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Discovering Common Ground:
The Potential for a P2-Smart Growth Connection in Western States

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Introduction

Consider these facts:

- Motor vehicles are the largest source of air pollution along the Front Range. These pollutants are responsible for approximately 70 percent of the so-called "Brown Cloud" and can lead to violations of the federal health standards.[1]

- Urban land use in Region VIII states increased from roughly 1,500,000 acres to roughly 2,000,000 acres between 1982 and 1992 (an increase of 33%).[2]

- A recent survey conducted for the American Institute of Architects (AIA) reports that 68 percent of state and local government executives and policymakers said they believe concern over "livable communities" is growing.[3]

These are just a few of the indicators in western states that suggest both a decline in the quality of life and a parallel increase in pollution owing to current development patterns and practices. Without planning for livable communities, most communities experience sprawl, the gradual expansion along highway corridors of clusters of housing developments and miles of strip malls. This phenomenon results in additional car commuting, dangerous roads for bicycles and pedestrians, increased traffic on the arteries leading to the nearest city, more road building and resulting impacts on waterways, endangered tourism and on and on. In addition, new housing is often built to maximize speed of assembly and not quality, durability or minimal environmental impact. Such a tactic lowers costs in the short run, but often has higher long-term impacts, to the owner, the community, and the environment.

The root of the problem is that most current development practices preclude smart growth and need to be addressed within government if western states are to achieve the "livable communities" that residents say they want. This issue is pertinent not only to the large metropolitan areas in EPA Region VIII, but also to smaller communities where quality of life is also affected by unchecked growth. Sprawl has already occurred to a sweeping extent in eastern states and in California. Now is the time for western states to look to the future and avoid taking the same route that other regions now regret.

While stemming the tide of this unsustainable growth is a daunting task, it can be achieved through a series of small-scale decisions made by informed individuals in state and local government. Through these decisions, land can be developed in a way that limits erosion and nutrient pollution, decreases mobile source air emissions, encourages the cleanup and reuse of previously used land, and breeds cleaner and healthier communities. Thus, the region would achieve two inextricably linked goals: 1) reducing pollution at the source and more sustainable communities. The result would be communities with more green space and fewer traffic jams – in short, ones that residents can take pride in. In this spirit, at the heart of this report is the notion

[1] Regional Air Quality Council literature.
[2] Urban Land Institute on-line data query system at www.uli.org.
[3] American Institute of Architects, Center for Livable Communities. July, 1999. *Survey of State and Local Officials on Livable Communities*. Conducted by Frederick Schneiders Research.

that proponents of pollution prevention and smart growth should band together. Rather than competing for limited resources, these two movements should recognize their overwhelming similarities, combine their momentum, and tailor their strategies to appeal to constituencies who may not yet realize the extent of the common ground they share.

The purpose of this report is two-fold. First, it makes the case that advocates of both pollution prevention (P2) and sustainable growth have largely overlapping agendas and thus should be encouraged to cooperate to maximize the impact of both movements. Second, this report explores the details of that agenda and highlights exactly how the same means can achieve the dual ends of these two groups. It summarizes specific steps that state and local governmental agencies can do to decelerate sprawl and environmentally damaging development in western states. For each practice, we explain the concept and then provide real examples of how creative individuals have implemented it on the ground in their own communities. The report concludes with some over-arching issues, such as regional collaboration and measuring progress towards smart growth, as well as a top ten list of resources.

Background of the Smart Growth and Pollution Prevention Movements

Defining Pollution Prevention

EPA's definition of pollution prevention follows the Pollution Prevention Act of 1990 and Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements (August 1993). It states that pollution prevention is "any practice which reduces the amount of hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and any practice which reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants." Pollution prevention is considered the most preferred level of the waste management hierarchy, which presents options for managing waste in this order: source reduction, recycling, treatment, and disposal.

According to a report by the Rand Corporation,[4] this definition focuses on source reduction, but besides including practices that eliminate the discharge of harmful wastes, this definition also includes practices that protect natural resources through conservation and efficiency. Though the emphasis is typically on toxic chemicals, pollution prevention clearly also refers to the reduced use of energy, water and other resources.

An important gray area in implementing P2 activities is avoidance of environmental harm. Is an activity that helps reduce the loss of biodiversity, species, or habitat considered P2? Individuals and organizations would differ in their answer to this question. To the extent that practices prevent siltation and emissions associated with constructing facilities and infrastructure in remote places, the answer would seem to be yes. However, many state and local governments

[4] www.rand.org/publications/MR/MR855/mr855.ch6.html

do not currently include such a focus in their P2 activities. This flexibility in defining P2 activities allows for more opportunity to take advantage of sustainable community efforts.[5]

Perhaps a more useful interpretation of P2 is not as a level in a hierarchy but as an ethic or operating principle simply stating that less of an impact is better. If planners, developers and residents adopt this precautionary principle, they are more likely to approach planning and economic development with a holistic view, an appreciation of the fragility of ecosystems, the scarcity of resources, and the limits of the environment to absorb our waste.

Defining Sprawl and Smart Growth

Merriam-Webster defines sprawl as "to spread out carelessly or awkwardly." The term "urban sprawl," which refers to the unchecked growth of cities and suburbs, dates back to 1958. Smart growth, however, is broader than simply a physical description of growth. Smart growth embraces social and economic ideals such as affordable housing, farm protection, equal access to resources, and historic preservation in addition to environmental ideals such as clean air and freedom from hazardous wastes. Smart growth is development that revitalizes central cities and older communities, supports and enhances public transit and preserves open spaces and agricultural lands. Smart growth is not no growth; rather it creates communities that are more livable by growing efficiently within existing developed areas.

A related term, "new urbanism," refers to a resurrection of design principles that were used decades ago, before automobile use was widespread. A key principle of this approach is to put houses in proximity to employment, parks and shopping, so that walking, bicycling and transit are practical alternatives to cars. Another important element of new urbanism is designing streets so they serve pedestrians and bicyclists, rather than serving only as high-speed funnels for cars. Narrow streets "calm" traffic so that cars do not create a fearful environment that discourages walking. Wide sidewalks and tree canopies create a pleasant walking environment. Building design also plays a part. Homes are designed around a shared open space, and porches rather than garages front the street. Commercial buildings are on street fronts, rather than situated behind vast parking lots.[6]

Just as the definition of P2 can be interpreted more broadly than usual to encompass principles of smart growth, smart growth's definition can be seen in a different light as well. For example, if houses are in proximity to employment, there will be less driving, and a lower demand for road building and extending infrastructure to remote areas. These results translate directly into preventing pollution. The next section takes this comparison a step further.

Relationship of P2 and Smart Growth: Goals, Tools and People

Common Goals

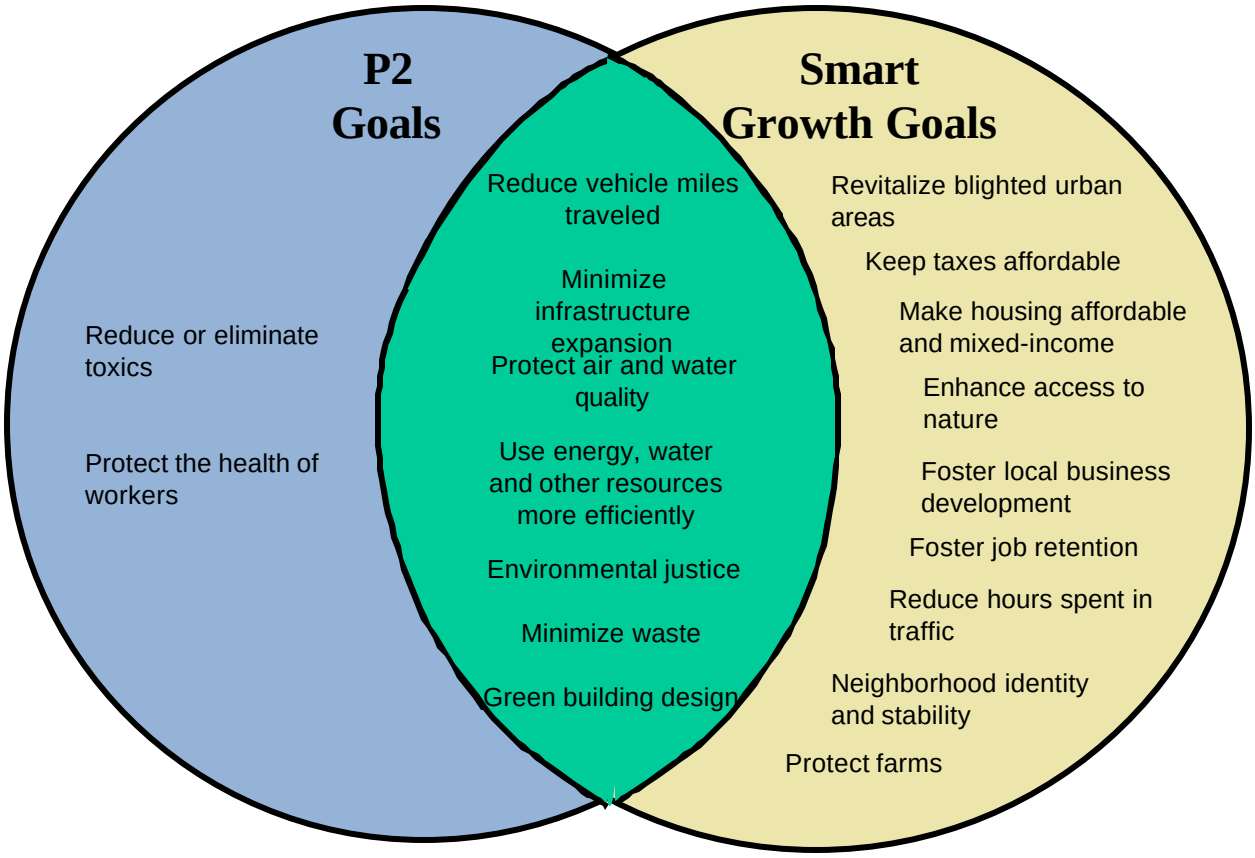
Based on the definitions and the goals of P2 and smart growth, we can begin to see areas of overlap, most obviously in the areas of driving less, using resources efficiently and developing

[5] Ibid.
[6] Congress for a New Urbanism, http://www.cnu.org

in a less sprawling manner. A less obvious aspect these movements have in common is the promotion of environmental justice. Some studies have shown that pollution sources tend to be located disproportionately in areas of low income. This occurs either because these communities are less politically equipped than more affluent communities to resist such neighbors or because the presence of a polluting source drives down property values and attracts low income residents. It is clear that improving such a situation through reducing emissions would generate benefits on both the P2 scale and the smart growth/community equity scales.

The overlap between P2 and smart growth goals is not complete however. There are some elements of the P2 agenda that have little to do with smart growth directly, such as reducing the use of toxics, for example, by using integrated pest management instead of heavy doses of pesticides, and protecting the health of workers who handle toxics. Similarly, smart growth has a multi-faceted agenda that includes affordability, free time, diversity and safety, which are not directly related to pollution prevention. This notion of overlapping goals is captured in the following diagram.

Figure 1. The Overlapping Goals of Pollution Prevention and Smart Growth



Common Tools

If the goals of these two movements have so much in common, are the tools to achieve those goals equally similar? There are many reasons to think so. The following chart shows tools based on the smart growth principles of preserving green space and beautiful vistas,

reducing traffic (and therefore the hours spent in traffic), and increasing walkability. But the chart also shows how those tools lead to P2 outcomes.

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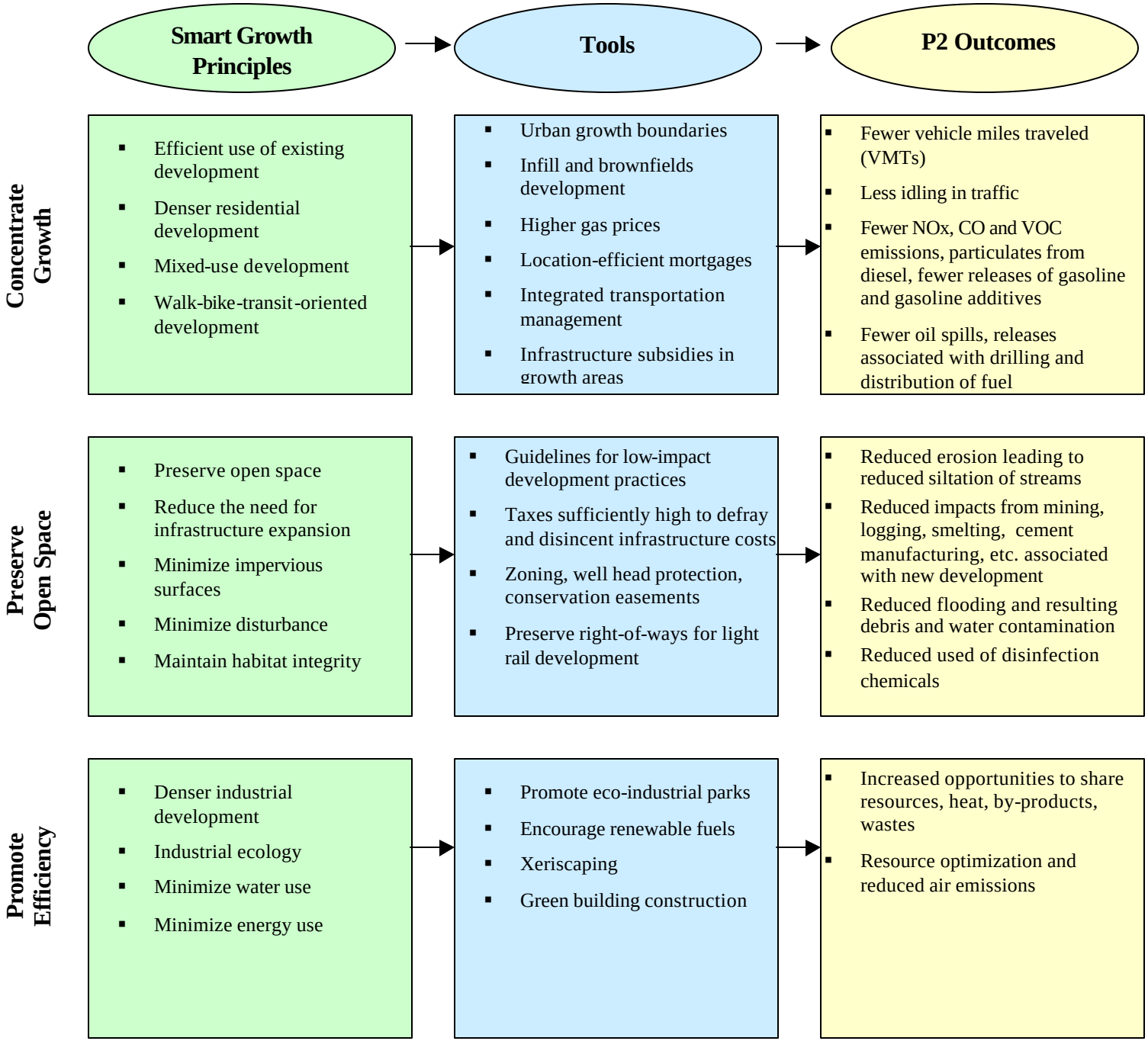
Figure 2. How Smart Growth Goals achieve Pollution Prevention


Smart Growth Principles
Tools
P2 Outcomes
Concentrate Growth
Efficient use of existing development
Denser residential development
Mixed-use development
Walk-bike-transit-oriented development
Urban growth boundaries
Infill and brownfields development
Higher gas prices
Location-efficient mortgages
Integrated transportation management
Infrastructure subsidies in growth areas
Fewer vehicle miles traveled (VMTs)
Less idling in traffic
Fewer NOx, CO and VOC emissions, particulates from diesel, fewer releases of gasoline and gasoline additives
Fewer oil spills, releases associated with drilling and distribution of fuel
Preserve Open Space
Preserve open space
Reduce the need for infrastructure expansion
Minimize impervious surfaces
Minimize disturbance
Maintain habitat integrity
Guidelines for low-impact development practices
Taxes sufficiently high to defray and disincent infrastructure costs
Zoning, well head protection, conservation easements
Preserve right-of-ways for light rail development
Reduced erosion leading to reduced siltation of streams
Reduced impacts from mining, logging, smelting, cement manufacturing, etc. associated with new development
Reduced flooding and resulting debris and water contamination
Reduced used of disinfection chemicals
Promote Efficiency
Denser industrial development
Industrial ecology
Minimize water use
Minimize energy use
Promote eco-industrial parks
Encourage renewable fuels
Xeriscaping
Green building construction
Increased opportunities to share resources, heat, by-products, wastes
Resource optimization and reduced air emissions

People to Take on the Challenge

Having shown that the goals and the tools of these two movements are similar, can we also conclude that the people responsible for promoting them similar? Historically, they have not been, but they could certainly begin to work together in the future. P2 has been largely a regulatory and industrial movement. Smart growth has fallen in the realm of planners and developers. However, if the two groups can be convinced that there is room for mutual gains by embracing the beliefs of the other, then it may make sense for them to cooperate. People already sold on the importance of one issue are likely to be sold on the importance of the other – thinking of the two issues jointly broadens the appeal of each one individually. People in each camp may come to see these two topics as a mutually reinforcing pair, with P2 representing the short-term steps and smart growth representing long-term steps, P2 as the catalyst to bring regulatory players on board and smart growth appealing to the planners, development people, and natural resource and recreation agencies.

Cooperation would bring certain mutual benefits. For instance, providing a long-term sustainable vision of smart growth over the next 100 years versus what the current trends imply can help the public and other key stakeholders see the critical need for P2 as a tool for sustainability. Similarly, sustainability activities can help to educate and motivate less-accessible audiences to participate in P2 activities. Homeowners may learn to reduce their household use of certain chemical products because they understand the long-term cumulative effect on their community from such usage. Having different types of community members (P2 people and smart growth people) involved in the process in a sustainability effort also helps to:

- negotiate and develop politically and scientifically feasible alternatives (P2 practitioners who have tried to prevent mobile-source air pollution know how hard it is to address such issues in isolation from broader community issues)
- enable P2 projects to be undertaken by more individuals and organizations – more of the general public learns the importance of P2 and is motivated to help prevent pollution in their community[7]

Some groups have already recognized this link and begun to mobilize in a synchronized way:

- According to a report by Rand, Seattle considers P2 an important indicator of sustainable growth.[8]
- The same report notes that the President's Council on Sustainable Development's Task Force on Sustainable Communities made a policy recommendation to increase public-private P2 efforts at the community level.
- Eco-industrial parks, designed such that each industry's outputs are used as another industry's inputs, are an example of collaboration between people striving for waste minimization and those aiming for dense development.
- A recent Portland report on sustainable economic development suggests the idea of implementing "loan criteria which rewards businesses that . . . install source reduction or pollution prevention measures" to encourage more sustainable business practices.[9]

[7] www.rand.org/publications/MR/MR855/mr855.ch6.html
[8] Ibid.

Recognizing the common goals and tools of smart growth and P2, and identifying a broad group of people to work on the issues is a major step towards tackling the thorny issues of changing current destructive practices. The following sections move from the general to the specific. They take a closer look at some of the roots of the current problems, the compelling reasons to break with these damaging practices, and how various communities and states, particularly in the western states, have overcome them.

Roots of poor development decisions

Disasters often result not from a single unwise decision or bad intentions but from a long series of well-meaning decisions that had unintended consequences. For example, the decision in the 1950s to invest in a national highway system was intended to facilitate commerce and allow citizens to see more of their country. Yet that decision and all the subsequent decisions to expand roads led to an increased demand for vehicles, and increased presumption that roads would be provided and maintained. Thus, a dangerous spiral began with roads providing more opportunities for cars, and the resulting increase in cars leading to increasing demands for roads. Meanwhile, few noticed the real costs in terms of lost habitat, increased air pollution and dependence on foreign oil. In Washington, DC, for example, the cost of time and fuel wasted each year is roughly $860 for each adult and child in the city.[10]

The following examples illustrate similar decisions that originated (often but not always) from good intentions but had negative repercussions:

- Zoning rules commonly forbid any mix of homes and shops, which limits walkability and worsens traffic.
- Ready availability of federal grants and low-cost financing for water and sewer invites development further into the countryside.
- The federal tax code is tilted toward new development and consumption of open space; specifically, federal mortgage interest and property tax deductions give people a subtle incentive to buy bigger houses on bigger lots and building on brownfields is complicated by potential liabilities.[11]
- States spend more on building new roads than on repairing existing roads; building new highways acts as a magnet for development, which pulls investment and resources from the metropolitan core, and require expensive infrastructure to keep up with the growth; meanwhile, existing infrastructure is underutilized and starved for repair and maintenance.[12]
- Minimum lot sizes have been instituted in pristine places in order to preserve the feel of open space, but now they are in conflict with smart growth principles of clustered development.
- Tax rates are structured such that sprawl-type developments are attractive financially, leading to costly bidding wars between neighboring jurisdictions.

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[9] Patricia Scruggs and Philip Thompson, "Promoting Sustainable Economic Development in Portland: A Report to the Portland Development Commission," Portland Development Commission, Portland, Oregon, October 1996, p. vii.

[10] The Sprawling of America, Address by Richard Moe, President National Trust for Historic Preservation, to National Press Club, Jan. 22, 1999.

[11] Bruce Katz and Jennifer Bradley. "Divided We Sprawl." December 1999. *Atlantic Monthly*.

[12] Ibid.

- Property tax rates also discourage denser housing, which brings in more people but less per capita property tax; this has led to the rejection of slow growth plans. For example, Commerce City, CO in 1999 rejected an ordinance that would have limited the city's residential growth rate to 1% per year or 200 building permits, whichever is less. The city will now go forward with plans to build 7000 new homes on 25 square miles. [13]

Reasons to change direction

For many people, the reason to stop sprawling and polluting is summed up simply as preserving their quality of life. Many worry, for example, that a "sense of community" has been lost, that spontaneous greetings on the street, and neighborhoods where neighbors keep an eye on each others' children have been sacrificed. As noted earlier, a recent survey conducted for the American Institute of Architects (AIA) reports that 68 percent of state and local government executives and policymakers said they believe concern over "livable communities" is growing.

As serious as the decline in quality of life is, there are far more tangible reasons to worry about the current development trends. To put it bluntly, it is too expensive. Tax dollars subsidize roads, sewer systems, water systems, schools, and handouts to new businesses that outweigh the tax revenues they bring in. This causes communities across the country to lose money and creates a perverse incentive to develop more (because the subsidies keep the costs to developers artificially low). In Gallatin County, Montana, one study showed that "for every dollar residential property pays into local government coffers, $1.47 in direct services is demanded. Conversely, agricultural and open space only requires 25 cents in services for every dollar it contributes."[14] In Loudon County, Virginia, each new house on a quarter acre lot adds $705 per year to its town's service and maintenance requirements, net of the property taxes it adds. A five-acre home adds $2232 per year.[15] A study in California's Central Valley shows that more compact development could save 500,000 acres of farmland and $1.2 billion in infrastructure and other costs.[16] Similar cases occur throughout the western states.[17]

And if anyone still needs convincing, the following list summarizes more of the compelling reasons to put the brake on sprawl.

- **Equity.** One reason to encourage development in city cores is that the people who live there are the poorest, and they need the opportunities and investment that are currently funneled to the suburbs.
- **Demographics.** The aging population makes clear that sprawl is of no benefit to people who cannot drive; there should be choices for people who want to remain mobile without cars.[18]

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[13] http://www.hro.com/news_letters_display.cfm?idnum=5#GROWTH CAP

[14] Haggerty, Mark. 1996. The High Cost of Rural Sprawl. Greater Yellowstone Coalition and Local Government Center at Montana State University, Greater Yellowstone Report, Volume 13, No. 2.

[15] Eben Fodor, Better not Bigger: How to Take Control of Urban Growth and Improve Your Community.

[16] Meadows, Donella. "If we don't like sprawl, why do we go on sprawling?" March 9, 1999. Global Citizen, syndicated column.

[17] Managing Community Growth, video produced by Montana State University Extension Service, #39 and Growing Pains: Managing Population Growth in the West, video produced by MT State University Extension Service and University of Arizona Cooperative Extension Service, #37

[18] Bruce Katz and Jennifer Bradley. "Divided we Sprawl." December 1999. *Atlantic Monthly*.

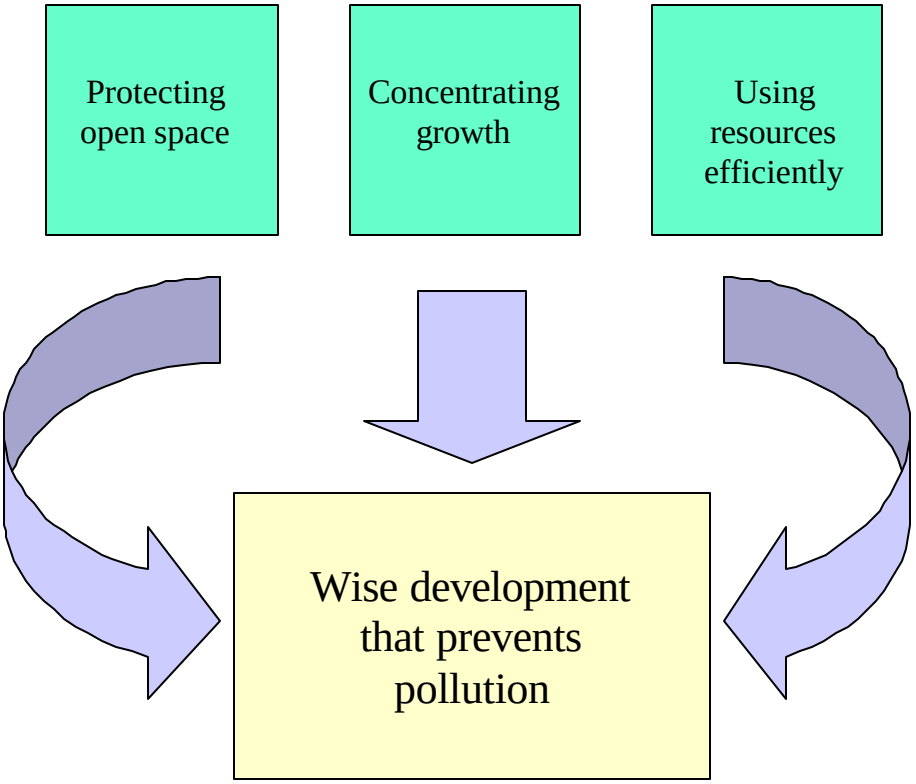
- **Health.** Motor vehicles are the largest source of air pollution along the Front Range. These air pollutants are associated with numerous pulmonary diseases.
- **Mitigating land loss.** Farmland is being lost along with other open spaces, magnificent pristine views, and animal habitat.
- **Aquifer protection.** As open land is paved, rainwater is efficiently drained and piped directly to streams; this diverted rainwater then is not available to soak into the ground and replenish aquifers. In Philadelphia suburbs, the amount diverted is 36 of annual 45 total inches.[19]
- **Tourism.** As the natural wonders of the West decline, so too does the desirability of visiting them, damaging the very important regional tourism industry.
- **Limiting foreign dependence.** To the extent that the U.S. remains dependent on automobiles, it also remains, for the time being, dependent on foreign oil. This dependence has proved costly in the past, for example when it became necessary to defend the U.S. oil ally Kuwait.

Solutions and how they advance both smart growth and P2

Most solutions to sprawl and related pollution problems fall into the three categories identified in the diagram on page six and summarized in the simpler diagram below: protecting open spaces where residents do not want development, concentrating growth in desirable low-impact living areas, and increasing the efficiency of resource use. This section examines a number of workable options that have been implemented successfully to achieve these goals. Note that while we attempt to categorize these strategies by the chief benefit they provide, many of them achieve multiple benefits, so the headings that follow should be considered fluid. The examples are taken from all over the country, but all are applicable in Region VIII. They provide strong reasons for optimism.

[19] Nussbaum, Paul. Feb. 9, 1999. "Paving way for environmental harm." *Philadelphia Inquirer*.

Figure 3. The Three Tenets of Wise Development that Prevents Pollution



Protecting Open Space

Protecting open space and agricultural land can be achieved through many different mechanisms. Many of them have been highlighted by the draft Growth Management Toolkit, assembled by the Montana Agricultural Extension Office.[20] Resource land protection mechanisms include land purchases, differential taxation programs, conservation easements, transfer and purchase of development rights, right-to-farm laws, exclusive use zoning, and critical area protection programs. Introducing minimum setback zones for constructing near wells is an effective tool specifically for sourcewater protection, and one that has strong appeal to both P2 advocates and anti-sprawl advocates. While these techniques vary by application and effectiveness, they are enabled in most states.[21]

Another good source of information about these tools and how they are applied in Region VIII is *Ways to Conserve Wyoming's Wonderful Open Lands: A Guide Book*, a project of Governor Jim Geringer's Open Spaces Initiative.[22]

[20] Van de Wetering, Sarah. Growth Management Tooklit, Draft. May, 2000. Montana Agricultural Extension Service, Montana State University, Bozeman, MT.
[21] Green Mountain Institute for Environmental Democracy, *SYNERGY*, September/October 1997, Vol. 2, No. 4.
[22] To obtain a published version of this guide book, e-mail the Wyoming Governor's Office at pmcnew@missc.state.wy.us or call (307)777-7434.

The following examples reveal that protecting open space is a priority that has been adopted by many regions at many levels. More importantly, they reveal that it is a bi-partisan issue.

- On a national level, President Bush is taking up the call to fully fund the Land and Water Conservation Fund which directs money from off-shore oil drilling revenues to the nation's parklands.
- Envision Utah, a quality growth initiative in Utah, conducted a survey that found almost half of Utah's residents wanted more money to go towards preserving open space. As a result, protecting sensitive lands is one of Envision Utah's five primary goals, which they plan to develop both regulatory and incentive-based policies to achieve.[23]
- Park City, Utah approved a $10 million land preservation bond with 77 percent support.[24] The bond will allow the local government to raise sales taxes for green space protection and developer incentives. This was hailed as a large step for a small town.
- Former Vice-President Al Gore developed a livability agenda while in office. It proposed Better America Bonds, $9.5 billion in bond authority for investments by state and local governments for preserving green space, creating or restoring urban parks, protecting water quality and cleaning up brownfields. Further, it allocated $2.2 billion to the Department of Transportation to implement community-based programs under ISTEA (the Intermodal Surface Transportation Efficiency Act), including developing regional strategies, repairing existing roads, encouraging broader use of alternative transportation, and improving air quality. An additional $50 million in matching funds was designated for the Department of Housing and Urban Development for local partnerships to design and pursue smarter growth strategies across jurisdictional lines. Finally, money was proposed for community-centered schools, a community-federal information partnership, and regional crime data sharing.[25]
- Campaigns in California called SOAR, Save Open Space and Agricultural Resources, helped pass rules in Ventura, California to forbid the county to rezone land for development without voter approval. (The downside to this was that property values are expected to fall – space formerly worth $13 million as development land is worth about $1.6 million as farmland.)[26]

Concentrating Growth

Reducing Vehicle Miles Traveled (VMTs)

Each year, $100 billion is spent on new roads in this country, much of it resulting in ever-increasing congestion and sprawl.[27] While congestion and respiratory ailments associated with vehicles are commonly considered big city problems, the roots of their unsustainable growth lie in decisions dating back to when they were small towns. Thus, even more rural areas and small towns can take these stories to heart when making long-term plans. Further, while they may not be ready for some large-scale solutions such as an entire subway system, they, too, can take other steps to reduce VMTs such as cultivating bike paths and sidewalks.

[23] Envision Utah Implementation Toolbox, www.envisionutah.org.
[24] The Smart Growth Network, www.smartgrowth.org.
[25] Livable Communities Initiative, www.livablecommunities.gov.
[26] http://www.rain.org/~edc/issues/planning/development/ventura/soar-sp99.html
[27] *Growing Pains: Quality of Life in the New Economy*. 2000. Report by the National Governors Association.

How can this practice be changed to incorporate the priorities of P2 and smart growth advocates? There are numerous approaches to limiting the amount of time and money we invest in driving. Broadly, they fall into two camps: increasing the supply of alternatives and decreasing the demand or the need to drive long distances or sit in traffic. Zoning ordinances that isolate employment locations, shopping and services, and housing locations from each other increase the need or the demand for driving and should be reexamined in light of this priority. Similarly, low-density growth planning aimed at creating automobile access to increasing expanses of land is one of the root causes behind the growing demand for cars and time spent in them. Low cost fuel for automobiles, resulting from federal and state subsidies of petroleum industry's social and environmental costs, is clearly one of the culprits artificially driving up demand and increasing people's willingness to drive more.

On the alternatives side, any practices that promote the use of public transportation, emission-free transportation (like bicycles), carpools or other energy-saving methods are desirable.

The following examples indicate the range of approaches various groups have successfully employed in reducing the amount of miles traveled in personal, gasoline-burning vehicles.

- A new light-rail line in Littleton and Englewood, CO has led to an increase in property values and development of a new pedestrian-oriented, mixed-use CityCenter, which is expected to contribute $3 million per year in sales tax revenue.[28]
- A recent poll of northern Utah residents showed that 64 percent support a sales tax increase for transit and commuter rail. The plans for a 117-mile commuter rail, however, are proceeding more slowly than expected because of negotiations with the Union Pacific Railroad, which is interested in developing the system, but wants to maintain freight transport as its top priority.[29]
- The long-term, widely supported planning project Envision Utah proposes a number of good suggestions for wise development. One that makes particular sense in Region VIII where current demand in rural areas may not justify light rail is to preserve today the right-of-way for potential development of public transportation needs in the future.[30]
- The 50-year land use and transportation plan adopted by Portland Metro incorporates "transit-oriented" community design policies similar to the "LUTRAQ" (Land Use, Transportation and Air Quality) plan put forward several years ago by Portland community organizations as an alternative to a proposed freeway in Washington County. Metro projects a 10 percent reduction in vehicle miles traveled per capita as a result of the policies. The LUTRAQ proposal estimated that transit-oriented community design policies would reduce congestion, measured in hours of delay, by 53 percent, compared to a 43 percent reduction achieved by the freeway alternative. Carbon dioxide emissions would fall 6.4 percent in the LUTRAQ alternative, but increase 1.6 percent in the freeway alternative, the analysis found.[31]

[28] The Smart Growth Network, www.smartgrowth.org.
[29] Ibid.
[30] Introductory Video produced by Envision Utah.
[31] USEPA. *Our Built and Natural Environments: A Technical Review of the Interactions Between Land Use, Transportation and Environmental Quality*. January 2001. EPA 231-R-01-002.

Urban Revitalization

Revitalizing urban areas is a complex undertaking, but a number of tools have been suggested to move in that direction. These include incentives to reinvest in existing communities and already-developed areas, by encouraging infill development, brownfield redevelopment and the reuse of historic buildings, which take advantage of existing infrastructure. Other methods include housing policies that do not concentrate the very poor in one blighted area but rather create mixed-income housing, investing in improvements to downtown infrastructure and downtown cultural amenities, and modifying zoning to encourage mixed uses.

One popular approach to revitalizing communities is urban growth boundaries (UGBs). UGBs define an area where development is either encouraged or permitted. Washington state law requires certain communities to create UGBs, and Oregon law forces urban development to concentrate within UGBs.[32]

The outcome of these practices is that an urban core becomes a desirable place to live, work and socialize, which simultaneously attracts business and decreases the demand for new construction, which consumes rural lands. A vibrant city also reduces the need to drive great distances and build infrastructure to remote areas. Urban revitalization is thus linked to all the other means of achieving smart growth but merits special mention because there are so many benefits and so many means of achieving it.

The following examples illustrate some specific efforts at community revitalization.

- Maryland's Neighborhood Conservation and Smart Growth initiative of 1997 provides fiscal and programmatic support for the concentration of growth in locally designated Priority Funding Areas and for the preservation of rural lands. It is designed to ensure that the state will only fund growth in ways that do not create sprawl.[33]
- The Denver Regional Council of Governments, representing 49 communities, developed an interim Urban Growth Boundary map for 700 square miles. Communities directing development to these areas can save on infrastructure and service costs.[34]
- Boulder City Council approved a measure whereby residential developers must assign 20 percent of their projects to low-income buyers and renters. Alternatively, they can donate land within the urban limits for affordable housing or pay the city cash for housing subsidies. The measure also modifies the city's residential growth-management plan and exempts from its one percent growth cap developers who build mixed-use projects or who set aside 35 percent for affordable housing.

Location Choices

The collective decisions of residents, government and businesses about where and how to build have a tremendous impact on the character of communities. In the absence of incentives for smart growth, sprawl-inducing decisions can be made. In the small, economically-depressed town of Glasgow, Montana, the U.S. Department of Agriculture decided to put its county office

[32] Green Mountain Institute for Environmental Democracy, *SYNERGY*, September/October 1997, Vol. 2, No. 4.
[33] Ibid.
[34] SmartGrowth Network. www.smartgrowth.org

in a new building constructed in pastureland on the edge of town. A suitable downtown building was available, but USDA rejected it because the parking lot is a block away instead of right next door.[35] Had tools been in place to discourage such decisions, such as enforceable federal guidelines for site selections or smart loans that prioritize smart growth, the USDA's decision might have turned out differently.

One creative tool that has been developed to encourage home ownership in densely developed areas is location-efficient mortgages. Location-efficient mortgages typically provide lower interest rates to home buyers who can show that their transportation costs will be reduced by owning a home close to their workplace, thus improving their financial position. This win-win solution facilitates home ownership, often making homes available to people who could otherwise not afford them, and provides an incentive to live in places that are already developed rather than in sprawling suburbs.

The following examples show how this principle has been put into practice.

- In October, 2000, the Forest Conservation Council (FCC) and Friends of the Earth (FoE) filed a lawsuit against the Small Business Administration (SBA) for its lending programs that allegedly contribute to urban sprawl. If it is found that the programs to contribute to sprawl, then they would violate the National Environmental Policy Act (NEPA) and its regulations. The lawsuit seeks an immediate suspension of SBA loan decisions that are contributing to urban sprawl.[36]
- The federal government employs 17 million people; its decision regarding building location are therefore significant. In 1996, Executive Order 13006 directed federal agencies to give first consideration to locating facilities in downtown districts instead of suburbs, however compliance had been spotty.[37]
- The location efficient mortgage (LEM) was piloted in the Seattle market as a program designed to make owning a home more affordable for families who live in Seattle. It is the result of a partnership between Fannie Mae, HomeStreet Bank, King County Metro, PMI, and the city. By taking into account information a traditional mortgage program overlooks, it provides prospective homeowners greater buying power. The idea behind the LEM is that people who live and work in Seattle and have close access to public transportation and neighborhood services are more likely to use those services, saving money otherwise spent on car use and maintenance.[38]

Promoting Resource Efficiency

Smart Infrastructure

One of the costly impacts of sprawl is the resulting demand to extend utilities such as electricity, gas, water, sewerage as well as hospitals, schools, roads, waste pickup and disposal,

[35] The Sprawling of America, Address by Richard Moe, President National Trust for Historic Preservation, to National Press Club, Jan. 22, 1999.
[36] http://www.p2ric.org/news/allnews.cfm
[37] The Sprawling of America, Address by Richard Moe, President National Trust for Historic Preservation, to National Press Club, Jan. 22, 1999.
[38] http://www.fanniemae.com/neighborhoods/partnership/pugetsound/story1.html

fire and public safety services. Each of these demands has not just economic costs but environmental costs as well, resulting from construction, soil compaction, and reduced open space.

Promoting smart infrastructure can curb sprawl. For example, impact fees on developers can help defray the costs of infrastructure, though they may cover only a fraction of what infrastructure costs. Communities can also establish incentives for developers who incorporate smart growth initiatives into their plans and projects. These incentives could include expedited approval processes, decreased permit fees, decreased impact fees, priority in the provision of services, facilities, and allocation of financial resources.

Other options sensitive to the costs associated with infrastructure include:

- Pooling resources among communities so that only one larger sewage treatment plant has to be built instead of two.
- Supporting brownfields legislation that encourages the reuse of existing development and infrastructure rather than using pristine land on the edge of a city
- Using State Revolving Fund dollars to prioritize projects consistent with smart growth (such as improving existing systems or funding drinking water protection) rather than funding a sewer system expansion in an area to allow for further suburban sprawl
- Establishing guidelines for the water use and chemical applications on new golf courses so that demands on a city's infrastructure are reduced
- Promoting green buildings which make fewer demands on infrastructure
- Developing an ordinance (or some other mechanism) that encourages government buildings to be buildings using recycled components, solar energy, water-efficient fixtures, and other resource-preserving features. Such an ordinance could even address issues such as preserving corridors for wildlife migration and runoff/nonpoint source pollution from paved surfaces.

Moving from ideas to specific practices, the following list proves that such changes are not only possible but plentiful:

- Coloradans for Responsible Growth developed a ballot proposal whereby large cities and counties would designate growth areas, but only where local governments can realistically extend roads, water and sewer services within the next ten years. The group calls it a "bottom-up, local control approach."
- The Twin Cities have a tax base sharing scheme whereby 40 percent of the increase in commercial and industrial property tax revenues since 1971 is pooled and then distributed so that communities without substantial business development are not overwhelmed by demands (increased traffic and pollution, loss of open space) and starved of resources.
- Several communities near Phoenix, Arizona are exploring ways to slow residential growth in areas with severely overcrowded schools. Queen Creek has stopped rezoning properties for residential development unless public facilities are adequate. The city council of Glendale has proposed an ordinance that would require approval from school officials before rezonings for higher-density use could be considered. The Deer Valley school district has closed enrollment at several schools.[39]

[39] *Growth/No Growth Alert*, Vol. 2, No. 4, April, 1999 by Mandolin Publishing

- The city of Austin, Texas established a desired development zone; outside the zone, fees for water and sewer connections would be $2700-3000. Inside, those fees would be 20 percent, 30 percent and 50 percent lower for areas outside the city limits, inside the city limits and downtown, respectively.[40]
- Under Maryland's progressive smart growth law, counties get state money for roads and schools only if they agree to confine growth to areas that the state has designated as suitable.

Resource Efficiency in Model Communities

Many model industrial and residential communities are demonstrating the feasibility of tackling many smart growth and P2 issues at once. Highlighting numerous efficient design features in one community – such as energy efficient lighting, water efficient plumbing, services within walking distance, and xeriscaping (landscaping with plants requiring minimal water), among others – serves two purposes. In addition to conserving resources, such communities are an invaluable education and awareness tool.

The following examples illustrate how resource efficiency has been used as a design principle in communities across the country.

- Jordan Commons in Miami, Florida is a low-income community developed in cooperation with Habitat for Humanity with great attention to energy efficiency, walkability, common spaces, and convenient services such as athletic and day care facilities that people do not have to drive to.
- Northwest examples of such design are Fairview Village, located east of Portland, Oregon, and Northwest Landing, which is south of Tacoma, Washington. The developments combine varying housing types, retail and job sites within walking distance, and pedestrian-oriented streets.[41]
- Eco-Village in Ithaca, New York is another example of a resource-efficient planned community.
- The Brownsville, Texas' Eco-Industrial Park project is similar in that it is a collaboration of stakeholders, but with an eye towards industrial rather than residential efficiency.
- Tucson, Arizona has experienced un-smart growth in the last 50 years. The nearby community of Civano, a model of sustainability, which incorporates the principles of sustainable development and traditional neighborhood design to create a new model for development, grew from a grass-roots vision of a Tucson Solar Village that utilized the region's primary renewable resource: sunshine. The sustainable master-planned development occupies 1,140 acres on Tucson's growing eastside. The benefits to the community include preservation of the desert by building at higher densities and the city saving $500,000 annually through avoided costs of water, roads and landfills.[42]

[40] Ibid.
[41] "Neotrad nation. A patchwork quilt of New Urbanism neighborhoods." *Chicago Tribune*. June 20, 1998
[42] http://pti.nw.dc.us/news/archives/ (Public Technology, Inc.). Contact: John Laswick, Tucson Manager of the Sustainable Communities Program, 520/791-4675.

Cross-cutting Issues

Regardless of which of the approaches outlined in the previous section suit a particular location, several issues will remain in common. First, collaboration across communities and regions is often the key to achieving meaningful progress on a large enough scale. If each community considers itself an island, it will lose opportunities to build light-rail servicing a region, to consider joint infrastructure projects or protect intact open spaces sufficiently large to preserve species habitat. Second, an important component of pursuing smart growth coupled with P2 is to measure progress. Without tangible metrics, it is nearly impossible to distinguish between programs that are working and those that are not. Finally, there are some pitfalls to be aware of in pursuing smart growth. Sometimes, well-intentioned plans can lead to undesirable side effects. In the remainder of this section, these three issues are explored in greater detail.

Collaborating across Communities and Regions

Collaborating across jurisdictions to achieve smart growth and P2 can lead to collective benefits greater than if regions operated in isolation. If plans are not made regionally, then restrictions in one area can lead to incentives to develop in another area, effectively shifting sprawl and its polluting effects without minimizing it at all. In addition to achieving progress that can only be made inter-regionally – such as building cooperative transportation, water, electrical and other types of infrastructure, another advantage is to pool resources for common goals. For example, if large tracts of land should be conserved for reasons of ecosystem integrity, the likelihood of raising sufficient money is higher. Colorado has a statute that allows inter-governmental agreements whereby cities and counties can work together on growth and development plans. The city of Boulder, Colorado initiated such an agreement in the 1970s designed to keep what is urban urban and what is rural rural.[43]

In an excellent report by the Center for Livable Communities entitled "Participation Tools for Better Land Use Planning," the value and necessity of civic participation is outlined in the five points outlined below.[44] Civic participation in the land use planning process:

1. Ensures that good plans remain intact over time
2. Reduces the likelihood of contentious battles before councils and planning commissions
3. Speeds the development process and reduces the cost of good projects
4. Increases the quality of planning
5. Enhances the general sense of community and trust in government

Double-edged swords

Well-intended policies can have downsides. For example, like any situation with limited supply and high demand, limiting growth through various smart growth policies often results in increased prices, effectively stunting the possibility of mixed-income neighborhoods and creating an affordable housing crisis. Impact fees and urban growth boundaries are therefore

[43] Growing Pains: Managing Population Growth in the West, video produced by MT State University Extension Service and University of Arizona Cooperative Extension Service, #37

[44] Center for Livable Communities. "Participation Tools for Better Land Use Planning." June 1997. Second Edition.

tools to be used delicately. If such policies are implemented within a city, they can result in outpricing original residents and lead to faster growth outside the cities, creating an incentive to develop open land. Such is the case in Prescott, Arizona, where a series of impact fees led to a combined impact of $6,000 per new home built.[45] The fees added so much to the cost of a new home that lower-income residents could no longer afford to live there.

Other examples of good ideas with potentially detrimental side effects include the following

- Plans that are designed to prevent the problems associated with pollution and sprawl often advocate for policies that place restrictions on development. While the intentions and outcomes are good , restrictions in general are usually unwelcome, especially in western states.
- Another dilemma is that tourism is an industry that capitalizes on the natural beauty of western states, creating an incentive to keep the land undeveloped. However, some view the impacts associated with supporting the tourism industry (increased use of back country trails, increased demand for hotels and other service infrastructure) as killing the tourism industry. In other words, growth in tourism may destroy the very quality that makes beautiful remote places attractive
- Some people have welcomed the advance of telecommuting because by allowing people to work from home, it may decrease VMTs (thereby preventing pollution). However, if people do not have to drive to work every day, they will be able to live in more and more remote places, where they can afford to build on larger plots of land and requiring that services (water, sewage, electricity, cable, phone, schools, emergency) be extended to them. Such a trend would contribute to less dense development and more sprawl. Similarly, if cars were to become more fuel efficient, would this act as an incentive to drive more and longer distances, thereby reducing a barrier to sprawl?
- Similarly, aquifer protection plans can conflict with encouraging denser development. One method of protecting aquifers is to require minimum plot sizes for development. However, minimum plot sizes encourage development to be more spread out. This may benefit aquifers but work against smart growth. Several cities in Idaho, for example, have a rule limiting development to one house per five acres. A regional steering committee is proposing an alternative which would include maintaining an average of one house per five acres but leaving large tracts as continuous open space while clustering development in other areas.[46]

Measuring Progress

Regardless of which solutions are tried, it will be important to measure progress. Quantitative measures can be a real gauge of success, and they can reveal which approaches are not so successful. They are certainly the most compelling arguments for change. As the saying goes, what gets measured gets managed. One of the most important metrics discussed in this

[45] Growing Pains: Managing Population Growth in the West, video produced by MT State University Extension Service and University of Arizona Cooperative Extension Service, #37.

[46] SmartGrowth Network. www.smartgrowth.org

report is the ratio of property taxes to infrastructure costs. Others are discussed here. A list of metrics developed by various communities in western states appears in Appendix A.

One of the reasons that LUTRAQ, the Portland area land use, transportation and air quality plan, is so compelling is that it has quantified its expected results. LUTRAQ projects a 10% reduction in VMTs per capita as a result of the policies adopted in Portland. Further, it would reduce time spent in traffic congestion by 53%, and it would reduce CO2 emissions by 6.4%. These compared favorably with an alternative plan to expand a freeway.[47] Had LUTRAQ produced only vague promises of improvements, it is not likely that it would have achieved the support that it did.

A great starting point for towns and regions is to begin to measure the following short list of metrics, which were used by Envision Utah in a strategic planning model:

- Average peak hour traffic speeds (mph)
- People who can walk to rail transit (½ mile) as a percent of total population
- Total Water Demand (acre feet)
- Per Capita Water Use (gallons per day)
- Air Quality: Total emissions (tons per day)
- Land Use and Housing: Average size of single-family lot
- Walkable communities (qualitative)
- Overall housing availability (Single-family, Townhouses, Condos and Apts)
- Land consumed: New
- Land consumed: Total
- Agricultural land consumed
- Cost of infrastructure (water, sewer, transportation, utilities) 1998-2020

In addition to these relatively simple measures, there are more complex ones, such as the increased asthma and other respiratory illnesses associated with increased traffic emissions. These types of measures are more difficult to measure, but as cities, counties and states go forward, it will be important to measure the impacts of current development trends – in terms of pollution, health, and quality of life. Every alternative, including not planning for the future, has costs associated with it. In fact, one of the interesting questions communities can ask themselves is: what is the cost of doing nothing?

Conclusions

This report has shown how virtually every step that promotes smart growth also prevents pollution, and that these steps typically fall into one of three categories: protecting open space, concentrating growth and promoting the efficient use of resources. The practices that achieve these goals have been illustrated with numerous examples in western states and throughout the country, from charging developers true costs of infrastructure construction to building resource-efficient homes.

[47] New Urbanism (www.cnu.org) and "Driven To Spend: The Impact of Sprawl on Household Transportation Expenses." A Transportation and Quality of Life Publication, 2000. Surface Transportation Policy Project and Center for Neighborhood Technology.

One thread of continuity that is found in all of these examples, and indeed in all pollution prevention and sustainable growth work, is the idea that less is better. In other words, it is not possible to know all the impacts of decisions that result in sprawl or more pollution, but precaution dictates that avoiding unsustainable growth results in fewer negative effects, such as traffic congestion, air pollution, lost habitat, and the many other impacts discussed here. In general, the goals of denser development, more transportation alternatives, efficient use of water and electricity only serve to improve the quality of life and areas of natural beauty that people have come to enjoy and that sustain the tourism industry.

Because both movements, the pollution prevention movement and the smart growth movement, have the precautionary principle at their core and share a common set of tools (as shown in Figure 2), it seems logical for them to join together and work collaboratively to achieve their common goals. To capitalize on their common interests, they should consider jointly establishing an agenda to bring in stakeholders from all sectors and all different levels of government, setting clear goals and deciding how to measure them, and staying open-minded about the potential trade-offs of policies and plans that make good but imperfect progress.

As shown in this report, cooperation would bring certain mutual benefits. Working together to reinforce each others' compelling reasons for action can help the public and other key stakeholders see the critical need for P2 as a tool for sustainability. In addition to building a broader base of support for action, this teamwork could result in both the development of more creative solutions and a greater opportunity for educating the public.

Finally, while designing wise plans and policies, we should not lose sight of the power of individuals to affect their own community's quality of life. Planning and policies have enormous impacts on environmental and social health, but individual choices with respect to where people live, what they drive and how they interact with their community are still very important influences on how sustainable their growth patterns will be.

A Top Ten List: Sources for Interested People to Check Regularly

Because information about smart growth and pollution prevention can be overwhelming, we have assembled a list of the most useful sources for people who are interested in keeping current with this issue. They are:

1) The Smart Growth Network, found at www.smartgrowth.org, provides detailed information on many of the issues discussed in this report. The network also organizes a yearly conference which is described on the website.

2) Enlibra is a set of principles designed by the Western Governors Association to address environmental issues in a collaborative fashion, staying mindful of the links between growth and clean air, water and land. Learn more at www.westgov.org/wga/initiatives/enlibra/default.htm. (Also see the Western Governors' Open Land Initiative.)

3) EPA's Green Communities Assistance Kit is available at www.epa.gov/greenkit/.

4) The Urban Land Institute is a well-known leader in the smart growth field. Its website, www.uli.org/indexJS.htm, provides information about housing, transportation and urban revitalization among other issues.

5) The Sprawl Watch Clearinghouse, at www.sprawlwatch.org/frames.html, has detailed information about best practices, state-specific actions and other resources.

6) Local Government Environmental Assistance Network can be found on the web at www.lgean.org/index.cfm. Be sure to explore their tools for smart growth and pollution prevention.

7) The Center for Excellence in Sustainable Development, which is located in Colorado and on the web at www.sustainable.doe.gov/landuse/luag21cn.shtml, provides case studies, tools and educational materials about how to grow sustainably.

8) Growing Smart^{SM} is the American Planning Association's multiyear project to draft the next generation of model planning and zoning legislation for the U.S. It can be found at www.planning.org/plnginfo/GROWSMAR/gsindex.html.

9) Sprawl Links is a guide to numerous Internet resources on smart growth. The links were assembled by Vermont but they are applicable to any place in the country. They can be found at www.anr.state.vt.us/sprawl/sprawl_links.htm.

10) Envision Utah was formed in January of 1997 as a public/private community partnership dedicated to studying the effects of long-term growth in the Greater Wasatch Area of northern Utah. It enjoys wide support and recognition and stands as a strong model of regional cooperation. Its website is www.envisionutah.org, and its phone number is (801) 973-3307.

APPENDIX A: METRICS USED TO ASSESS SMART GROWTH IN WESTERN COMMUNITIES[48]

Arizona

Tucson: City of Tucson. Developed Livable Tucson Vision Program which includes a definition of each of Tucson's 17 goals and key indicators of progress. The website is available at http://www.ci.tucson.az.us/livable.html.

Phoenix: Morrison Institute for Public Policy. Released I998 Report with nine categories of indicators entitled What Matters in Greater Phoenix, 1998 Edition: Indicators of Our Quality of Life. The site is http://www.asu.edu/copp/morrison/public/qofl98.htm.

Colorado

Boulder County: Boulder County Healthy Communities Initiative. In Summer 1998, published the Quality of Life in Boulder County 1998 - A Community Indicators Report which contains 34 indicators, including 12 on People, 8 on Environment, 7 on Economy, and 7 on Culture & Society. The environmental portion of the report is available on line at http://bcn.boulder.co.us/basin/local/.

Gunnison County: High Country Citizens' Alliance. Working with Gunnison County to define and measure the County's environmental, social, and economic well being. Plan to publish a report of their findings.

Montana:

Missoula County measures indices that track air quality, groundwater quality and smart growth among other things. They can be found at http://www.co.missoula.mt.us/measures/index.html.

Nevada

Truckee Meadows - Reno: Truckee Meadows Tomorrow. Works with Regional Planning Council to issue annual reports with 66 quality of life indicators.

New Mexico

Albuquerque: City of Albuquerque. Provides reports on Five-Year Goals Progress Indicators that reflect links between community indicators and the city's 5-year goals and programs. It is available at http://www.cabq.gov/progress/index.html.

Albuquerque: City of Albuquerque, the Albuquerque Public Schools, The Albuquerque Conservation Association and others. Developed Albuquerque's Environmental Story: Educating For a Sustainable Community, which was created to help students relate to their local natural and

[48] As reported by the Community Indicators project of former Vice-President Al Gore's Livable Communities project.

human environment. The site, http://www.cabq.gov/aes/index.html, includes a manual with a process for other communities to create their own "Environmental Story."