based on the assumptions that Smart Growth consists entirely of increased development density, that very large density increases would be needed to achieve significant emission reductions (such as forcing the 2.5 million people living in the 84% least dense areas to abandon their homes and move into high density areas), and that fuel price increases could achieve similar emission reductions at lower social costs. This reflects several false assumptions. Smart Growth actually consists of several complementary policies including increased development density and mix, improved travel options (walking, bicycling and public transit services), and parking policy reforms, which together can achieve much larger emission reductions than they assume. Smart Growth does not generally force people to shift location and abandon existing housing; consumer surveys indicate that many households want to live in more walkable and accessible locations but cannot due to a shortage of such housing caused by current development policies which restrict infill. The fuel taxes and congestion pricing they advocate complement Smart Growth policies, so there is no need to choose between these different policies, they are most effective if implemented together.

Cox (2000) proposed a transportation plan for the Atlanta, Georgia area consisting of a grid of high-volume arterials spaced every mile through the urban region, converting existing arterials to “surface expressways,” limited access commercial bypasses, automobile tunnels, double-decking freeways, truck-only freeways, more extensive use of reversible lanes, and high occupancy toll lanes. But the proposal includes no cost estimates, nor modeling to quantify impacts on congestion, pollution emissions or safety.

Table 18 provides an estimate of such a program’s costs, assuming that 1,000 miles of state highways and 1,600 miles of arterials in the fifteen-county Atlanta area are expanded by one lane in each direction. Additional operating and maintenance costs for these lanes are calculated based on 5% of capital costs. This probably underestimates the proposed program’s actual costs because many highways would need more than one additional lane over the next 20 years to significantly reduce traffic congestion, and because the proposed roadway projects (tunnels, double-decking highways with new intersections and urban arterial widening) tend to be particularly costly.

Table 18 **Atlanta Roadway Capacity Expansion Estimated Costs**

	Miles	Cost Per Lane-Mile	Costs
State Highways	1,000	$4,000,000	$8,000,000,000
Arterials	1,600	$2,000,000	$6,400,000,000
Totals	*2,600*		*$14,400,000,000*
Annualized (7% Interest over 20 years)			$1,359,258,131
Operations and Maintenance (5% of capital costs)			$720,000,000
Total Annualized Cost			*$2,079,258,131*
Annual Per Capita			$590

This table shows the estimated costs of Wendell Cox's proposed highway capacity expansion projects if implemented over 20 years. Actual costs would probably be higher.

This estimate further understates the total potential costs for Cox's program because it includes just 1,600 miles of additional arterial capacity, enough to approximately cover currently urbanized Atlanta but not the larger area of potential suburban expansion. If the arterial network is expanded to an 80-mile grid, reflecting Cox's idea that sprawl is good, the program's total costs more than double. If Cox recommends limiting the grid, on the grounds that public subsidy of low-density urban expansion is wasteful and suburban growth should be constrained, he is endorsing Smart Growth.

Cox ignores the negative impacts that wider roads, double-decked highways, increased traffic volumes and higher traffic speeds have on the city environment, including reduced walkability, aesthetic and noise impacts, and the loss of greenspace as the urban fringe expands with low-density development.

Cox's proposal would cost the average Atlanta area household $1,475 annually. A fuel tax increase of approximately $1.00 per gallon or a vehicle fee of about 5¢ per mile would be needed to provide this revenue. However, such charges may reduce vehicle traffic sufficiently that the need for this proposed highway project would be eliminated. In other words, the need for Cox's proposed highway capacity expansion only exists if the roadway projects are subsidized and driving is underpriced. This is evidence that such projects are economically inefficient, and that mobility management and Smart Growth strategies are justified based on free market principles.

Recognizing that roadway capacity expansion cannot really solve transportation problems, Cox's plan actually contains many Smart Growth strategies, including electronic road pricing, high occupancy toll (HOT) roads, improved transit services, financial incentives to encourage ridesharing and public transit ridership, telecommuting and acceptance that traffic congestion is inevitable. However, many of these are presented as afterthoughts, with little detail as to how they will be implemented, and little appreciation that they can be part of an integrated mobility management program which, because it tends to be more cost effective than highway capacity expansion, should be implemented first.

Responding To Specific Critics

This section examines specific claims by various Smart Growth critics.

Alex Anas

Buffalo State University Professor Alex Anas uses economic modeling and empirical data to argue that:

1. The monocentric model often used to justify Smart Growth policies is unrealistic because more dispersed employment and services can reduce rather than increase travel distances.
2. This more dispersed development reduces commute travel times compared with more central, transit-oriented employment.
3. Although urban-peak automobile travel is underpriced, resulting in excessive vehicle travel and urban expansion, urban growth boundaries inefficient and harm consumers.

He therefore argues that some urban sprawl is economically efficient, and some Smart Growth strategies, particularly urban growth boundaries, are economically harmful overall. While these arguments have some basis, they are incomplete.

It is untrue, as Anas implies, that the justification for Smart Growth depends on a monocentric model, nor that Smart Growth precludes urban expansion. Rather, Smart Growth is justified by empirical evidence that certain land use development factors affect accessibility and travel activity (Ewing and Cervero 2010; Litman 1995). Smart Growth policies allow new development to be more accessible and multi-modal, so trip distances are shorter and a greater portion of travel can be made by alternative modes.

Anas' analysis focuses on one trip type (commuting) and one external cost (traffic congestion). The analysis ignores other types of travel, other forms of underpricing, and other costs of automobile dependency and sprawl. For example, it ignores increases in non-commute travel distance and time in sprawled areas, the inefficiencies from underpricing local roads and parking facilities, accidents, fuel production, pollution, habitat loss, and problems caused by inadequate accessibility for non-drivers. It assumes that agglomeration efficiencies have declined, although research indicates that they are important for many industries (Anas, Arnott and Small 1997; Graham 2007).

The analysis also focuses on a limited set of Smart Growth policies, primarily more efficient road pricing and urban growth boundaries, with mention of transit oriented development and new urbanism. It ignores other policies such as reducing restrictions on compact and mixed development, increased roadway connectivity, efficient parking pricing and management, improved walkability, or location-based pricing.

As a result, Anas underestimates the full costs of automobile dependency and sprawl, and the full benefits of Smart Growth policies. He exaggerates the amount of sprawl that is truly optimal, and underestimates the value of Smart Growth policies, including second-best strategies such as urban growth boundaries and alternative mode subsidies.

Wendell Cox

Wendell Cox is a leading critic of Smart Growth (www.publicpurpose.com). He makes many of the errors examined in this paper (Litman 2011):

- He misrepresents Smart Growth, assuming that it relies primarily on new regulations, ignoring other Smart Growth strategies. For example, he claims that Smart Growth reduces consumer freedom, without acknowledging that many Smart Growth strategies increase consumer freedom to choose housing options such as secondary suites and lofts, to avoid excessive parking requirements, or to use alternative forms of transport.
- He evaluates Smart Growth based simply on regional density. He either does not understand or intentionally ignores more accurate indices of sprawl and Smart Growth. Much of his criticism of Smart Growth disappears when these more accurate indices are applied to his analysis. For example, his claims that Smart Growth increases congestion and pollution, public service costs and household costs do not apply if other Smart Growth strategies besides increased regional density are considered.
- He ignores confounding factors between city size, density, congestion, income, etc., and so reaches spurious and inaccurate conclusions. For example, he claims that Smart Growth increases housing and food costs, although this actually reflects the higher incomes in larger cities. Much of his criticism of Smart Growth disappears when these factors are incorporated into his analysis. For example, his claims that Smart Growth increases congestion and pollution, public service costs and household costs do not apply if confounding factors are considered.
- He criticizes transit investments on the grounds that they are not the most cost effective way to reduce traffic congestion, ignoring other benefits of public transit. For example, his criticism ignores parking cost savings, consumer cost savings, safety benefits, improved mobility for non-drivers, and support for strategic land use objectives.

Below is one of Coxes' articles criticizing Smart Growth. Responses to his claims are in italics.

Debunking Friday the 13th: 13 Myths of Urban Sprawl
by Wendell Cox, The Heartland Institute (www.heartland.org) 06/12/2003

Simply described as the geographical spreading out of urban areas, "urban sprawl" has become the stuff of public policy hysteria. A well-financed movement blames sprawl for everything from a lack of community spirit to obesity. The movement has labeled itself "Smart Growth," but more descriptive--and more accurate--would be "anti-opportunity." It would force housing prices up, depriving millions of households, disproportionately minority, of home ownership. It would increase commuter travel times and reduce the number of jobs accessible, to the disproportionate harm of lower-income households, especially minorities. The "Smart Growth" movement is a serious threat to the American Dream of home ownership, employment, and prosperity. Far more dangerous than black cats, ladders, and Friday the 13th, it jeopardizes the lives of millions of Americans. The 13 myths debunked below explain why.

Myth #1: Smart Growth Does Not Reduce Housing Affordability. Rationing raises prices. Smart Growth measures ration land by forcing higher densities through urban growth boundaries, excessive impact fees, down-zoning and other restrictions on development. This drives prices higher, making housing less affordable.
While Smart Growth may reduce the supply of urban-fringe land it has many features that can increase consumer affordability, including reduced land requirements per housing unit, reduced parking costs, more diverse housing types (secondary suits, multi-family, loft apartments), more cost effective utility and public services, and reduced household transportation costs. Much of the cost premium for New Urbanist neighborhoods reflects consumer preferences and scarcity, and so is best addressed by expanding Smart Growth to increase the supply of such housing.

Myth #2: Higher Densities Mean Less Traffic Congestion. National and international evidence clearly shows higher densities increase traffic congestion. Per-capita travel by automobile may decline a bit as densities rise, but not enough to keep traffic from getting a lot worse. Adding more of anything to a constricted space--putting more people into smaller urban areas--increases crowding.
As described above, Smart Growth includes many features that can help reduce per-capita vehicle trip generation besides just increased density. Smart Growth emphasizes accessibility *rather than* mobility*, so trip distances are shorter, and Smart Growth gives people more travel options, so they are able to avoid congestion (for example, by walking for local errands and taking grade-separated transit). As a result, people spend less time in congestion delay, even if the degree of local congestion (measured as roadway level of service) increases. It is untrue that increased density (population per acre) increases crowding (population per room) if Smart Growth results in more efficient use of land through smaller lots, multi-story buildings, less land devoted to parking and other design strategies.*

Myth #3. Lower Densities Mean Higher Costs of Government. The smart-growth folks say we can no longer afford our low-density life style, claiming higher taxes and fees are caused by lower densities. But the data show lower-density cities have lower expenditure levels than higher- density cities. Moreover, cities with newer housing stock (second- and third-ring suburbs) have lower public expenditures than central cities and first-ring suburbs.
More than a dozen studies by leading researchers show higher public service costs for dispersed development. The study Cox cites is not relevant, because it measures county-level density and ignores additional private costs for services such as water, sewage, garbage, and differences in wages and service quality between urban and rural areas.

Myth #4: Higher Densities Mean Less Air Pollution. EPA research concludes air pollution emissions are higher where traffic speeds are slower, and emissions are higher where there is more stop-and-go traffic. Higher densities mean more traffic congestion, which in turn means slower traffic speeds and more stop-and-go travel. More tail pipes do not emit less pollution.
Air emission impacts vary depending on circumstances. Although increased development density may increase per-mile vehicle emissions, this is offset by reduced per-capita mileage.

Myth #5: Central Cities Are the Victims of Suburban Growth. America's central cities have lost population, while suburbs have gained. It does not, however, follow that city losses occurred because of suburban growth. Over the past half-century, America has become increasingly urban, as rural residents have moved to urban areas, where they have accounted for much of suburban growth. And cities have driven away many who would have stayed. Cities are hardly the victims here. City residents are: residents who felt they had no choice but to leave, and even more so those who have no choice but to stay, captive to governments qualifying as third world by their performance.

Many studies by urban economists indicate that a variety of public policies favor suburbanization (such as redlining, housing policies that favored new construction over redevelopment, and transportation and infrastructure investments that favor suburban residents) and contribute to urban degradation.

Myth #6: Rail Transit Reduces Traffic Congestion. There is no evidence--none--that new rail transit has materially reduced traffic congestion in any urban area. Building rail is justified principally by an irresistible urge to spend taxpayers' money. The higher the cost, railvangelists claim, the greater the benefit. Of course, the historic rail systems serving the pre-automobile cores of New York, Chicago, Paris, London, Tokyo, or Hong Kong are essential. But Sioux City, Iowa is not Hong Kong. Neither, for that matter, is Portland.
There is considerable evidence that high-quality grade-separated transit services reduce traffic congestion. Corridors with grade separated transit tend to have higher traffic speeds than corridors that lack such service, and cities with large, well-established rail transit systems have 20-50% lower per capita traffic congestion costs than comparable size cities that lack such systems (Litman, 2004a).

Myth #7: Rail Transit Is Needed for Transportation Choice. From Cincinnati to Austin, transit spending advocates quickly abandon their baseless traffic congestion claims when challenged. They shift to what they call "transportation choice"-the idea that building rail transit provides choices for people. But choices for whom? At most, rail transit serves the small percentage of people who work downtown--the only destination to which transit provides what can be considered automobile-competitive service. To provide genuine transit choice for all would require annual expenditures that rival the gross income of any urban area.
Rail transit is not appropriate everywhere, but in some areas it can provide benefits to consumers by improving travel options and providing a catalyst for accessible transit villages, which provide a number of benefits to people who live and work there, and to other regional residents who experience less traffic congestion and pollution emissions (Litman, 2004a). Voters tend to be more willing to support rail transit funding and middle-class travelers tend to be more willing to ride rail than bus transit, suggesting that rail reflects consumer preferences.

Myth #8: We Can't Built Our Way Out of Congestion. This proceeds from the belief that new roadway capacity creates new traffic (the "induced traffic" effect)--suggesting a corollary that building more maternity wards would increase the birth rate. This leads to a further conclusion that, given enough road capacity, Americans will eventually spend 36 to 72 hours per day behind the wheel. More rational minds at the Federal Highway Administration found little induced traffic effect, and even that withers away when travel time (rather than distance) is considered.
Mr. Cox misunderstands the concept of generated and induced vehicle travel. It does not mean that increased roadway capacity increases the amount of time people spend traveling; on the contrary it reflects the tendency of constant travel time budgets, that is, people tend to devote a constant portion of their day to travel and so drive more miles when travel speeds increase. A variety of studies by leading researchers show that a significant portion (40-60%) of added roadway capacity tends to be filled by induced travel over the long-run. This does not mean that roadway capacity expansion provides no congestion reduction benefits, but such benefits decline while the increased vehicle mileage may impose additional costs on society, such as downstream congestion, increased accidents and pollution.

Myth #9: The Jobs-Housing Balance. Planners, the Smart Growth movement claim, should design transportation and land use so as to minimize the distance between work and home. This may be the most bankrupt, and surely the most arrogant, of the Smart Growth myths. Herding cats would have at

least as high a probability of success. According to Census data, barely 20 percent of households consider proximity to work as the principal reason for selecting their home neighborhood. A jobs-housing balance requires other balances as well--jobs-housing-education, jobs-housing-leisure, etc. Are planners really in the best position to decide?
Jobs-housing balance is a general indicator of increased accessibility and land use mix, which can provide a variety of consumer, economic, social and environmental benefits. Current land use policies discourage land use mix – Smart Growth removes restrictions, allowing development of more complete communities. Whether households rank proximity to work first, second or third when choosing a home, there are still many benefits from reducing travel distances to work and services. People shouldn't be prevented from living and working closer together if they choose, since this provides benefits to both individuals and society, yet is currently prohibited by public policies in many communities.

Myth #10: Higher Densities Mean A Lower Cost of Living. Periodically, smart-growth studies emerge claiming household transportation expenditures are higher where densities are lower. But there is more to life than transportation. Housing and food expenditures are so much lower where densities are lower, that any transportation cost advantage for higher density areas is more than erased.
Smart Growth increases housing, transportation and commercial options, letting individual households choose the combination that best meets their needs. Current land use and transportation policies tend to restrict consumer choice and affordability.

Myth #11: Europe Doesn't Sprawl. American urban planners by the thousands have made overseas pilgrimages, frequenting sidewalk cafes across the street from the Louvre in Paris, wondering why Phoenix or Boston looks so different. What they fail to realize is that not even Paris is like Paris. The few square miles of central Paris in which the myopic rail-bound pilgrims sit is in the middle of 1,000 square miles of urban sprawl. The situation is similar throughout Western Europe, where virtually all growth in urban areas has been suburban growth, and where virtually all major cities have experienced population losses. Urban population densities have fallen faster in Europe and Canada than in the United States.
None of Cox's claims indicate that there is anything wrong with Smart Growth. Experience in Europe, and other parts of the world, is highly diverse, with many different patterns. Many regions are applying Smart Growth principles to both urban and suburban development, many are experiencing downtown redevelopment, population growth and reduced automobile dependency, and those that succeed are enjoying significant economic, social and environmental benefits as a result.

Myth #12: Urbanization is Consuming Agricultural Land. Until the Clinton Agriculture Department set them straight, this was one of the principal tenets of the smart-growth movement. In fact, some 400 years after Jamestown, as The Heritage Foundation's Ron Utt always reminds us, only 3 percent of the nation is urbanized: 97 percent of it is rural. There is less agricultural land in the United States than there used to be, but not because it has been consumed by urbanization. Agriculture has become more productive. Since 1950, agricultural production has doubled, and more farmland than the area of Texas and Oklahoma combined has been returned to emptiness: open space.
Many growing cities are located near prime agricultural land, shorelines and other unique greenspace. These areas are threatened by urban development. Even if this is not considered a national threat, many people value having local greenspace and the economic, social and ecological services provided.

Myth #13: Things are Going Our Way. Anti-sprawl types often project their personal experiences into universal truths. Transit ridership increases on a minuscule base are reported as if they represented a major switch in travel behavior; going from 10 riders to 20 represents a touted 100 percent increase.

Friends move into chic new urban developments, leading some to claim people are forsaking suburbs for the city.

There are indications that many people prefer Smart Growth communities and society benefits overall from Smart Growth. Many professional organizations, such as the Institute of Transportation Engineers, the National Governor's Association, and the American Planning Association support Smart Growth. Only time will tell how much Smart Growth is implemented.

Cox's Summary

Someone should teach these people to use simple reference books, like The World Almanac, which can be easily obtained at the nearest big box store.

Memo To Wendell Cox: Density And Vision Are Not Anti-Market
Robert Steuteville, *Better! Cities & Towns* (http://bettercities.net/news-opinion/blogs/robert-steuteville/17866/memo-wendell-cox-density-and-vision-are-not-anti-market)

Last week I wrote a somewhat tongue-in-cheek response to Wendell Cox's *Wall Street Journal* commentary "California Declares War on Suburbia," in which he predicts dire consequences from Smart Growth policies that promote density and mixed-use.

Let's give Cox his due. An excellent piece in *The New Republic* by Jonathan Rothwell titled "Low-Density Suburbs Are Not Free-Market Capitalism" notes that Cox is right to criticize burdensome land-use regulations, but that he is flat-out wrong on density. Says Rothwell:

> *Cox is right to link land regulations in California to higher housing costs, but he is wrong to defend anti-density zoning and other forms of large-lot suburban protectionism. The proposed changes in the Bay Area take a step in the right direction by allowing higher density in their supply-constrained metropolitan areas. Indeed, more suburban governments should free up housing markets from their long-standing anti-density bias and adopt more market-based approaches to housing.*

Rothwell's point can be extended to mixed-use. Zoning laws and local land-use controls mostly restrict density and mixed-use. Planning to include higher density and mixed-use is a needed correction for nine decades of restrictions on such development (since zoning was adopted in the 1920s).

Another idea that is critical to this discussion should not be overlooked: vision. The first President Bush famously derided "That Vision Thing," but it was a key aspect of what made cities and towns great. As Arizona State University professor Emily Talen documents in her recent book *City Rules,* land-use regulations in the 19th and early 20th centuries were distinguished by their simplicity and their commitment to a vision.

Most US cities and towns were laid out by "town founders" or "town fathers" with a very clear idea of how they should be arranged spatially — and this was done prior to letting the free market take over. George Washington, no less, laid out the City of Alexandria, Virginia — to this day one of America's great walkable, vibrant, dense urban centers. It represents much of what Cox apparently dislikes about planning. Its property values in the last decade have held up far better than those in the exurbs and low-density suburbs that Cox puts on a free-market pedestal.

Throughout the last three-quarters of the 20th Century, land-use regulations were made more and more complex, and they were relentlessly stripped of any sense of “spatial logic” and of an overall vision of how communities should look, Talen explains.

If we are to simplify land-use regulations and make them more fair, we need some of that vision back. That's what many of the Smart Growth plans attempt to do — especially the ones that look to transform single-use, automobile-oriented strip commercial corridors into mixed-use boulevards and avenues. That's not against the free market — it's more sensible public policy that supports where the market is already heading.

Gilles Duranton and Matthew A. Turner

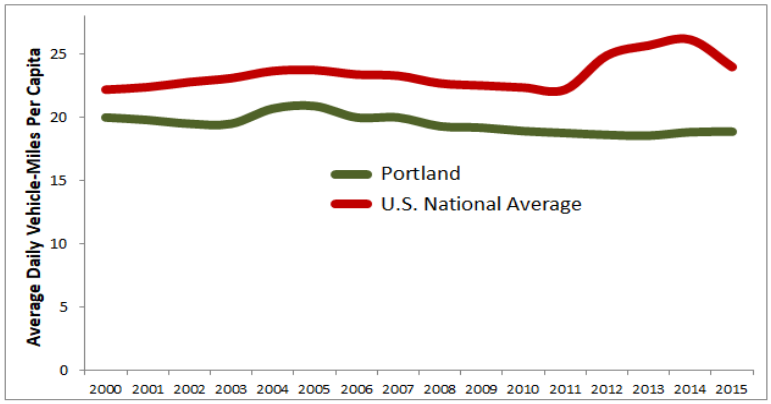
The article, "Urban Form and Driving: Evidence from US Cities" (Duranton and Turner 2018) argues that Smart Growth policies are ineffective and economically inefficient ways to reduce climate change emissions, based on statistically sophisticated analysis of how development density changes affect per capita vehicle travel. They conclude that, all else being equal, a 10% increase in population density only provides 0.7% to 1% decline in driving. However, their analysis makes several errors which underestimates Smart Growth impacts and benefits.

They assume that Smart Growth consists only of increasing density, ignoring other strategies such as improving travel options (walking, bicycling, ridesharing and public transit services), increasing roadway connectivity, complete streets policies, reduced parking supply and increased parking pricing. Other studies find that a combination of these strategies, often called Transit Oriented Development (TOD), typically reduces per capita vehicle travel by approximately half (Arrington and Sloop 2019; Schneider, Handy and Shafizadeh 2014).

To support their argument that Smart Growth policies can only achieve small vehicle travel reductions Duranton and Turner state, "Despite its widely recognized (and often praised) adoption of smart growth policies, the metropolitan area of Portland saw its population density weighted at the census tract level go up by only 9% between 2000 and 2010. Portland remains the 24th densest metropolitan area in the U.S."

According to their model a 9% density increase should reduce vehicle travel less than 1%, yet residents' average vehicle travel declined 6%, from 20.0 daily VMT in 2000 to 18.9 in 2015, compared with a national 8% increase, from 22.2 to 24.0 daily VMT, as indicated in the following graph. In contrast, residents of the sprawled city of Atlanta experienced a 1% increase vehicle travel increase, from 33.8 average daily VMT in 2000 to 34.2 in 2015 (FHWA 2000 and 2015). This indicates that Portland's various Smart Growth policies are successful in reducing vehicle travel.

Figure 13 **Portland Versus U.S. Average Daily Vehicle-Miles** (Metro 2018)



Between 2000 and 2015 Portland's population density increased by 9% while residents' average per capita vehicle travel declined 6%, compared with an 8% increase nationwide. As a result, Portland residents average 21% fewer annual miles than the U.S. average despite strong employment and wage growth.

Duranton and Turner imply that Smart Growth policies are inefficient at reducing emissions and wasteful. For example, they argue that shifting the lowest density decile (10% of households) to the highest density locations would only reduce total driving by 5.1%, and that this would require abandoning about one million houses worth an estimated 200 billion dollars, and provide only $25 million annual external cost savings.

However, this inaccurately portrays Smart Growth policies and impacts. Consumer surveys indicate large and growing demand for housing in walkable urban neighborhoods. The National Association of Realtor's 2017 Community Preference Survey found that 51% of household would prefer living in a walkable and accessible neighborhood, even if it required living in a townhouse or apartment, over a detached house in an automobile-dependent area. This preference is rational: living in a walkable urban neighborhood can provide many benefits to residents including transportation cost savings, more independent mobility for non-drivers and reduced chauffeuring burdens for drivers, improved safety and health, and increased long-term wealth generation if vehicle cost savings are spent on higher value housing (Litman 2016).

The Survey found that 21% of U.S. households are located in automobile-oriented locations but would prefer living in a walkable urban neighborhood, indicating significant latent demand of such housing. Current development policies – restrictions on building size and density, minimum parking requirements, and automobile-oriented transport planning - discourage compact infill in most urban neighborhoods. Smart Growth policies reduce these obstacles, allowing housing markets to better respond to unmet consume demands for compact housing in walkable urban neighborhoods. To the degree that this is true, Smart Growth policies provide direct savings and benefits that increase consumer welfare, in addition to external benefits such as reduced public infrastructure and service costs, reduced traffic costs, and environmental protection.

Duranton and Turner cite an external vehicle travel cost estimate from Parry et al. (2007), an outdated reference which ignores many costs that are now widely-recognized including road and parking facility costs not borne directly by users, barrier effects (delays that roads and motor vehicle traffic impose on pedestrians and bicyclists), vehicle fuel production external costs, and climate change impacts. Similarly, as evidence that fuel price elasticities declined during the last decade they cite Hughes, Knittel and Sperling (2015), but that date was an error, the article was actually published in 2006 and is outdated: more recent analysis indicates that fuel price elasticities are much higher their estimate (Litman 2012).

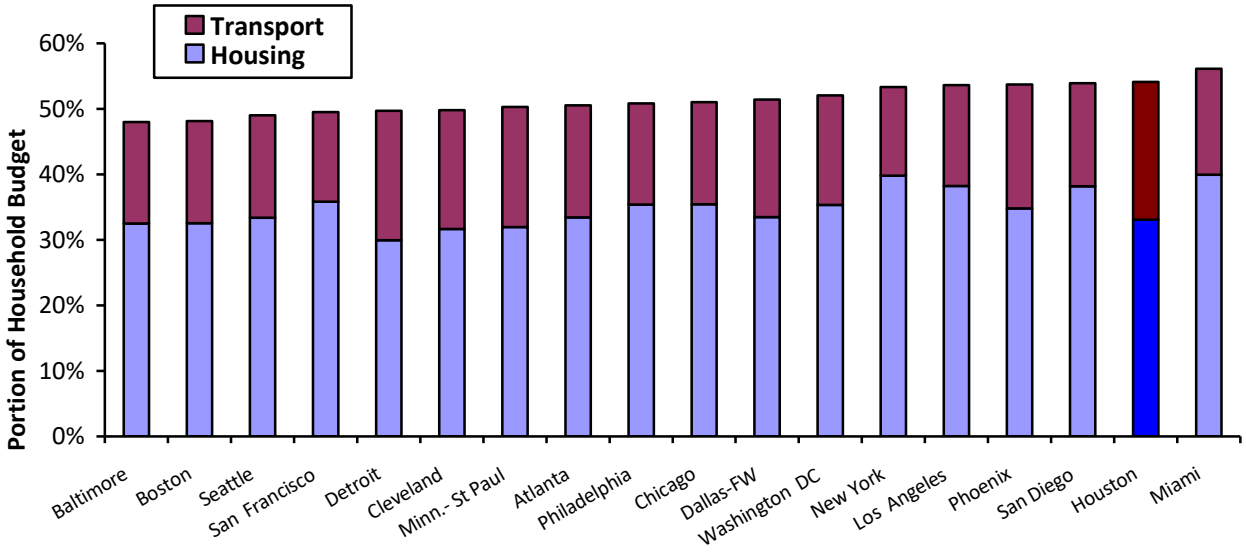
Duranton and Turner argue that pricing reforms, such as carbon taxes and congestion pricing, are more cost effective emission reduction strategies than Smart Growth, but they are actually complements: pricing reforms are more effective and politically acceptable if citizens live in compact, multi-modal communities with diverse mobility options where residents can more easily reduce their vehicle travel.

Tory Gattis

The report, *Maximizing Opportunity Urbanism With Robin Hood Planning* (Gattis 2015) advocates various policies to increase economic opportunity for disadvantaged residents. This is an admirable goal, and to be fair, the report recommends diverse policies, including pedestrian improvements and affordable infill housing development, but favors automobile dependency and sprawl. It is Smart Growth criticism "lite."

Gattis argues that Smart Growth policies reduce affordability, ignoring research, such as the *Housing and Transportation Affordability Index* (http://htaindex.cnt.org), and analysis by Ewing and Hamidi (2014), which indicate that sprawl increases total housing and transport costs, and these costs tend to be lowest in compact, multimodal neighborhoods. Gattis bases his arguments on *C2ER Cost of Living Index* data, which, contrary to Gattis's claims, is *not* an affordability indicator. The Index compares the prices of various goods typically purchased by affluent (top income quintile) households; it is intended to help determine how management professional wages should be adjusted in different cities. It does not reflect lower-income household purchases or many Smart Growth savings, such as lower vehicle and utility costs. For example, the Index measures variations in gasoline prices and vehicle repair rates, but not variations in the number of vehicles household own or the annual miles they drive, and therefore the savings provided by more compact, multimodal neighborhoods. Similarly, it measures the prices of large, single-family houses (excepting in Manhattan), and so fails to account for the savings provided by more compact housing types, such as townhouses and apartments.

Figure 14 **Housing and Transport Spending By Urban Region, 2013** (BLS 2015)



Houston households spend the largest portion of their incomes on transportation of all 17 urban region, and rank second in housing and transportation combined, exceeded only by Miami.

Gattis concludes that Houston, Texas is the most affordable North American city, but data from the *Consumer Expenditure Survey*, tell a very different story. Although Houston households spend a relatively small portion of their budgets on housing (33.1%), they spend the most on transport (21.0%) of the seventeen cities surveyed, resulting in the second highest combined housing and transport spending (54.1%), exceeded only by Miami (56.1%) as illustrated in Figure 14.

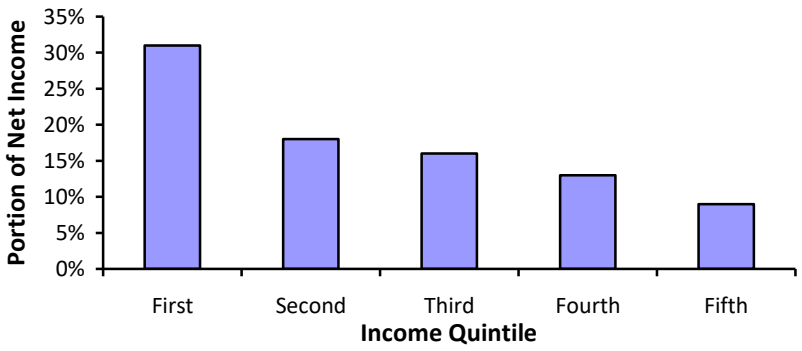
Gattis ignores basic data which would test his claims. Texas in general and Houston in particular fare badly with regard to economic outcomes (US Census 2015): they have low average incomes, high poverty rates (particularly for children), low education attainment (29% of adults have a Bachelor's degree or higher, compared with 33% nationwide), and very low homeownership rates (only 45% of households, compared with 64% nationwide). This certainly belies Gattis' suggestions that sprawled, automobile-dependent cities such as Houston increase economic mobility.

Gattis's argues that high household transportation spending does not necessarily indicate inaffordability. He writes, "when it comes to calculating transportation costs, it is important to strip out the luxury component of the data. If a city has a low cost of living, many people may splurge on very nice luxury vehicles and SUVs – and thus look like they have high transportation costs (a common mistake in many studies) - but it's important not to confuse that with the basic cost of transportation in that city. It can make suburban densities look far more expensive than they are in reality, where a basic used Honda Civic or Toyota Prius or an even less expensive car is just as effective for getting around as a BMW but at far lower cost."

This comment indicates that Gattis does not understand the problems facing low-income households, many of which struggle to own and operate even the cheapest cars. Although lower-income motorists use various strategies to minimize their costs, such as owning cheap, older cars and performing some of their own repairs, their vehicles tend to be costly to operate and unreliable. Including fuel, maintenance, repairs, insurance, and registration costs, owning and legally operating an automobile generally costs at least $3,000 annually, and more if driven high annual miles. According to the Consumer Expenditure Survey (BLS 2015), the lowest income quintile spends, on average, $3,074, per vehicle, which is an unaffordable 31% of their average income. For low income households, affordability requires minimizing vehicle ownership and use, by sharing vehicles among multiple drivers or being carfree, and relying on more affordable alternatives as much as possible. This requires living in a neighborhood with good transportation options. In contrast, sprawl forces households to rely on automobiles, even if that is unaffordable, because there is no reasonable alternative.

If Gattis were correct, that high vehicle expenditures reflect spending on luxury vehicles, these costs would be progressive, that is, they would increase as a portion of spending with wealth. They certainly are not, as illustrated in Figure 15. For most lower-income households, owning even a basic, inexpensive vehicle is a major financial burden.

Figure 15 **Vehicle Expenses As Portion of Household Income, 2013** (BLS 2015)



Vehicle expenditures are regressive: they are a much larger portion of income for poor than affluent households.

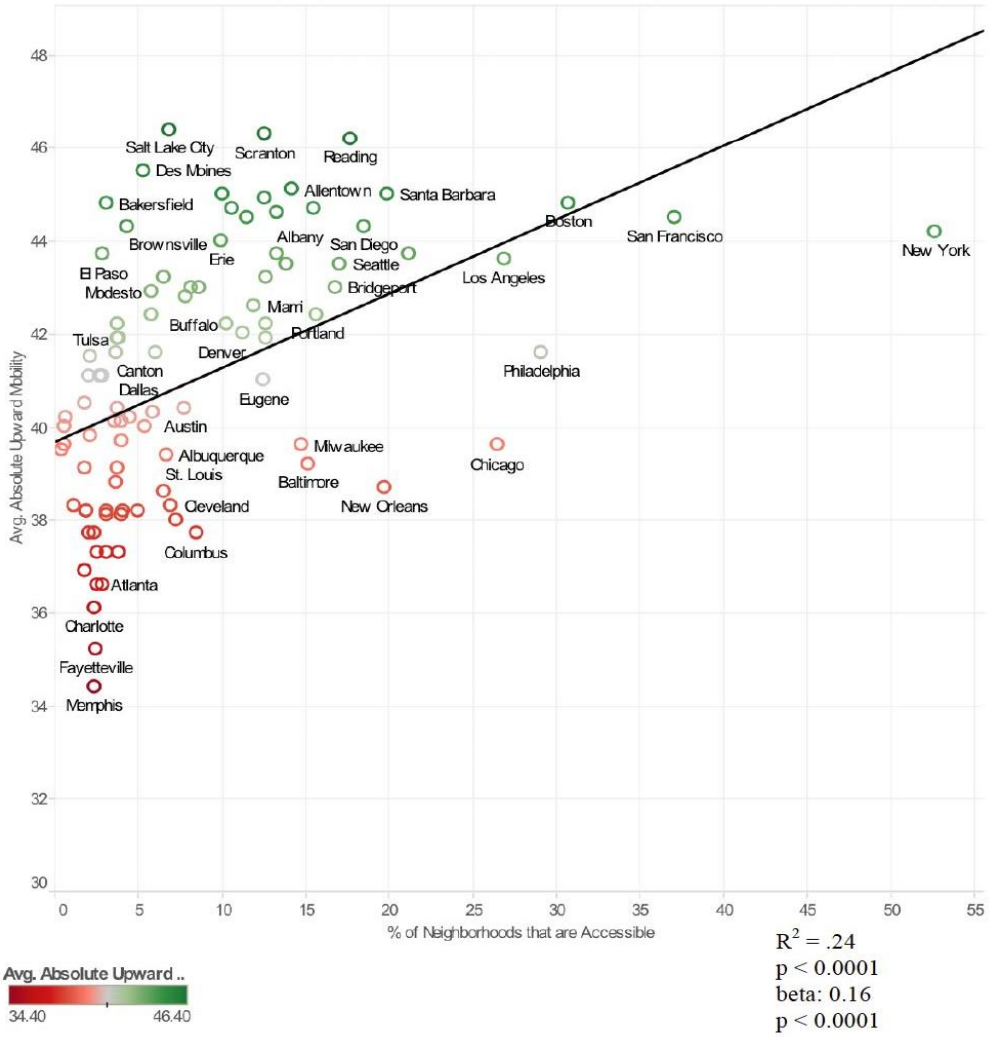
Gattis cites studies showing that automobiles allow commuters to access more jobs than other travel modes, and that lower-income workers located in automobile-oriented cities tend to work longer hours and earn more money if they have a car. Certainly automobiles can increase job opportunities, some jobs require workers to own a vehicle, but he ignores three important factors:

- *Automobiles are costly*. Even if given a vehicle, users must pay for fuel and parking, insurance and registration fees, maintenance and repairs which typically total hundreds of dollars per month, costs which significantly reduce the net income gain. As a result, workers are financially better off overall if they can reach jobs using more affordable modes. For example, if a better job increases a worker's wages $500 per month, their net gain is $200 per month if the job requires $300 per month in additional vehicle expenses, but $400 a month if it requires $100 per month public transit fares, and $475 if it only requires $25 per month in additional expenses for walking and cycling. More affordable transportation is equivalent to increased income!
- *Many lower income workers lack driver's licenses*, and so cannot benefit from car ownership.
- *Most studies showing the benefits of car ownership are performed in automobile-dependent areas*, so the logic is circular: that workers in such cities need cars to access job does not prove that improving alternative modes and creating more compact, multi-modal communities, cannot significantly increase economic opportunity.

In fact, good research indicates that Smart Growth does increase economically-disadvantaged resident's economic opportunity. For example, studies show that Smart Growth policies tends to increase poor resident's economic opportunity by reducing concentrated poverty and improving access to education and employment (Cortright and Mahmoudi 2014). Using data from the *Equality of Opportunity Project* (Chetty, et. al. 2014), Ewing and Hamidi (2014) found that in the U.S., each 10% increase in their Smart Growth index is associated with a 4.1% increase in residents' upward mobility (probability a child born in the lowest income quintile reaches the top quintile by age 30). Gattis cites this research, but misrepresents its findings: although he implies that

automobile transportation increases economic opportunity, the study actually found greater economic mobility in accessible, multimodal neighborhoods, as illustrated in the following figure.

Figure 16 **Accessibility Versus Upward Mobility** (Talen and Koschinsky 2013)



Economic mobility (children born in poverty becoming economically successful as adults) is greater for households living in more accessible, multimodal neighborhoods.

Similarly, a major modelling study by Mineta Transportation Institute researchers, *Equity Analysis of Land Use and Transport Plans Using an Integrated Spatial Model* (Rodier, et al. 2010), concluded that more compact urban development designed around transit stations tends to reduce total travel and housing costs, leading to substantial net benefits for lower income households, since they place the most value these savings.

Similarly, the *Moving To Opportunity* study found no economic benefit from automobile-dependent neighborhoods. This unique experiment randomly assigned lower-income households to various housing location options (Ludwig, et al. 2013). The results indicate that, although households that moved from impoverished urban neighborhoods to mixed-income, suburban neighborhoods experienced health benefits, they achieved no greater economic self-sufficiency (employment and income) than control households that remained in impoverished neighborhoods, apparently because the automobile-dependent suburban neighborhoods provide less access to appropriate employment opportunities (Sanbonmatsu, et al. 2011).

Gattis points out that a 40% increase in travel speed doubles geographic accessibility (the area that can be reached within a given time period), but ignores research showing that increased development density and mix provides far greater increases in accessibility (Levine, et al. 2012). This indicates that Smart Growth policies that result in more compact and mixed development can do more to increase disadvantaged workers' employment opportunities than policies that increase travel speeds.

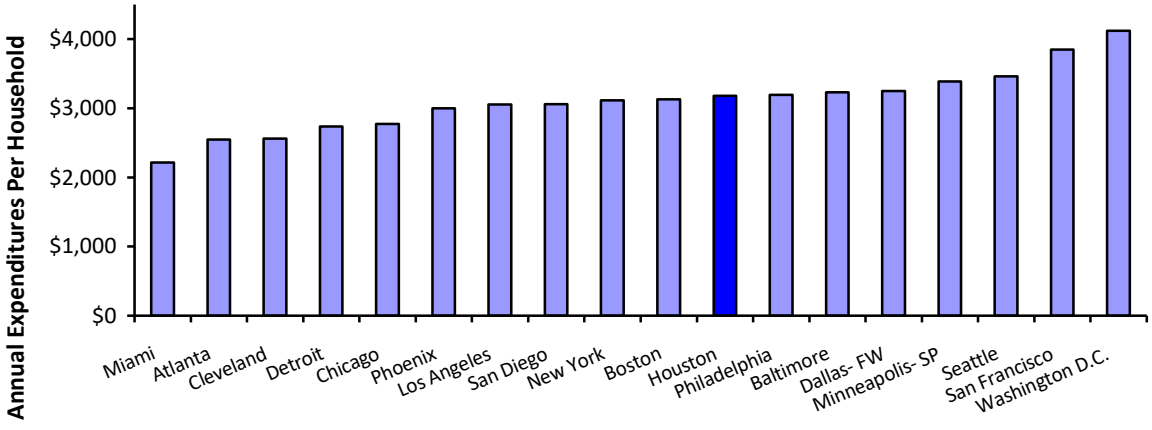
Gattis is inaccurate and unfair when he claims that planners are unconcerned with increasing economic opportunity for disadvantaged people. On the contrary, most planners I know are very concerned about this issue: They are often the primary advocates for disadvantaged groups in the planning process, and despite criticism and personal threats, for example when presenting proposals for multi-family housing to neighborhood groups, they work hard to improve affordable housing and transport options for the sake of improving economic opportunity.

Gattis argues that Smart Growth consists of "draconian" regulations which "socially engineer" households into high-density, transit-oriented developments, but is not specific. Smart Growth reduces restrictions on development density and mix in residential neighborhoods, reduce parking requirements, create more multimodal transport systems, and encourage employment near high quality transit (bus or rail). Academic studies find that these policies are less common and influential than pro-sprawl policies (Levine 2006; Lewyn and Jackson 2014), and automobile-oriented facilities continue to receive the majority of transport funding. As previously discussed, there is also good evidence of growing consumer demand for housing in compact, multimodal neighborhoods, and serving this demand can provide community benefits including reduced traffic and parking congestion, infrastructure costs and traffic accidents. Most North American cities, particularly Houston, have an abundant supply of sprawl housing and are building more; but market surveys indicate a growing shortage of housing in compact, multi-modal neighborhoods (NAR 2011).

Most of the report's citations are from pro-sprawl policy institutes, such as the Reason Foundation and New Geography, or newspaper articles; there are few professional or academic publications. Some of Gattis' evidence is misrepresented or silly.

- Arguing that smaller houses force parents to have fewer children, it cites a newspaper article, "How many kids are enough?" (http://bit.ly/1gu7U0J), which actually makes no such claim; it actually states that smaller families result from women working more, marrying later and having better birth control options.
- Arguing that automobile dependency does not preclude walkable neighborhoods, the report state that, "Houston, for example, is auto-dependent and also has scores of planned communities that use some New Urbanist concepts." This shows misunderstanding of urban planning principles; isolated planned communities cannot solve most problems of automobile dependency and sprawl, such as high infrastructure and household costs, traffic accident rates, and inadequate accessibility for non-drivers.
- Arguing that rail transit investments are wasteful, the report cities various New Geography, Reason Foundation and LA Weekly blogs, but no academic or professional publications. Although studies which only consider congestion reduction impacts often conclude that rail transit is cost inefficient, more comprehensive studies that also consumer savings, parking cost savings and safety benefits tend to give rail transit investments positive ratings.
- Arguing that Houston residents have far more money for discretionary spending, it cites a Zagat survey noted that Houstonians dine out 30% more frequently than any other major U.S. city, but Zagat is just a restaurant review website, it is not comprehensive or scientific. The survey simply indicates that Houston's Zagat reviewers spend more than their reviewers in other cities. The U.S. Consumer Expenditure Survey, which is comprehensive and scientific, shows that Houston' "Food away from home" spending is average; far less than Smart Growth cities such as Seattle, San Francisco and Washington DC, as illustrated below.

Figure 17 **Annual "Food away from home" Spending, 2013** (BLS 2015)



Gattis claims that Houston households spend more at restaurants than in other cities, based on a biased Zagat survey, but objective data indicate that Houston's restaurant spending is average, exceeded by smart growth cities such as Seattle, San Francisco and Washington DC.

I agree with Gattis that improving economic opportunity is an important planning goal, which requires that disadvantaged households have efficient and affordable access to schools, jobs and services. Since most (60-80%) of vehicle expenses are fixed, affordable transport requires living in accessible, mixed, multimodal neighborhoods where it is possible to minimize vehicle ownership. This does not mean that all lower income households should forego automobiles; certainly for some, automobile ownership is important for accessing education, employment and services, but many lower-income households benefit from minimizing their vehicle costs by sharing a car among multiple drivers, or carsharing rather than owning a personal car, and minimizing their annual mileage. This is only feasible for households in accessible, multimodal areas.

Smart growth in general, and transit-oriented development in particular, are the planning strategies to make this occur; for example, residents of transit-oriented neighborhoods own half as many vehicles on average, and spend far less on transport overall, than the same demographic groups do in sprawled locations (Arrington and Sloop 2009; CTOD and CNT 2006). Yet, Gattis criticizes these strategies based on evidence which ignores these cost savings and the benefits of improved accessibility for non-drivers provided by smart growth and TOD.

To his credit, Gattis wants to help disadvantaged households, supports affordable infill housing, and recognizes the value of neighborhood walkability, but he ignores many costs of sprawl and assumes that Smart Growth consists primarily of regulations that force households into high-density developments, when, in fact, many of the outcomes he desires, such as more affordable infill development and more multimodal communities, require Smart Growth policies.

Edward Glaeser and Matthew Kahn

Glaeser and Kahn (2003) use neoclassic urban economic analysis to argue that sprawl is economically efficient and beneficial, resulting from increased private wealth and associated increases in automobile travel. To support this argument they provide statistical evidence that sprawl is ubiquitous, that it reflects the technical superiority (increased travel speed) of automobile transport, and that the external costs of sprawl are minor compared with its social welfare benefits. They conclude that sprawl should be increased to allow more lower-income people to enjoy the benefits of dispersed land use and automobile dependency.

Although Glaeser and Kahn acknowledge that market distortions increase sprawl and automobile use, they assume that these impacts are minor overall, and so current land use and transport patterns are overall optimal. For example, they acknowledge that about a third of highway expenditures are subsidies (i.e., not user fees), but counter that this is small compared with the total automobile costs (they do not mention the much greater subsidy of driving from unpriced parking), and offset by transit subsidies. They ignore more general social traps, such as the economic and social problems that result when individual communities attempt to exclude "undesirable" residents.

Like other critics they use highly aggregate data to claim that there is plenty of land available for development ("Ninety-five percent of the land in this country remains undeveloped") and so conclude urban expansion imposes no significant social or environmental costs. They acknowledge that sprawl may impose some externalities, including increased traffic congestion, excessive pollution and inefficient land use patterns (due to exclusionary zoning imposed by individual jurisdictions), and in response advocate various Smart Growth strategies such as road pricing and development policy reforms.

Glaeser and Kahn accept travel time benefits of automobile travel at face value and fail to consider the associated economic traps, that is, that the benefits of increased travel speeds may be offset by more dispersed destinations, higher travel times for non-drivers, and increases in other social costs such as pollution and accidents.

Although Glaeser and Kahn provide convincing evidence that some amount of automobile transport and urban expansion may be economically justified, they fail to prove that current land use and transport patterns are optimal or that Smart Growth is harmful. In fact, they support many Smart Growth strategies, such as road pricing (and assumedly parking pricing), more efficient pricing of public services, and reductions in exclusionary zoning. They do not examine the degree to which sprawl and automobile use would decline if these strategies were implemented, but as discussed earlier in this paper, available experience indicates that such strategies significantly change consumer behaviour (Litman 2002). Thus, their research suggests that Smart Growth is justified on economic efficiency grounds, and that the resulting land use patterns would be significantly less sprawled and less automobile dependent than what currently exists.

Peter Gordon and Harry Richardson

Gordon and Richardson (1997 and 2000) raise a number of objections to Smart Growth, including that it reflects a socialist/collectivist ideology which contradicts private property rights, reduces consumer benefits and increases inequity, is harmful to the economy, is unjustified, and is based on failed regulatory techniques.

Gordon and Richardson argue that current land use and transportation markets are efficient because "developers already offer a wide range of community and housing choices," and because there are a large number of independent contractors in the residential market. They ignore most categories of market distortions and claim that the impacts of any distortions and subsidies are exaggerated, citing one paper published in 1985 ("The Economics of Zoning Laws: A Property Rights Approach to American Land Use Controls" by William Fischel) to prove that "Urban economists have found that the alleged subsidies – to the extent that they exist – are minor and have little effect at the margin." Similarly, they interpret a 1999 GAO study on the impacts of federal policies on land use development as proof that "not all government interventions that influence land development have had a suburban bias," certainly not proof that land use markets are efficient.

They assume that Smart Growth consists primarily of urban growth boundaries to increase density and rail transit projects, and that this significantly raises housing costs and reduces consumer housing and transportation options. They do not consider other Smart Growth strategies, and dismiss the idea that a significant portion of consumers may value having alternative housing or transportation options.

Joel Kotkin

Social commentator Joel Kotkin (www.joelkotkin.com) published an article in a Portland paper criticizing the city's Smart Growth policy on grounds that they are exclusive and elitist. Below are responses to some of his claims by law professor Michael Lewyn (2005b).

Kotkin: Few cities in North America are as widely feted as Portland. For many, Portland represents the epitome of "smart" urbanism, a paragon that puts other, less-brainy places to shame. Pilgrims travel once or twice a month from as far as California and Canada to study Portland's transit system, economic development and land-use strategies. Lots of educated people, trees, clean air and good buzz help Portland get on all the right lists – from "most livable," "most fit," "healthiest," "most competitive," "most literate" and "best for walking." It's enough to make even a modest city booster blush. But before you all turn red, is all this praise deserved? Much like its bigger soul mate, San Francisco, Portland isn't an old-style "city of big shoulders" but a lifestyle choice for the enlightened elite. They're the people who read more than average, walk or bicycle regularly and drink lots of good coffee.
Lewyn: Note the naked class warfare appeal. How dare they drink good coffee? And what the heck is a "City of Big Shoulders" anyhow?

Kotkin: Portland is becoming what I call an Ephemeral City. What do ephemeral cities do? Not much by traditional standards. They don't create a lot of jobs for working or middle-class people. Instead they mostly exist to celebrate themselves and provide an attractive setting for visitors and would-be migrants.
Lewyn: Only 10.3% of Portland households earned over $100,000, according to the 2000 Census. Only 9.9% of them had income under $10,000 per year. That leaves about 80% of Portland households in the "working and middle classes." That seems like a lot of working- and middle-income households to me. By contrast, in Houston (a city Kotkin praises a few paragraphs down) 11.8% of households earn more than $100,000 (MORE than Portland's 10.3%) and 11.6% earn under $10,000 per year (again, slightly MORE than Portland's 9.9%). In other words, Portland has MORE working- and middle-class people than Houston. Presumably most of them have jobs. So Portland may actually have more middle- and working-class jobs than Houston. Maybe Kotkin doesn't think that Portland jobs are "real" jobs. If so, he should educate readers on what his "traditional standards" are and why Portland meets them less than Houston does.

Kotkin: But can a city survive – and thrive – primarily as a marketer of an urban experience?
Lewyn: And the evidence that Portland in fact survives "primarily as a marketer of an urban experience" is, um, um.... well, I don't know because Kotkin doesn't tell the reader.

Kotkin: An ephemeral city doesn't compete with lesser places – you know, those ugly cities with functional warehouses and factories, Wal-Marts and strip malls – for jobs, companies or investors. An ephemeral city's economy relies largely on a high level of self-esteem among its residents.

Lewyn: No "functional warehouses and factories?" Then how come 12.5% of Portlanders work in manufacturing (again, MORE than Houston's 10%). And according to the Wal-Mart website, there are actually two Wal-Marts in Portland zip codes, and a few more in neighboring cities. And where there are Wal-Marts, I think there are probably strip malls. But I'll have to concede one point to Kotkin: evidently he has somehow learned that those Wal-Marts and factories rely on their customers' and employees' "high level of self-esteem." I know how to dig up information on Census websites, but they don't give me any information on cities' self-esteem levels.

Kotkin: Four decades ago, author Neil Morgan used the term "narcissus of the West" to describe an already self-indulgent San Francisco. Now it's time for the City by the Bay to move over -- the City of Roses wants to take its place in front of the mirror. To some extent, this high regard, like that of any well-chiseled middle-age narcissist, reflects something of a Portland reality. Portland, as its boosters are forever telling everyone, is a physically attractive place. Parts of the city – like the much ballyhooed Pearl District – look very much like famed urbanist Jane Jacobs' idealized urban district. Rhapsodizers often miss the differences between Portland today and Jacobs' gritty Manhattan neighborhoods of more than 40 years ago. Those New York areas were home to large numbers of families and immigrants; they boasted both real bohemians (those without money) as well as people who worked with their hands. Most residents were there for employment and family; many hoped they'd move up into a nicer neighborhood someday.

Upward mobility was the common theme of the time. Urbanites wanted to get ahead – not "soak" in the ambience – and saw the city as a means to get there. "A metropolitan economy, if it is working well, is constantly transforming many poor people into middle class people…greenhorns into competent citizens," Jacobs suggests. "…Cities don't lure the middle class, they create it." Contrast that with genteel Portland, which increasingly places its bet largely on luring the hip, cool, iPod-toting creative class – "the young and the restless," as one story recently put it. These hipsters are supposedly the engine of the city's future.

Lewyn: *Who is the "Portland" Kotkin refers to? The mayor? The city council? His friends who live in Portland? And whoever Kotkin defines as "Portland", how can it "place its bet" on anything? ? Has Kotkin visited Portland's bookie population to find out what the city's residents are betting on? Has the city council passed some sort of law stating that "we only want the hip, cool, iPod-toting creative class" but excluding "real bohemians . . . as well as people who worked with their hands"? I don't know. And Kotkin doesn't tell us.*

Kotkin: But who isn't high on this agenda? Certainly it can't be families. Portland already has one of the lowest percentages of little tykes among American cities. The city schools are emptying out, down 14 percent in 10 years.

Lewyn: *According to the 2000 Census, there are about 112,000 people under 18 in Portland. (And according to the 2004 Census estimate, there are now 113,000 under-18 Portlanders). By contrast, in 1990 there were just over 95,000. So the number of Portlanders under 18 has increased by about 17 or 18% since 1990. Kotkin's statement*

that Portland has one "of the lowest percentages of little tykes among American cities" is both meaningless and contradicted by Census data. Meaningless because Portland is growing, which means that its population is increasing among all age groups even if the percentage of its population in the under 18 age group is small. By contrast, many cities are losing population hand over fist (as Kotkin himself has pointed out in numerous articles).

And wrong because Portland is not significantly less child-oriented than many other cities. As of 2000, 6.6% of Portland residents were under 5- only slightly fewer than the 7% national average. 21.7% of Portlanders were under 18, compared to the 25.5% national average. Less than the national average? Sure. But more than a lot of other cities- for example, both hip Boston (5.4% under 5, 19.8% under 18) and anything-but-hip Knoxville (5.9% under 5, 19.7% under 18). According to the 2000 Census, 16% of Portland households were married couples with children. That's almost as high as the national central city average (18%), and higher than such brawny, un-hip cities as Buffalo (12), Knoxville (13), Louisville (12), Richmond (10), Baton Rougte (15) and Birmingham (13). The lowest, Washington, clocks in at 8 percent. In other words, Kotkin is just dead wrong.

Kotkin: Nor, despite the obligatory liberal genuflection, it can't be ethnic minorities, either. Portland has one of the lowest percentages of minorities and immigrants of any major city on the Pacific Coast. Hardworking Latin laborers or opportunistic Asian traders -- the canaries in the economic coal mine -- seem to be opting instead for less-lovely but more commercially vital places such as Los Angeles, Phoenix or Houston.
Lewyn: It is true that Portland is less Hispanic than the cities Kotkin mentions (perhaps because they are closer to Mexico). But on the other hand, Portland is becoming more like those cities over time. Between 1990 and 2000, Portland's Latino population more than doubled (from just under 14,000 to about 36,000). Portland's Asian population increased from about 23,000 to about 33,000 (a 40% increase). And Kotkin's "opportunistic Asian traders" (to use his stereotype-clogged language) actually seem to prefer Portland to Houston and Phoenix. Portland's population is 6.4% Asian, while Houston's is 5.3% Asian and Phoenix's is 2% Asian.

Kotkin: If they're the leading drivers of Portland's future, what is the local "creative class" creating? So far, nothing exceptional in the way of jobs or new companies. Now clearly on the rebound, Oregon's economy started lagging the country's five years ago. But so far the data suggests that the rebound is stronger in places like Medford and Eugene, as well as the burgeoning suburbs which, compared to their high-priced counterparts in California, are attractive not so much to hipsters but to families.
Lewyn: See data above (noting that Portland continues to attract families). And Kotkin's point would be more persuasive if he actually cited some data instead of referring ominously to unspecified "data."

Kotkin: "People like the downtown, but the growth is elsewhere," notes local economist John Mitchell. But the economy isn't the only place suburbia is doing better than the sophistos suggest.
Lewyn: *Note the pointlessly insulting reference to "sophistos." This sort of writing belongs in a high school newspaper.*

Kotkin: Like the "creative class," the city's much ballyhooed "green" planning policy has been less than wildly successful. Even before Al Gore, looking out from one of his estates, discovered sprawl, Portland's planners declared war on single-family homes, backyards and insufficiently dense development. To stomp out such deviant behavior, the city – to the hosannas of the planning profession – proudly imposed tough restrictions, notably the urban growth boundary, on new development.

COMMENT: According to the Census Bureau, over 60 percent of Portland's housing units are single-family homes. This hardly constitutes "war on single-family homes." The urban growth boundary affects where single-family homes and other development is built, not whether it is built. In fact, the number of single-unit detached structures (i.e. single-family houses) in Portland increased during the 1990s, from 124,000 to 143,000.

Kotkin: Unfortunately, Portland's green urbanism has produced some unexpected results. As regulation helped boost the housing prices in the close-in areas, the middle class has moved farther and farther out. It turns out that most families – yes, they still exist – usually opt not to raise their kids inside sardine cans if they can at all help it.
Lewyn: *On the one hand, Kotkin says Portland isn't attracting immigrants. On the other, it isn't attracting the "middle class" either. So who are those 17,000 children who moved to Portland between 1990 and 2000? And as noted above, Portland has plenty of people with middle-class incomes.*

Kotkin: So Portland's sprawl has continued to spiral about as much, or even more, than most American regions, notes demographer Wendell Cox.
Lewyn: I think this argument is not completely nuts. But it seems to contradict Kotkin's attacks on the evils of Portland's planning system. Either Portland is not like everyplace else (in which case we can argue about the merits of the policies that led to that situation) or it is like everyplace else. If the latter is correct, there's no point attacking Portland's policies because obviously they are not radical enough to have a significant impact on anything.

Kotkin: Over the past few years Portland's population growth has slowed considerably, with the overwhelming majority of the Portland area's increases coming outside the city limits, and that percentage appears to be growing. Some of this may be traced to the little-acknowledged fact about the creative class – at some point many grow up and move out. One prime destination appears to be fast-growing Washington County, which beat the pants off Portland in a recent ranking of most-tech-savvy places in USA Today.

Lewyn: Kotkin does have a point here. The 2004 Census estimates were less kind to Portland than the 2000 Census data. But three caveats: First, many other cities actually lost population - as Kotkin himself has pointed out (e.g. www.joelkotkin.com/Urban_Affairs/WP%20City%20Of%20the%20Future.htm*) compared to those cities, Portland is still a success. Second, the Census estimates are only estimates based on statistical projections, and may be less accurate than decennial Censuses. Third, Portland grew hand over fast for the past two decades, growing as fast as its suburbs. During both the 1980s and 1990s, Portland grew by over 20%, while America's 100 largest central cities grew by only 6% in the 1980s and 9% in the 1990s.*

Kotkin: Mass transit, the other linchpin of the Portland legend, also may be less a triumph than reported. According to the most recent Texas Transportation Study, drivers in greater Portland are stuck in traffic 39 hours a year, not far behind notoriously gridlocked Seattle, with 47 hours.
Lewyn: *If Kotkin thinks Seattle is "notoriously gridlocked" he needs to travel more. According to TTI, the average metro area experienced 47 hours of congestion delay per traveler- as many as Seattle, and more than Portland. Los Angeles has more than twice as much congestion as Portland (93 hours), Houston over 50% more (63 hours). See* http://mobility.tamu.edu/ums/congestion_data/tables/national/table_4.pdf.

Kotkin: So if Portland's present accomplishments are less than stellar, what does the future hold? Actually, it won't be too bad for those who like the way things are.
Given current trends, Portland's inner city will continue to be attractive to its core demographic niches. As an attractive Ephemeral City, it will remain a lifestyle pit stop for wayward twentysomethings and a lure for the financially secure's quest for quality of life. It also might remain a blessed place for aging hipsters who can "create" for each other without enduring the hard competitive scene of Los Angeles, New York or even Seattle. Population pressures may help. As the country grows to 400 million by 2050 – due largely to the children of immigrants and babies raised out in the burbs – there'll be enough young people, childless couples and nomadic rich to keep the Pearl District hopping. Suburbanites may still wander into town on weekends to take in a play, a game or some high-quality cuisine. There even may still be a buzz about the place. Burdened by the complexities of managing mid-21st century super-sprawl, planners might still come to marvel at a preserved, archaic urban environment, much like today's visitors to Florence or Venice. It will likely be an aggressively pleasant place, kind of a nice post-graduate college town – a museum for 1960s values, a testament to good intentions and the enduring power of self-regard.
Lewyn: This two makes Portland seem pretty good compared to most older American cities. So why is Kotkin wasting its time attacking its "less than stellar" record?

Edwin S. Mills

Edwin S. Mills (1999) evaluates sprawl and Smart Growth using a conventional urban economics perspective. He concludes that sprawl is a rational response to increased wealth and improved travel options, which optimizes social welfare and equity, and any attempt to reduce sprawl is harmful to individuals and society. His analysis includes a number of errors and omissions described earlier in this paper:

- He assumes that suburbanization equals sprawl, and that Smart Growth consists simply of regulatory controls on suburban expansion which force people to live in central cities.
- He makes no attempt to understand the full costs of sprawl or potential benefits of Smart Growth. He is either unfamiliar with, or intentionally ignores the extensive academic literature on these subjects (e.g., Ewing, 1997; Burchell, et al, 2000).
- He does not recognize any Smart Growth strategies besides suburban growth controls.
- He accepts without question that Smart Growth reduces housing affordability, ignoring ways that Smart Growth reduces housing and transportation costs.
- His analysis includes some clearly incorrect "facts," such as a claim that the city of Vancouver is "surrounded by unlimited amounts of cheap land," that all mobility management programs have failed, and that growth controls lead governments to jailing property owners for land use speculation.

Mills acknowledges that lower-density, suburban development may be economically excessive due to market distortions such as underpriced driving, externalities and failed government policies, but considers only a few distortions and evaluates them based on a biased review of evidence. For example, he cites a 1985 study to conclude that motorists' fees cover roadway costs, and claims that new cars produce no significant pollution. He supports higher fuel taxes to internalize vehicle costs, which he estimates would reduce vehicle mileage a significant 15-25%, but makes no other effort to quantify other market distortions.

Mills' main conclusion is that urban growth controls are harmful because they increase housing costs, based on evidence from cities such as Delhi and Bombay, although these examples have little to do with North American Smart Growth policies. His analysis overlooks the full potential benefits of Smart Growth (improved housing and transportation options, economic savings to governments and consumers, increased housing affordability, increased land use accessibility and related productivity gains, and environmental benefits from greenspace preservation).

As an urban economist concerned with social welfare it is disappointing that Mills makes so little effort to investigate the economic costs of sprawl (for example, he could evaluate research indicating that sprawl increases public service costs, transport costs, crash risk, or environmental impacts) or the impacts that market-justified land use and transport policy reforms would have on development and travel patterns, whether some consumers might prefer Smart Growth development patterns, and whether Smart Growth strategies might achieve housing affordability and equity objectives.

NAHB/Eric Fruits

In response to arguments that Smart Growth can reduce climate change emissions (Ewing, et al. 2007), the National Association of Home Builders (NAHB) commissioned studies that critically examined research concerning land use impacts on emissions. This included a review by Dr. Eric Fruits (Fruits 2008), the results of which were incorporated into summary documents (EcoNorthwest 2008; NAHB 2010).

Fruits argues that existing research fails to demonstrate a statistically reliable connection between residential land use and greenhouse gas emissions. In particular, he argues that most studies fail to account for confounding factors (such as land use density, mix and walkability), or for household and demographic characteristics (such as household size and incomes), or apply consistent units of analysis (such as people, households or building floor area). Fruits subsequently published a summary of his research in the *Center for Real Estate Quarterly Journal* (Fruits 2011) in which he argues there is little or no evidence that land use policy reforms can reduce climate change emissions and concludes, "regional efforts to slow potential climate change through compact development are little more than showy, but costly, curiosities."

This misrepresents the issues. For example, he claims that "some studies have found that more compact development is associated with greater vehicle-miles traveled" citing a study by Crane. This is untrue. Crane only presented theoretical analysis indicating that grid street systems may under some conditions increase vehicle travel compared with hierarchical street systems. Subsequent research shows that more connected streets do significantly reduce automobile travel (Handy, Tal and Boarnet 2010). In fact, Ewing and Cervero (2010) find that roadway connectivity has the second greatest impact on travel activity, after regional accessibility, of all land use factors analyzed. Previous research Crane cited indicated that higher densities do reduce vehicle travel.

Fruits also claims that "At a theoretical level there is no obvious connection between compact development and mode choice." There is a clear theoretical grounds for concluding that increased density will reduce vehicle travel by reducing travel distances between destinations, increasing the portion of destinations within walking and cycling distances, and increases the cost efficiency of alternative mode improvements (sidewalks and transit services) by increasing potential users per area.

Fruits cites other studies (footnotes 4-7) which he claims indicate that density has little impact on vehicle travel and emissions, and therefore concludes, "Such insignificant results indicate that compact development policies should not be based on expectations of reduced motor vehicle usage." This misrepresents the issues:

- There is little doubt that vehicle travel and emissions decline with increased density: compact neighborhoods typically generate 20-40% less vehicle travel per capita than conventional, lower-density neighborhoods. The question is whether these reductions result from density itself or from associated factors such as increased land use mix and transport

diversity (better walking and public transit options). To the degree they are interrelated, policies that increase density will reduce vehicle travel and emissions.

- Studies that isolate individual land use factors do show a statistically strong relationship between density (isolated from other factors) and vehicle travel. For example, Boarnet and Handy's 2010 literature review concluded that, on average, doubling residential density reduces vehicle travel 5% to 12%, with the higher range values found in the most recent, highest quality studies. Critics such as Fruits and the NAHB generally only mention the lowest range values.
- Density is just one of several land use factors that affect travel activity. Other important land use factors include regional accessibility, roadway connectivity, land use mix, walkability, and efficient parking pricing, to name a few (CARB 2010-2011; Ewing and Cervero 2010). Integrated Smart Growth policies typically reduce affected residents' vehicle travel, energy use and emissions by 20-40% (2010b).
- Energy conservation and emission reductions are just two of many Smart Growth benefits. Other benefits include infrastructure cost savings, transportation cost savings, improved mobility for non-drivers, reduced per capita accident rates, economic development benefits, improved public fitness and health, and open space preservation. When all these factors are considered, Smart Growth polices often turn out to be very cost effective and beneficial overall.
- Critics generally assume that all North Americans (or at least, the vast majority) strongly prefer living in automobile-dependent, sprawled communities, so Smart Growth harms consumers. In fact, current real estate market trends support Smart Growth (Litman 2009) and are often constrained by outdated policies which favor sprawl, such as generous minimum parking requirements, restrictions on development density and mix, and development fees that fail to reflect infrastructure cost savings from more compact development (Blais 2010).

Much of this debate depends on exactly how issues are defined. It is true that density alone may have modest impacts on travel. Regions such as Los Angeles are relatively dense but automobile-dependent, while many towns and rural in regions with little density are relatively accessible and multi-modal because development is clustered, mixed, and connected with good walking, cycling and public transit services. If the question is defined narrowly, "Does density significantly reduce VMT?" the answer may seem negative. However, if the question is defined more broadly, "Can integrated Smart Growth policies make a significant and cost effective contribution toward emission reductions, considering all benefits and costs?" the answer is generally affirmative.

That critics such as Fruits and the NAHB try to define the question narrowly indicates that they either do not understand the issue, or that they are intentionally trying to misrepresent it.

Randal O'Toole

Randal O'Toole's has written various reports which claim that Smart Growth is wasteful and harmful. His criticism is based on the assumption that nearly everybody wants to live in automobile-dependent suburbs, so Smart Growth strategies fail, and if successful they harm residents. He extrapolates past trends that increased per capita vehicle use, and ignores changing demographic, economic and market factors that are likely to increase demand for Smart Growth communities (Litman, 2005b). He highlights any negative trends in Smart Growth communities while ignoring all positive effects.

O'Toole claims that Smart Growth increases traffic congestion, accidents, pollution, crime and poverty based on selected data and analysis. In each case his claims inaccurate or exaggerated. For example, although increased density tends to increase congestion intensity, it reduces per capita congestion delays due to shorter travel distances and improved travel options. Similarly, density increases traffic crash frequency but reduces severity, resulting in lower traffic fatality rates in Smart Growth locations. Smart Growth includes other features besides density increases that improve land use accessibility and travel options, which can minimize the problems he identifies.

O'Toole claims that Smart Growth reduces housing affordability, citing higher housing costs in Portland and other Smart Growth cities. But, as discussed earlier, many other factors affect housing affordability, particularly a community's overall attractiveness. Smart Growth policies tend to be implemented in rapidly-growing, attractive urban regions where housing prices tend to rise anyway. High housing prices simply reflect the value that consumers place on these attributes. Smart Growth can help increase housing affordability in many ways, by reducing the amount of land required per housing unit, by reducing parking facility costs, and by reducing household transportation costs.

O'Toole (2001 and 2007) criticizes Portland's planning, particularly transit oriented development and urban growth boundaries, and supports *incentive based* neighborhood planning. He actually supports market-based Smart Growth strategies such as development fees, road pricing and tax reforms, but does not consider whether other Smart Growth strategies may be justified on second-best grounds if market-based reforms are not implemented, or to achieve other planning objectives such as improved accessibility for non-drivers. Lewyn (2007) critiques many of O'Toole's specific claims, finding them are incomplete, biased and inaccurate, such as claims that rail transit investments failed to affect Portland travel and land use development patterns, and that Smart Growth policies significantly increased congestion and housing inaffordability.

O'Toole's analysis of rail transit impacts (2004 and 2005) contains several distortions and errors (Litman 2004c and 2005a). For example, he fails to consider factors such as city size, rail transit system size and population growth rates when comparing cities, and the full cost of accommodating increased automobile traffic when comparing transit and automobile cost effectiveness.

Critics Perspectives

Critics tend to fall into different categories representing different motivations and perspectives.

Self Interest

Some critics object to Smart Growth because they (or an organization they represent) benefits from existing development practices that are threatened by Smart Growth. For example, residents of lower-density suburban communities may believe that they benefit from policies that exclude low-income people. Automobile-related industries (vehicle manufacturing and maintenance, petroleum and road building), suburban developers, and big-box retailers may favor automobile dependency and sprawl out of self interest.

Such critics may overlook indirect impacts, broader social issues, and opportunities to benefit from Smart Growth. An appropriate response is to find creative ways to address specific concerns and make Smart Growth programs attractive to these groups. For example, positive incentives to reward communities that implement Smart Growth policies, and governments can work with industries to insure that Smart Growth can be as profitable as sprawl. Some concerns are misplaced (for example, the economic and security risks of increasing the amount of affordable housing in a community are often exaggerated), and so can be addressed by providing accurate information.

Ideological

Some critics object to Smart Growth on ideological grounds. They assume Smart Growth consists of government interventions in the free market (O'Toole 2000). They tend to accept the following neoclassic economics assumptions with little questions:

- People are self-interested consumers whose only goal is to maximize consumption of goods.
- Consumers always consider more, bigger and newer to be better.
- Goods and services are only of value when traded in a commercial market.
- Existing markets are essentially efficient and fair, so current consumption patterns reflect consumer preferences.

In fact, most economists realize that these assumptions are unrealistic. *Economic Man* (i.e., the model of human behavior assumed in neoclassic economics) does not really exist. For example, most people place a high value on things other than consumption of goods and services, including community, generosity, beauty and dignity. There is an optimal level of consumption of most goods (e.g., house size, annual vehicle mileage, tourist travel) beyond which additional consumption is harmful to consumers. Many non-market goods have great value. And existing markets have many distortions, so current consumption patterns do not necessarily reflect consumer preferences. As described earlier, even most market corrections that rely on positive incentives, such as Parking Cash Out, can result in significant changes in behavior.

Ideologically-based critics often support some Smart Growth strategies. For example, Cox (2000) advocates road pricing, commute trip reduction programs and transit fare reductions. Mills (1999) advocates road pricing or a significant fuel tax increase to internalize costs. These critics might be persuaded to support additional market-based Smart Growth strategies, as described in the box below. A key issue of debate with critics with this perspective is the degree to which blunter Smart Growth strategies may be justified on second-best grounds until market-reforms are implemented. For example, both Smart Growth supporters and critics agree that road and parking pricing are justified to improve transport system efficiency, but supporters may advocate transit subsidies, land use regulations and other mobility management strategies until market reforms are implemented, while critics may oppose such strategies.

Market-Based Smart Growth Strategies
The following strategies reflect market principles and deserve support by free-market advocates.

- More flexible parking requirements.
- Fewer restrictions on building type, minimum lot size, setback, density, etc.
- Road and parking pricing, and other pricing reforms (Pay-As-You-Drive insurance, mileage-based lease fees and weight-distance fees) provided they more accurately reflect costs.
- Cost-based pricing of public services (development, utility and tax rates that reflect the relative cost of providing services for different development patterns and locations).
- Least-cost transportation planning (allowing transport funds to be spent on the most cost effective option).
- Limit public subsidy of new infrastructure (utility services, roads, new schools) in greenfield areas if excess capacity exists within urban areas.
- Commute trip reduction programs (provided that participation is mainly voluntary and relies mainly on positive incentives).
- Vehicle travel reduction strategies such as Parking Cash Out, which give consumers a positive incentive to use more efficient transport options.
- Support for telecommuting, flextime and compressed workweeks.
- Busways, HOV priority systems and rideshare programs.
- Improved transit services, reduced transit fares and more convenient payment systems.
- Institutional reforms that encourage transportation market diversity and innovation (such as more flexible motor carrier regulations).
- Context sensitive roadway design, so facilities reflect local needs (as opposed to rigid federal and state standards).
- More neutral tax policies that provide equal benefits to non-drivers as well as drivers, and renters compared with home owners.
- Better tools for evaluating the full impacts of land use and transportation decisions.
- Improved training of land use and transportation professionals concerning comprehensive analysis of impacts and application of innovative solutions to transportation problems.

Legitimate Criticisms

Some concerns raised by critics are legitimate, at least to some degree, and may justify adjustments to Smart Growth programs. Table 19 summarizes these criticisms and their appropriate responses. Most of these concerns are already recognized by Smart Growth proponents and are being addressed. None appear to be fatal flaws that justify a significant reduction in Smart Growth efforts, and many justify more integrated Smart Growth programs to ensure that potential problems are offset.

Table 19 **Legitimate Criticisms And Appropriate Responses**

Legitimate Criticism	Appropriate Response
Proponents sometimes exaggerate the benefits of Smart Growth and the costs of sprawl.	Support research to identify true benefits and costs, and policies that reflect legitimate arguments.
There is uncertainty about the full costs of sprawl.	Continue research, and implement strategies that reflect market principles or help achieve strategic community goals.
Smart Growth can have unintended consequences.	Support research to better understand impacts, and develop responsive Smart Growth policies and plans.
By itself, increased development density can increase traffic congestion and local air pollution emissions.	Smart Growth programs should include additional strategies besides increased development density to improve accessibility, encourage modal shifts and reduce urban automobile travel.
Regulation-based strategies reduce consumer options and can have unintended consequences.	As much as possible, apply Smart Growth strategies that reduce regulations and rely on market-based incentives and positive rewards to increase density, preserve greenspace, reduce vehicle travel, etc.
Many consumers value lower-density suburban homes and automobile-dependent lifestyles.	Allow consumers to choose by providing better land use and transport options and reducing subsidies that favor sprawl.
Transit investments are not a cost effective way to reduce traffic congestion and air pollution.	Transit becomes more cost effective if supported by other Smart Growth strategies that increase ridership and operating efficiency, and if evaluated using a comprehensive framework that considers total benefits.
Automobiles are the most efficient modes for many trips.	Develop accessible communities and balanced transport systems that allow consumers to choose the best travel option for each type of trip. Recognize that real efficiency accounts for all social impacts, not just from a single traveler's perspective.
Strategies that reduce land supply available for development can increase housing costs.	Implement Smart Growth strategies that increase housing and transportation affordability.
The economic costs of farmland preservation are not a justification for restricting urban expansion.	Farmland and other greenspace preservation may be important for a variety of economic, social and environmental reasons.

This table identifies legitimate criticisms with Smart Growth and their possible responses.

Conclusions

Smart Growth policies create more compact development and more multi-modal transportation system, which tends to increase efficiency and social equity. An effective Smart Growth program includes various integrated strategies, many of which reflect market principles and offer positive rewards for choosing more efficient land use and transportation patterns.

Good and useful analyses provide comprehensive and objective information so readers can make informed judgements about an issue. By this standard, the Smart Growth critics fail. They argue that Smart Growth is unfair, ineffective and unjustified, but they generally consider an incomplete set of Smart Growth policies, impacts and benefits, and they often inappropriate, incomplete or outdated information. They claim to prove that Smart Growth increases traffic congestion, air pollution, accidents, public service costs, housing unaffordability, crime and poverty, but in each case the critics select evidence that supports their arguments while ignoring alternative perspectives and information. In many cases their data is wrong or out of context.

Critics ignoring existing planning distortions that encourage sprawl, and ways that many Smart Growth strategies correct these distortions, increasing consumer options, economic efficiency and equity. They argue that consumers want large single-family homes in automobile-dependent communities, although there is abundant evidence that many people will choose other housing and transport options if given suitable options and incentives. Critics do not seem to understand the concept of accessibility, and so evaluate transport system quality simply in terms of vehicle traffic congestion, ignoring other factors such as the geographic distribution of destinations, roadway connectivity and transportation system diversity.

Although it is currently difficult to quantify some Smart Growth benefits, such as the value communities place on greenspace preservation and improved transportation options for non-drivers, there is little doubt that many people consider those benefits important. Put differently, there is little doubt that society benefits overall from policy reforms that allow everybody who prefers living in a compact, mixed, multimodal neighborhood to find suitable housing there.

This is not to suggest that every Smart Growth policy is justified everywhere, or to ignore potential problems created by more compact development. However, many of the critics' arguments are actually justifications for more Smart Growth. For example, critics argue that increased development density increases congestion, which is a justification for implementing additional transportation demand management strategies that reduce vehicle trip generation. Legitimate skepticism is helpful. Critics identify concerns that should be addressed to optimize Smart Growth. However, the criticisms evaluated in this paper do not diminish the overall justification for Smart Growth.

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