

## Flows: Blueprint For Santa Fe

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### Executive Summary

"Flows: Blueprint for Santa Fe" analyzes how Santa Fe can recognize, confront and reduce the threats coming our way due to changes wrought from global warming. Given the major changes coming our way, this report presents a variety of strategies that will cumulatively require major changes in the way we live. The strategies are grouped into five flows:

1. Water
2. Mobility
3. Energy
4. Food
5. Conversation



[http://riogrande.sierraclub.org/campaigns/urban\\_issues/flows1.html](http://riogrande.sierraclub.org/campaigns/urban_issues/flows1.html)

Recommendations in "Flows" include:

- ✍ Set and implement a goal of 50 gallons per day of indoor water use and 20 gpd outdoor
- ✍ Achieve year round water flow in Santa Fe River
- ✍ Require permeable paving & sidewalks in new construction
- ✍ Install a water budget based fee system replacing both the current billing system and water use restrictions, to cover fixed costs and induce conservation through an aggressive tiered rate structure
- ✍ Ensure a trail and a transit stop within a ten-minute walk of every Santa Fean living in areas of at least 5 dwelling units per acre
- ✍ Offer rail transit service between the railyard to the southern city limits
- ✍ Complement rail transit service with trolley service throughout the city
- ✍ Implement the bicycle plan's recommendations for completion of bike trails, on street striping, and bike parking facilities
- ✍ Conduct a major sidewalks campaign, to repair what's broken, install what's missing, and connect homes to trails and transit
- ✍ Reduce building energy use by 50 percent from current levels
- ✍ Gain from renewable sources all electricity supplies, after greatly increasing efficiency in heating, lighting, and electricity
- ✍ Devote 1/4 of Santa Fe's rooftops to solar collectors
- ✍ Set development fees on efficient use of energy, water and location
- ✍ Create an urban growing boundary around Santa Fe
- ✍ Buy organic foods grown within the local "foodshed"
- ? Use organic gardening techniques to sequester carbon
- ✍ Marry age old techniques such as acequias with cutting edge techniques such as extremely water efficient greenhouses, to deliver water to crops
- ✍ Replace major intersections with *redondos*
- ✍ Focus the majority of new development around rail stations
- ✍ Redevelop St. Michaels Street into a boulevard lined with shops, offices, and housing, all supported by transit and trails
- ✍ Base zoning on policies to encourage convenient neighborhoods
- ✍ Put in place neighborhood design standards and eliminate one function only subdivisions or big box retail
- ✍ Possible financing strategies include:
  - General obligation bonding
  - Tax increment financing
  - Real estate transfer tax
  - Capital improvement set aside
  - Transportation utility fee

## Introduction

The news on global warming keeps coming in, and it's bleak. The latest climate data show 2005 shaping up to be the hottest year on record. The melting of ancient Arctic ice and the two recent hurricanes birthed in the rising temperatures of the Gulf of Mexico are unmistakable signs of global warming.

We are on the path to disaster, and not in some distant future but in our lifetimes. We can no longer deny that natural phenomena from droughts to hurricanes are exacerbated by the way we live. Warmer temperatures; changing rainfall patterns; stresses on wildlife, crops, and ecosystems; an intensification of weather, with increasing incidents of extreme storms, are all clear signs that our carbon dependent lifestyle is affecting the global environment. Global warming scenarios include melting of Greenland glaciers to arrest warm water flows to Northern Europe; melting of Siberian permafrost that releases so much methane into the atmosphere that global warming becomes irreversible; and the collapse of the Antarctic ice shelf, dumping enough water to drown islands and coastal cities.

High temperatures were the underlying cause of a massive die-off of pinon pines in the recent Southwest drought. "Climatologists are predicting that we're going to get more droughts, and they are going to be hotter," said David Breshears, of the U. of Arizona "High Temperatures Killed Pinyon Trees" USA Today, October 11, 2005

The Bush-Cheney administration, along with the Republican congressional leadership, have their heads in the sand on global warming, always taking their cues from Exxon Mobil. State and local levels that usually can rely on some support from Washington on salient issues are left out in the heat on this one. Here is a list of stories, as listed on the Natural Resources Defense Council web site, of the furious efforts this administration has made to put a "What Me Worry?" spin on global warming:

Bush admits humans cause global warming, but rebuffs action (07/06/05)  
 EPA scuttled global warming videos to avoid White House wrath (07/01/05)  
 White House white-washes global warming data (06/08/05)  
 Bush points to technology as key to climate change fix (02/17/05)  
 EPA environmental report to include global warming data (02/03/05)  
 Bush administration impedes progress at international global warming talks (12/18/04)  
 Bush administration accepts global warming science but balks at solutions (11/24/04)  
 Bush administration agrees to capture methane gas (11/16/04)  
 Bush administration ignoring scientific evidence on global warming (11/08/04)  
 Top EPA air official tells industries it will need to reduce greenhouse gases (10/12/04)  
 Bush administration slashes funding for global warming research (06/03/04)  
 EPA will cover climate change, for a change (06/02/04)  
 Bush administration claims it's misunderstood on global warming (05/10/04)  
 Secret Pentagon report details global warming threat (02/22/04)  
 Scientists accuse White House of distorting science for political gains (02/18/04)  
 Energy Department promoting carbon sequestration (01/27/04)  
 Court upholds stronger energy-efficiency standards (01/13/04)

Bush's global warming plan produces negligible results (01/01/04)  
 EPA revs up motorcycle pollution plan (12/23/03)  
 Bush administration seeks increase in use of ozone-depleting pesticide (11/14/03)  
 White House plays down global warming evidence (09/21/03)  
 EPA passes the buck on regulating global warming pollution from cars (08/28/03)  
 EPA on global warming gases: Bring 'em on! (08/28/03)  
 Bush climate plan all study, no action (07/24/03)  
 White House whitewashes EPA environment report (06/23/03)  
 Department of Agriculture encouraging farmers to cut greenhouse gas (06/06/03)  
 Bush administration to build world's first emission-free power plant (02/27/03)  
 Scientists debunk Bush's global warming plan (02/25/03)  
 White House ordered to reveal climate change documents (02/21/03)  
 White House gets industry support for voluntary pollution cuts (02/12/03)  
 Bush administration fosters policy of delay on global warming (12/04/02)  
 EPA omits global warming section from pollution report (09/15/02)  
 Bush administration stalls on global warming solution (07/10/02)  
 Bush and Whitman distance themselves from EPA global warming report (06/12/02)  
 Bush administration finally admits big trouble from global warming (06/03/02)  
 Bush administration ousts top global warming scientist (04/19/02)  
 Bush clean air plan would boost coal use (04/17/02)  
 Bush administration trying to dump global warming scientist (04/02/02)  
 White House global warming plan "cooks the books" (02/14/02)  
 Bush unlikely to offer alternative global warming plan (07/26/01)  
 NRDC praises global warming agreement; calls on Bush to reconsider (07/23/01)  
 Bush outlines an 'all talk, no action' approach to global warming (07/13/01)  
 Bush budget cuts for global warming programs more significant than reported (07/12/01)  
 Bush administration rejects Kyoto Protocol (03/28/01)  
 Bush retreats from campaign promise to reduce carbon pollution (03/13/01)

David Rind of the Goddard Institute for Space Studies ...found that as carbon-dioxide levels rose the world began to experience more and more serious water shortages, starting near the equator and spreading toward the poles. The model shows that the Rocky Mountain States and California are the first areas to experience the worst drought scenario... He questions the world's ability to "adapt", the President's Science Advisor John Marburger's position on how we deal with climate change. But Rind asks: What does adapt mean? "Because the way models project this, as global warming gets going, once you've adapted to one decade you're going to have to change everything the next decade."

"The Climate of Man," Elizabeth Kolbert, New Yorker, May 2, 2005

But Bush is not the only one to blame. We Santa Feans are spending too much time driving and too little time walking. We fling our ranchettes out over landscapes once the reserve of wildlife, tethered to town by our SUVs. And we get our food, energy and other daily needs from sources thousands of miles away.

We cannot sit idly by while the world warms. We must think global and act local. Indeed, we have no other choice.

Santa Fe was touted as the most beautiful city of the 20th century by architecture critic John Massengale, until engulfed by the mad rush toward modernization of land use. Recently designated as the second best place to live by Places USA as one of the world's top three cultural cities by UNESCO, Santa Fe can still preserve its exceptionally clean air and wondrous mountains without giving into the monotonous subdivisions and chain stores that chip away at the city's beauty and uniqueness.

The upcoming campaign for Santa Fe's mayor and four city councilors is an opportune time to suggest that candidates consider meaningful public policies to respond proactively to global warming's challenges. Indeed, it may well determine whether Santa Fe can respond meaningfully in moving toward a sustainable lifestyle.



This report attempts to analyze how to address the basic human needs of water, mobility, energy, food, and conversation, in the form of five flows to address damaged environments, crippled streams, jammed up streets, over reliance on imported food and energy, and an honest consideration of the costs of our design decisions. No one person or institution can address all of the flows instantly, however, we are confident that Santa Fe can address as many of these challenges as possible.

We've known about the potentially devastating impact of global warming for nearly a generation. Yet we turned up the throttle, as if to say: "We just don't give a damn." What did anyone expect? SUVs make up 52% of all the vehicles owned in America, each a death engine, spewing record amounts of CO2 into the earth's atmosphere...How do we explain to our children that Americans represent less than 5% of the population of the world but devour more than a quarter of the fossil-fuel energy produced each year? How do we say to the grieving relatives of the victims of the hurricane that we were too selfish to allow even a modest five-cent tax increase on a gallon of petrol in order to encourage energy conservation? ... Natural calamities tend to bring out the best in the American character. We pride ourselves on being there for our fellow human beings when they cry out for help. Why can't we muster up the same passionate response when the Earth itself is crying out for help? Shame on the United States of America and the peoples of other countries - we're not alone - who have put their personal, short-term whims, desires and gratifications ahead of the welfare of the rest of the planet.

*"Sorry, Mr. President, Homilies Won't Stop the Hurricanes" Jeremy Rifkin, [Guardian](#), September 23, 2005*

## Flow 1: Water

Santa Fe has felt the fingers of global warming creep into town the past few years, courtesy of withering droughts. Shortages of water have become commonplace since 1996, and the city still technically is in the second stage of a drought that limits outdoor water uses. Both the City and County of Santa Fe have performed admirably in responding to drought years with a series of tough and effective measures that have made Santa Fe a leader in the Southwest in water efficiency, such as the City's drought contingency plan, watershed thinning project, toilet swap out program, and a conservation ethic made chic, with comparable County measures such as an ordinance requiring capture of rainwater for any building above 2500 square feet. Yet much more needs to be done to truly droughtproof Santa Fe.

**Goals:** Manage what water we've got so that there is no net increase in water use above 2005 levels. Set and implement a goal of 50 gallons per day of indoor water use and 20 gpd outdoor. And achieve year round water in Santa Fe River.

The return of the Santa Fe River this spring has not only staved off the death of more willows and cottonwoods. It has helped to revive a city whose primary natural resource -- its charm -- is constantly threatened with extinction from overdevelopment. The reason for the reprieve, of course, has been an unusually wet winter and spring, creating more mountain runoff than the city can hold behind its two upstream dams. But there is no reason why, with careful planning, there cannot be a threshold of water running through Santa Fe all the time. The sound and the sight of a living river does not have to be a meteorological fluke. Nor does it have to be something determined by unelected city water officials.  
 "Shutting Down the River Again", George Johnson, June 2, 2005

Following are water flow strategies to achieve these goals.

### *Restore/Manage Watersheds & Riparian Areas*

Manage Santa Fe River to maintain in-stream flows when possible to enhance recharge & improve riparian ecosystem



*Tree planting along Santa Fe River, Spring 2005*

### *Manage Runoff*

Require permeable paving & sidewalks in new construction

Require construction of swales, check dams, infiltration galleries/ponds

Divert storm water from paved surfaces for beneficial use, ecological restoration & recharge especially in subdivisions, commercial areas & parking lots

Design surfaces for passive water capture for *in situ* use on both public and private lands (e.g. parks, golf courses & domestic gardens)

Channel storm run-off into ponds with high drain inlets

Require new curbs with outflow breaks

### *Manage Land use*

Use building codes and permitting process to encourage infill, green spaces and high density housing while ensuring affordable housing with landscape harvesting for *in situ* use & allowing housing complexes without parking lots

Preserve and increase open and green spaces with passive water capture for *in situ* use

Require multi-story parking garages in commercial areas with water harvesting

Require water saving and/or xeric landscaping, mulching with passive water capture for *in situ* use

Require watershed/hydro-geological based zoning to protect critical recharge zones, wetlands & riparian areas

Establish impact fees based on site analysis and hydrological impact

Inventory impermeable surface area in cities & recharge zones to determine critical eco-hydrological features and estimate changes in evapotranspiration, run-off and recharge resulting from land use changes

Identify & inventory wetlands & riparian areas while establishing appropriate criteria for wetlands

Encourage agricultural practices & agro-ecology/crop choice that makes efficient use of water (e.g. drip irrigation)

Replace &/or phase in permeable side walks

Require narrow roads & single permeable sidewalks in new residential construction/sub-divisions

### *Manage Water Use*

Install a water budget based fee system replacing both the current billing system and water use restrictions, to cover fixed costs and induce conservation through an aggressive tiered rate structure

Require greywater systems in new construction

Require xeric or low water use urban landscaping, including public spaces such as parks, medians, plazas, and golf courses

Require use of treated effluent harvested water in constructions and on public landscapes

Move beyond toilet swap outs to clothes washer swap outs in residences – from 40 gallons per load for top loaders to as little as 12 for front loading machines – and require low-flow pre-rinse spray valves for commercial restaurants and institutional kitchens, the latter saving 50,000 gallons per year with a two month payback period.

Make waterless urinals a permissive use

Require water efficient wash machines in new commercial and multifamily development

Require recirculating loop or alternative hot water on demand in new construction

Install water efficient nozzles, aerators, and showerheads to restaurants, hotels, motels, nursing homes, schools and health care facilities.

### *Manage Water Quality*

Ban or strictly regulate the use of chemicals (fertilizers, herbicides and pesticides) in landscaping, agriculture, forests & orchards to reduce or eliminate substances hazardous to human health & ecosystems

Relocate and eliminate fees for waste transfer stations to encourage non-polluting disposal of waste & hazardous materials

Require non-toxic sealants for asphalt paving

### Sweep & clean public & private parking lots



*Beaver returns to the free flowing Santa Fe River, near the Commons on the Alameda, Spring 2005. Courtesy of Rich Schrader*

The devastation and cost of Hurricane Katrina provided a new hook for a faction of the insurance industry that is trying to raise public awareness of global warming and push the topic onto the political agenda.

Some of the industry's largest companies have sided with environmental groups in recent years to argue that global warming exists and that man-made causes are adding to the severity and cost of natural catastrophes.,,,

Swiss Reinsurance Co., a giant Zurich-based provider of backup insurance to insurers, says climate change could increase the severity and spread of contagious diseases by extending the ranges of disease-carrying insects such as mosquitoes, altering markets for life and health insurance, while new rules on industrial emissions could generate shareholder suits, changing the market for directors' and officers' liability coverage...

Environmental groups say the arrival of insurers, along with a scattering of other corporations pushing for action on climate change, has boosted the anti-global-warming camp's credibility.

"Insurers way of Global Warming." Dean Starkman, Washington Post, October 10, 2005

### ***The Case Against Sprawl***

*Sprawl is in many places the most significant threat to habitat and open-space, as well as to our air and water. This is true not just in the fast growing South and West. In the North East, for instance, a recent estimate is that 80% of the threat to critical habitat for endangered species comes from sprawl. A majority of the water pollution comes from runoff from streets, highways parking lots and other impervious surfaces. More than of all air pollution comes from mobile sources.*

*The trends are worsening quickly. From 1982-1997, U.S. population grew by 17 percent, while urbanized land grew by 47 percent. Over the past 20 years, the acreage per person for new housing almost doubled and since 1994, 10+ acre housing lots have accounted for 55 percent of the land developed. There is a connection between the increasingly inefficient land use and the growth of mobile sources. The average length of a shopping trip grew from 5.01 miles in 1990 to 7.02 miles in 2001. Commuting trips have grown, too.*

*Sprawl is not just a serious environmental problem; it is also an environmental justice problem. The burdens of sprawling metropolitan growth fall disproportionately on people of color living in cities. To understand the racial dimension of sprawl it is useful to consider its historical roots. Following WWII, the federal government established housing and transportation policies that were deliberately designed to encourage suburban development at the expense of cities. In that pre-civil-rights era, redlining was not just legal, it was mandated by federal law. The first wave of suburbanization consisted of white flight not just as happenstance, but as a consequence of deliberate policy. As the hurricane in Louisiana revealed to the nation, the pattern of disinvestment in poor cities continues unabated today.*

*Creating stable, mixed-income neighborhoods throughout a metropolitan area will do more for civil rights and economic justice than just about any other reform. A growing chorus of civil right leaders now contend that this is the promise of smart growth.*

*Tim Frank, Senior Policy Advisor, Sierra Club's Building Healthy Communities Campaign, September 27, 2005*

## Flow 2: Mobility

The Sierra Club Building Healthy Communities Campaign stresses healthy:

- ? Mobility, in order: walking and bicycling, transit, intercity rail and bus, car-sharing, ultra-efficient--minimum pollution vehicles, and as little freight movement as possible (esp. reduce freight by plane or truck);
- ? Communities: designed to facilitate healthy mobility and reduce mobility;
- ? Government Policies: formulated to promote Healthy Mobility, Healthy Communities, taxation of pollution and polluting modes (and applying revenues to healthy modes), and full-cost pricing of transportation.

Such policies recognize that:

- ? The average American adult spends 15 every week enslaved in his/her motor vehicle, time robbed from the family and community;
- ? Every day Americans collectively go to the planet Pluto, and back, in that great servant but lousy master, the automobile;
- ? All but 15 percent of \$30 spent on a half tank of gasoline leaves town, never to be spent here again;
- ? Spending \$30 for a monthly bus pass recirculates \$35 in the local economy and frees up enough money for those who eschew a commuting car to buy \$75,000 more of a home.

What can we do locally, in this historically European feel of a city, to make healthy mobility a reality? One place to start is transit. What is a transit system for? Seems like an easy question: it's for moving large numbers of people between fixed points, usually at rush hour. But there's a deeper reason for transit systems. They're primary tools for shaping cities, and until our leaders understand this, they flail at creating transit systems that work. Just such a city is Santa Fe, whose current bus system ridership is paltry.

The mistake here is in equating transit and automobile travel. Done right, transit has good effects on cities in the long run: it creates denser living and working patterns (which lower infrastructure costs), makes land uses more efficient (reducing the need for parking spaces) and creates interesting streets and public spaces (more tourists!). Auto travel has the opposite effects, dispersing homes and offices, raising infrastructure costs and pockmarking downtowns and shopping districts with parking lots.

Even Los Angeles is transforming from the bogeyman of sprawl to a transit friendly metropolis. According to an article in the September 29, 2005 issue of LA Weekly, "building higher-density housing near transit in existing communities can be expected to boost transit ridership by 30 percent (since that's where transit is located) and reduce housing costs by 25-30 percent (since higher-density housing is less expensive than suburban single-family homes)... The real-estate market is changing dramatically....PricewaterhouseCoopers, which

annually surveys 500 developers, investors and real-estate industry leaders for its “Emerging Trends in Real Estate” report, this year ranks locations near transit as the No. 1 choice for all development types – residential, commercial, office and retail.

Over the past century, our cities have been shaped — literally — for the benefit of the automobile and oil industries. Today, with global oil reserves headed toward irreversible decline, we need to face the challenges of the imminent post-oil reality. Seizing foreign oil fields (then spinning the story to make a prophet of Orwell) will not solve our environmental problems....Even if powered by biodiesel, hydrogen or sunbeams, the automobile is still part of an unsustainable urban system that requires massive networks of streets, freeways, and parking structures to serve congested cities and far-flung suburbs. Driving a Prius hybrid simply makes it easier for people to live farther from the rest of their lives while seducing them into thinking that they are “doing something for the environment”. We don’t want to face this truth because it implies too much change. Autoworkers want to keep their jobs and Sierra Clubbers want to be free to drive 40 miles to experience nature whenever they feel like it.

“Green Cities and the End of the Age of Oil,” Richard Register, *Common Ground* June 2005

If Americans used public transportation at the same rate as Europeans -- for roughly ten percent of their daily travel needs -- the United States would:

- ? Reduce its dependence on imported oil by more than 40 percent or nearly the amount of oil we import from Saudi Arabia each year;
- ? Save more energy every year than all the energy used by the U.S. petrochemical industry and nearly equal the energy used to produce food in the United States;
- ? Reduce carbon dioxide emissions by more than 25 percent of those directed under the Kyoto Agreement;
- ? Reduce carbon dioxide by three times the combined levels emitted by four high polluting industries: chemical manufacturing; oil and gas production; metals processing; and industrial use of coal;
- ? Reduce smog across the country by cutting nitrous oxide emissions by 35 percent of the combined emissions from the four industries cited above, and cut VOC pollution by 84 percent of the combined VOC emissions from these four industries.

Travel by public transportation produces, on average, 95 percent less carbon monoxide, 90 percent less volatile organic compounds, and about 45 percent less carbon dioxide and nitrogen oxide, per passenger mile, as travel by private vehicles. Greater use of mass transit offers the single most effective strategy currently available for achieving significant energy savings and environmental gains. One key element for increasing the energy efficiency of American transportation overall is to alter the mix of fuels and transportation modes used, toward more efficient ones and away from gasoline-powered cars. The least expensive and most direct way to accomplish this is to increase the use of public transportation, which already relies predominantly on more energy efficient fuels and modes. Using these fuels, public transportation consumes an average of 2,741 Btus per passenger mile.

“Conserving Energy and Preserving the Environment: The Role of Public Transportation”

- ? Ensure access for every Santa Fean living in neighborhoods of modest density (5+ dwelling units per acre) to trails and/or mass transit stops within a 10 minute walk from home;
- ? Halve the number of traffic light intersections, replace with roundabouts;
- ? Expedite train service to Albuquerque;
- ? Plan before the service arrives, the location of a mix of office, commercial and residential uses within ten minutes walks of train stations, located at:
  - o Rodeo Road
  - o St. Michaels Drive & 2<sup>nd</sup> St.
  - o Alta Vista St.
  - o Railyard

Thousands of commuters in Lyon, France, are using pedal power instead of gas, under an ambitious new program that lets people rent bikes from public racks at low cost.



It's kind of like peer to peer for public transport. The rent-a-bike scheme, called [Vélo'v Grand Lyon](#), is open to anyone armed with a credit card. It costs 1 euro (\$1.20) an hour, but there is no charge for the first 30 minutes. Since 90 percent of trips take less than half an hour, most subscribers pay nothing. In just three months, the program has signed up 15,000 subscribers who take 4,000 trips a day and travel over 24,800 miles a week on 2,000 public bikes at 150 bike stations.

### *Trolley*

Emplace trolley lines throughout Santa Fe, connecting up with the rail line and serving streets such as:

- ? Alameda, from Siler Road Bridge crossing to Camino Cabra, thence up to Museum Hill
- ? Siler Road, from West Alameda to Cerrillos, thence to Richards, to the Community College
- ? Airport Road, from 599, to Rodeo, thence to the Rail Line
- ? Siringo Road, from Richards to St. Michaels High
- ? St. Michaels Drive, from Cerrillos to Old Pecos Trail
- ? Guadalupe, from Paseo de Peralta to Railyard

Over 80 communities around the country are looking to streetcars to ease downtown gridlock, connect tourist attractions and encourage development. Enthusiasts say streetcars could lure people who otherwise wouldn't take on ubiquitous gridlock in their cars for lunch, shopping or a trip to the library...Trolleys can fill a niche for dense communities with limited space for parking and road widening...(and) grow more common as gas prices climb and cities become more dense.... Unlike buses, most trolleys run on electricity. They also don't leave their set routes, which fans call a comfort and a boon for development, and critics deride as a waste of money compared to buses that can be sent where needed...In Little Rock, Ark., a recently completed streetcar line connects downtown with North Little Rock and the Clinton Presidential Library. Atlanta is looking at streetcars to get workers and tourists to restaurants and museums along Peachtree Street. And in Miami, officials are considering a 6.7-mile line linking colleges, nightclubs and the design district.

"Issaquah climbs aboard growing streetcar line", September 6, 2005, Seattle Times

### *Parking*

Instead of making developers build off-street parking, allow them to pay a fee in lieu of each space provided. Developers get to spend more money on the actual project. And the fees go for public improvement in the area. Then, since the amount of parking will be reduced, allow commuters to take the value of a free parking space in the office lot and trade it in for cash. They can use it on public transportation, and if they don't spend it all, they can keep what's left over.

Rethink the whole idea of parking. Begin by exempting the first 4,000 square feet of retail space in a new development from any parking requirements at all. In the public arena, make free parking history. Offer train passes to city workers instead of free parking spots. And implement a car sharing program for folks who seek infrequent access to cars but need not own them.

### *Bicycle*

Sponsor a rent-a-bike program (see box on Lyon, France's program) at spots in and near downtown Santa Fe. Subsidize use of bikes by public employees to attend meetings.

Ensure installation of bike racks at all public buildings and medium sized commercial businesses.

Complete and expand the bike trail system proposed in the 1993 city bike plan.

In the final analysis, the flow of mobility is really more about the need for accessibility. As Richard Register of Urban Ecology puts it, we need to “identify the major commercial and neighborhood centers and map them for higher density. Re-zoning to facilitate higher-density pedestrian transit centers will promote access by proximity — instead of transportation.” The final flow of conservation will further explore this strategy.



*There are three concepts need to redevelop New Orleans. The first is smart growth. The second is transit-oriented development. The third is distributed power generation. Smart growth is the practice of designing higher-density, mixed-income communities that strengthen families, build community and place everyday services within an easy walk from home. It's happening all over the United States. Transit-oriented development is the idea that new development or redevelopment should be based around energy-efficient mass transit that increases metropolitan mobility while reducing time in the car (and thus our dependence on oil). Linking these two concepts allows for a network of healthy communities, connected by efficient, affordable transit, increasing commerce, opportunity and choice across the metro area.*

*The last idea, distributed power generation, is the most exotic, but most strategically important. Distributed power, the use of smaller, highly efficient power generators sited locally is in contrast to the traditional use of massive centralized power generation at a big, inefficient and polluting power plant. The technology exists and many office buildings in urban areas and high-tech factories needing highly reliable power already use them. Indeed, New York City has mandated that a certain percentage of new power generation be distributed to reduce the load on central plants as power consumption increases. The effect is to create a more robust metropolitan energy grid that can withstand localized disruptions more effectively while eliminating approximately one-third of the inefficiency due to transmission losses. With rising energy prices and the certain threat of more hurricanes, efficiency and resilience are essential.*

*Local participation, down to the neighborhood level, will be critical in such an effort. Post-war reconstruction efforts in the Balkans (largely ignored in Iraq) learned the hard way that without local participation, relief efforts can go horribly wrong. Between the participatory charrettes developed in the smart growth practice and the community-based methodologies of the humanitarian relief community, these three elements of a sustainable new New Orleans can be tailored to the needs, hopes and values of the area's residents. In the process, local political involvement, already shaken up, will be reinvigorated while the local economy will boom from the reconstruction work.*

*Taken all together, we have the knowledge, skills and technologies to work with the people of New Orleans to transform that city from a symbol of the worst in America to a vision of what America could be; indeed, what America needs to be. What we cannot do is merely rebuild urban injustice and suburban dysfunction.*

*“A Phoenix from the Mud”, Patrick Stewart, September 27, 2005,  
[www.tompaine.commonsense.com](http://www.tompaine.commonsense.com)*

### Flow 3: Energy

Sunlight falling on New Mexico could provide 34 times more energy than currently used in the entire country. Just 10,000 acres devoted to photovoltaic cell arrays would power New Mexico's electricity needs. 71,000 new jobs would be created making this transition to renewably generated electricity, assuming 35.5 jobs per megawatt of renewables and 2000 MW demand.



#### **Efficiency First: switch to the most efficient use of electricity.**

Switch street lights to have reduced foot candle lamps.

Switch traffic lights to LED lamps.

Adopt Aspen's standards for low light pollution.

Set and implement carbon caps. All new construction should leave a carbon footprint that is at least 50% less than the average for current construction.

#### **Obtain 100% of Santa Fe's electricity use from renewable energy resources.**

Take advantage of federal and state solar tax credits which, when combined, could cover over one-half the capital costs.



Devote 25 percent of roofs and carports in Santa Fe to cover all buildings' hot water, heating and electricity needs.

Set up a program to install solar collectors on 200 roofs per year, or 1000 roofs by 2011.

Ensure that PNM adheres to a net metering program, so that a building's excess electricity can be sold back into the grid.

Join the Chicago Climate Exchange. The exchange is a computerized marketplace where credits for avoiding climate pollution - from carbon and four other "greenhouse gases" - are bought and sold the same way company stock is sold in New York and pork bellies are sold in Chicago.

Advocate for and use a program for PNM customers who generate their own green power with grid-tied photovoltaic (PV) systems. PV system owners would receive 11 cents for each and every kilowatt-hour of PV power they generate for

12 years. The owner of a two kilowatt PV system, for example, which costs about \$20,000 today to install, would receive a check for about \$350 each year, or more than \$4000 over 12 years, which represents a 20%-25% discount .

Support a state solar tax credit at 30% with no cap, to complement the new federal credits of 30% (but capped at \$2000)

Craft an energy efficiency program, including gas efficiency for winter heating needs.

Clean out and capture the methane from past and current landfills, use as a source of transport fuel for fleets of buses and trucks.

Raise the net-metering maximum threshold to at least 100 kilowatts, which will open the door for commercial distributed solar electricity generation. Net-metering is currently capped at 10 kilowatts.

Change the minimum threshold for eligibility for the New Mexico Wind Power Production Tax Credit from 10 megawatts down to 1 megawatt, which will greatly aide development of distributed wind generation using utility scale turbines.

Pledge to buy any wind generated power within a 150 mile “windshed.”

Require all new buildings to encompass active solar collectors on their roofs and passive solar in their construction techniques.



Join the Green Tag Program. Green tags are created when a renewable energy facility generates electricity. Each unique certificate represents all of the environmental attributes or benefits of a specific quantity of renewable generation, namely the benefits that everyone receives when conventional fuels, such as coal, nuclear, oil, or gas, are displaced. You usually buy certificates from someone other than your electricity provider. What you pay for when you buy renewable energy certificates is the benefit of displacing other non-renewable sources from the regional or national electric grid.

### **Building considerations**

Require passive solar in all new construction.

Orient buildings mindful of prevailing winds.

Use window/door overhangs and light color roofs to reduce cooling costs.

Plant deciduous trees on the south and southwest sides.

Plant conifer trees on the north and northeast sides.

Issue permits within 30 days if doing the right thing

Encourage use of clotheslines.

Institute a "global warming fee" on new homes and renovation projects that exceed local energy standards, as done in Aspen. Homeowners can either pay the fee, which goes into a city fund for renewable energy projects, or they can offset their excess global warming pollution by investing in their own renewable energy system.



Grade neighborhood development on energy efficiency, using standards for Leadership in Energy and Environmental Design for Neighborhood Development. Projects will be judged by:

- ? location efficiency
- ? environmental preservation
- ? compact, complete, and connected neighborhoods and
- ? resource efficiency, such as recycled materials and wastewater systems



*Organic farming may be one of the most powerful tools in the fight against global warming. Findings from The Rodale Institute's 23-year Farming Systems Trial® (FST) comparing organic and conventional cropping systems show organic/regenerative agriculture systems reduce carbon dioxide, a major greenhouse gas—positioning organic farming as a major player in efforts to stop climate change from runaway greenhouse gas increases.*

*Besides being a significant underutilized carbon sink, organic systems use about one third less fossil fuel energy than that used in the conventional corn/soybean cropping systems. According to studies of the FST in collaboration with Dr. David Pimentel of Cornell University, this translates to less greenhouse gas emissions as farmers shift to organic production. The ability of organic agriculture to be both a significant carbon sink and to be less dependent on fossil fuel inputs has long-term implications for global agriculture and its role in air quality policies and programs.*

*Since 1981, data from the Farming Systems Trial show that soil under organic agriculture management can accumulate about 1,000 pounds of carbon per acre foot of soil each year. This accumulation is equal to about 3,500 pounds of carbon dioxide per acre taken from the air and sequestered into soil organic matter. When multiplied over the 160 million acres of corn and soybeans grown nationally, a potential for 580 billion pounds of excess carbon dioxide per year can be sequestered when farmers transition to organic grain systems.*

*The Rodale Institute's 23-year findings show that organic grain production systems increase soil carbon 15 to 28%. Moreover, soil nitrogen in the organic systems increased 8 to 15%. The conventional system showed no significant increases in either soil carbon or nitrogen in the same time period.*

*It is well known and increasingly accepted that agricultural soil has a huge potential to capture and retain or sequester carbon dioxide. The 1995 Kyoto Protocol references its potential without emphasizing its capacity nor the importance of organic agriculture management for this purpose. Since then, researchers have moved forward strongly with investigations to support agriculture's real potential to sequester carbon. Unfortunately, these studies have not taken into account the differences between organic and conventionally farmed soils. The Rodale Institute findings may change all of that.*

*"Organic Farming Sequesters Atmospheric Carbon and Nutrients in Soils", Paul Hepperly, Daniel Desmond, Cheryl Cook, and John Haberern*

#### **Flow 4: Food**

The production of "cheap" food is one of our most costly uses of energy. Food sold in most grocery stores and super centers today grown using conventional (not organic) agriculture relies on a great deal of fossil fuel for fertilizers, pesticides and farm equipment. Our food is then processed, packaged in plastic and delivered miles down the road to local outlets. Think of the amount of carbon dioxide gases spewed throughout that journey. Transportation of food is considered one the leading causes of green house emissions.

According to a presentation at the October 2005 Bioneers Conference by the staff of the International Society for Ecology and Culture, agriculture is one of the single largest sources of increased greenhouse gases. Modern agriculture accounts for almost a fifth of US energy consumption. Per capita, Americans use more energy for food production than Asians and Africans use for all activities combined.

The American contemporary diet relies heavily on processed foods and animal products. Not only is this diet unhealthy for the individual but for the environment as well. The amount of energy and other resources packaged and processed into our convenient foods is not captured in the purchase price. Reliance on meat requires additional energy to feed, house and transport. Eating high on the food chain consumes high levels of our Costilla Valley and Mora County contains rich and fertile farm lands. By purchasing from these farms we offer communities local to our own and create greater financial security for our neighbors here New Mexico. Buying locally is an effective way to reduce for CO2 emissions.

Locally produced food is fresher, more nutritious, and tastier than the version that sits truck bed and railcar before the grocery shelf. Local produce is easily accessible at Farmers Markets, through Community Supports Agriculture, and at some local food stores. Through Community Supports Agriculture an individual pays invests in a farm by paying in advance for a share of the crop produce.

If food for schools, institutions & restaurants were purchased from local organic sources benefits would multiply. Fossil fuel usage would decrease, Santa Feans would support local growers, kids would understand where food comes from, and individually we'd all be healthier because our food would be fresher and without pesticides.

Designation of a green belt area surrounding Santa Fe would naturally concentrate growth. It would create space to develop food forest areas and as well as areas for efficient greenhouses using captured rainwater as water source.

#### *Food Education*

New Mexico has a great agrarian cultural past that can be used to empower people to grow their own food and store food in order to reduce dependency less healthy food alternatives. Local school curricula should include agrarian history, gardening, food production and storage.

Public spaces can be converted to food producing gardens to create accessibility to arable land. These public gardens could support education for organic, water wise gardening techniques and demonstrate carbon sequestration that occurs with gardening. Another technique to produce food in public areas is creating food forests which allow for beauty and food production. The "forest" is planted with sustainable perennial varieties that produce food such as berries, fruits and nuts.

### *Sequestering Carbon*

Plants use carbon dioxide from the air during photosynthesis and store it the plant tissues. Green house gases can be reduced by a transfer into the soil by specific farming practices such as no-till farming. With the no-till farming technique the "left over" plant material from harvested crops remains on the field. During fallow season this material decomposes to become mulch which protects the soil from erosion and drying out. The next planting season crops are sown directly into the mulch. This practices allows for less carbon dioxide to be released into the air by leaving the "left over" plant material and the new plant growth absorbs carbon dioxide from the air.

In organic farming practices plant material not used for animal or human consumption is composted and spread on the field to replace soil nutrients. This practice also reduces the amount of carbon dioxide released into the atmosphere. In addition because organic farmers do not use chemical pesticides or chemical fertilizers they reduce fossil fuel consumption and uphold water quality.

We think of nothing of buying food that comes from soil hundreds or thousands of miles away from Santa Fe. At the same time, the Santa Fe Farmers Market has been named by *Sunset* as one of the ten best nationwide. And the Marketplace grocery store proudly displays the number of miles from the store to farm on its signs of lettuce, corn and cabbage, encouraging its customers to buy locally. With the very real specter of increasingly scarce and expensive fuel supplies, the first option of myopia cannot continue.

Backyard gardening, community supported agriculture, farmers markets, and chefs choosing local ingredients are all proper, and truly patriotic, antidotes to perpetuating an unsustainable, petrochemical based agri-business system of producing, moving and selling food. We need to face the reality that our addiction to cheap and omniseasonal food is topped with oil, like a sundae topped with chocolate, with sources from the volatile Middle East soon to be

joined, promises the Bush-Cheney forces, with oil ravaged out of Arctic and Rocky Mountain wildernesses.

Those of us who have been addicted to things in life...understand doing bizarre things to quench our cravings. As a nation, we crave oil and will do desperate things to satisfy it. I propose something more bizarre. Support Our Troops – keep 'em home and become a gardener.  
 "Be a Patriot – Get Your Hands Dirty" Allen Best, [High Country News](#), October 3, 2005

Santa Fe embraces organically grown food to such a degree that we boast many supermarkets and farmers market vendors who specialize in organics.

Questions that Santa Fe needs to grapple with when it comes to food include:

- ? How much food can be grown in Santa Fe?
- ? How willing are people to change their diets to eat food that are in season?
- ? What are the options for storing local foods?
- ? Do we have enough water to grow food locally?
- ? Can we avoid food scarcity and inflation?
- ? How can we change the pattern of people who buy food based on price?
- ? How can we attract carbon reduction by growing locally and organically?
- ? How much food can we grow in the Santa Fe food shed of an 80 mi. radius?

Ways to increase local food production include:

- ? Include food production part of public school curriculum;
- ? Place Santa Fe as a city a community that supports local grown agriculture;
- ? Support local farmers market;
- ? Inventory arable land in the Santa Fe food shed;
- ? Create an urban growing boundary around Santa Fe on lands along 599 and I 25, annexed into the city. Place acres of greenhouses on lands leased from the State Land Office;
- ? Create community gardens: plots of land for each family to gardening grow food supported by the city by a buying land or making city-owned land available;
- ? Allow gray water used for gardens and greenhouses;
- ? Develop public awareness campaign educating community about the high value of local food;
- ? Encourage restaurants to cook with organic produced raised in Santa Fe's food shed;
- ? Assist gardeners to use organic techniques to create sequestering of carbon;
- ? Use city greenbelt for food production, incorporate efficient greenhouses and growing season extenders;
- ? Rejuvenate acequias for watering food production and identify great places to grow organic crops;
- ? Cogenerate heat and food from greenhouses;
- ? Teach at Ecovercity and the community college local food production, from front yard gardens to greenhouse scales;

- ? Grow a majority of grains and vegetables consumed in Santa Fe within our food shed. The City should contract with growers in the Estancia Basin, Northern Pueblos, Espanola Valley, Costilla Valley and Mora Valley to buy as much organic food each can produce;
- ? Work with Santa Fe Public Schools, Meals on Wheels program, Kitchen Angels, other social service providers on meals, to commit to buy locally produced organic food.

The Department of Energy released a report that officially acknowledges for the first time that peak oil is for real and states plainly that the "world has never faced a problem like this. The American economy of the mid-twenty-first century may actually center on agriculture, not information.  
The Long Emergency, James Howard Kunstler, 2005

The urban growing boundary can act as both a greenbelt around Santa Fe as well as brake on greed driven sprawl. The area can be used to grow organic food in super water efficient greenhouses – a LANL scientist has created a demonstration greenhouse that grows alfalfa using 99 percent less water than flood irrigated fields – with rainwater and reclaimed water as sources.

How food is grown, that is, with what inputs of water, energy, and fertilizer, needs to change to adapt to changes in the climate. For instance, according to Ecology Action Newsletter May 2005, a technique called "grow biointensive" promises to:

1. Meet basic food needs of people using 8% to 13% of the land area used in conventional area;
2. Use 67% to 88% less water per pound of food produced compared to conventional farming practices, making it possible to grow food where water is scarce;
3. Reduce the amount of purchased nutrient in organic fertilizer form- by 50% to 100% per pound of food produced. In addition, with proper cropping plans, enough compost can be produced to minimize the amount of off-farm inputs required;
4. Eliminate 99% of the energy use needed in conventional agriculture, through the use of manual energy;
5. Increase soil fertility and maintain that fertility while growing food, by growing compost crops, including dual-purpose crops that produce food plus a large amount of carbonaceous material for compost.

*Forecasting heart disease is becoming an ever-finer art, as researchers learn more about the risk factors. But here's a predictor you may not have heard about: street address. In a study published last year, scientists at the RAND Corp. scored 38 metropolitan areas on the "sprawl index"-basically a measure of their dependence on cars. When the researchers tallied disease rates for the same areas, an interesting pattern emerged. Other risk factors aside, people in densely populated places graced with sidewalks and shops had the lowest rates of diabetes, hypertension, heart disease and stroke. And the rates rose steadily as communities became more spread-out and less walkable. Statistically, a person living in Boston or San Francisco was healthier than an identical person in Atlanta or San Bernardino. Without even trying, the folks in those more-compact communities were apparently exercising enough to ward off chronic illness.*

*...Personal behavior may hold the secret to long-term health, but as researchers are now discovering, behavior is not just a matter of choice. Every aspect of our lifestyles-what we eat, whether we smoke, how much we exercise-is shaped by our surroundings. If you live in a subdivision, work in an office park and can't buy a stamp without getting on the interstate, going with the flow is enough to make you sick. Staying fit in such places has long been a lonely act of resistance. But as many communities are now discovering, people surrounded by walkways and bike paths tend to use them. When smoking is barred in restaurants and workplaces, people tend to quit. And when fresh, whole food is as accessible as the processed kind, people often prefer it. "We've spent years making the healthy choice the most difficult choice," says Ross Brownson, an epidemiologist at St. Louis University. "We need to make it the easy choice....The trouble is, we've engineered the physical activity out of daily life."*

*"We're trying to create communities where people can once again spend at least part of their lives on foot," says Marya Morris of the American Planning Association. The planners' ideal is a densely populated community where the blocks are small, the streets are on a grid (no curlicues or cul-de-sacs), residential neighborhoods are enlivened by street-front shops and services, and the sidewalks are safe and attractive. "Sidewalks help people take small steps toward being active," says Allen Deary, associate director of the National Institute of Environmental Health Sciences. "Walking even a thousand extra steps each day improves health-and people will do it if they're given the chance."*

*Geoffrey Cowley and Karen Springen, "Designing Heart-Healthy Communities" Newsweek, October 3, 2005*

## Flow 5: Conversation

Conversation, the fifth and final flow in this blueprint has, at first blush, little if any connection to global warming or otherwise promote sustainability. But in reality, the other four flows – energy, mobility, food, and water – are best manifest through this flow, in that the connections among them are best made if we create a Santa Fe full of conversations among ourselves and visitors alike. Installing a solar collector, walking through the Plaza, buying green chiles at the Farmers Market, and picking up litter along the Santa Fe River during the monthly Sierra Club 'trek for trash' – all lend themselves to conversations that truly can in their collective state sustain Santa Fe.

Our physical form directly affects the quantity and quality of our conversations. Yet the opportunities for conversations have been systematically, if unwittingly, destroyed by our patterns of development. Sprawl – low density land use, motorized travel required for every trip, absence of many centers, strip malls of big box retail pushed down our throats by the cabal of developer agents who think they own the city, and an infrastructure so expensive to build and maintain that other forms of public works are unaffordable – plagues Santa Fe, and all in the name of progress. Yet the real manifestation of a sprawling Santa Fe is 50 years of tearing apart the physical, social and cultural fabric of Santa Fe's first 340 years, when *fe, familia y ejido* (faith, family and common land) inextricably bound the physical setting and social structures. Sprawl, by cutting up the physical community of Santa Fe into thousands of little pieces of private property, has turned neighbors into strangers.

Sprawl's bad habits must not be our manifest destiny. Plenty of other prized cities around the globe – Curitiba, Bogota, Lima, Florence, Amsterdam, Copenhagen, Vancouver, Barcelona, Havana – have rejected the "inevitable" progress of cars-only transportation systems, disconnected land uses, and separation from nature, and have set aside places in their hearts where conversations abound. The rambling, getting to know each other, talk we enjoy on Sierra Club hikes throughout Northern New Mexico forests, can also be enjoyed in strolls throughout Santa Fe, especially if we retake the processes of physically forming our fair city.

Those who will be the next elected leaders of Santa Fe's must work toward a united city, inclusive of all residents and visitors alike, and one that maintains its dynamism and creativity prized the world over. But this assertion begs the question: where do we build a united, inclusive and dynamic Santa Fe? The answer is throughout the city, not just one place such as the Plaza, in a process of building neighborhoods.

Santa Fe must build compact, complete, and connected neighborhoods:

1. Conversations can blossom among Santa Feans in ways usually reserved for special occasions, infrequently, or not at all.
2. Convenience as well as daily physical exercise increases where you can walk to a wealth of markets, restaurants, coffee shops, child care and services.
3. Reductions in pavement and sprawl retains more natural areas close to home, inducing us to walk and enjoy nature.
4. Reducing driving and use of lawn chemicals reduces air and water pollution, increasing the health of natural areas and reducing global warming.
5. Even the local economy is healthier when less money is sent abroad chasing cars, oil, metals and lumber.
6. Forests and natural areas are healthier when construction material, heating and cooling energy and gasoline is used more efficiently, reducing oil, mineral and lumber extraction and pollution.
7. The local economy also benefits when we use our transit, roads, water, sewer, electrical and communications systems efficiently, rather than wasting tax dollars.
8. And last but not least, our planet is healthier when global warming gas emissions are reduced.

We need to return Santa Fe's streets and neighborhoods as places we inhabit, not just pass through, adorned with public art and furniture. Public space – the Plaza, streets, playgrounds, Railyard, river and arroyos – is really our extended living room. It reflects the spirit of Santa Fe, in seeing how people interact with one another.

"I dream of closer spaces and more considered amenities; a place where my margins are not so razor thin that a forgotten lunch wrecks the balance of my day. It's a fantasy of community, where everything I need to power my life as a wife and mother and working professional is within walking distance of my house. A place that changes my proportions of time and space, that shortens the distances between piano lessons and playmates...New Urbanism reminds me of something old and familiar, but perhaps what I long for most is something that simply no longer exists in my life."

Walk of the Town: The New Urbanist Mystique, Washington Post, August 22, 2005

We can capture conversations in even more public space by embarking on a great adventure: build "redondos," or roundabouts, and name each one after Santa Fe Living Treasures who have passed on, such as Father Miguel Baca, a motorcycle-riding Franciscan who provided gifts to poor kids and helped restore the Picuris Pueblo church, and Hazel Parcells, an alternative nutrition guru. Grace each Redondo with sculptures of the Treasures, designed by Santa Fe artists and constructed by local artisans and apprentices. Many roundabouts listed below can serve as plazas in the way the term "plaza" was once meant, as gathering places for all citizens.

*I'd love to be able to walk to a park. It would (make Tierra Contenta) feel more like a neighborhood and less like a bedroom community.*

*Hannah Pierpont, Tierra Contenta resident, Alb. Journal North, August 29, 2005*

However Santa Fe manifests better flows of conversations, the following key principles must be applied:

- ? Mix uses, rather than segregating them. Designs like dwelling units placed above shops, and streets with a mix of stores offices and housing are a basic feature of these cities and towns;
- ? Change street design and relationships of buildings. People-friendly streets have some common characteristics. They are narrower, lessen the overwhelming presence of speeding vehicles with trees, parked cars, and traffic calming devices. Shops and businesses front directly on to sidewalks, while any parking lots lie behind. Houses present front rooms and verandas, rather than a line of garages, onto the streets.
- ? Provide the benefits of town like density. Well planned, town like mixed-use development gives vibrant communities and opportunities for walking on errands. It allows cost-effective public transit.
- ? Build on a human scale. From narrow streets, to homes pulled closer together, to lively retail businesses that people walk to, these areas provide real communities.
- ? Provide public places and civic amenities, including small parks, and civic buildings. A collection of large stores surrounded by even larger parking lots do not a plaza make.

Use for parks places that are currently underdeveloped or a brownfield (e.g. abandoned gasoline station at Paseo and Old Santa Fe Trail).

Pare back the amount of land along Cerrillos, Airport and St. Michaels that are zoned commercial, and concentrate new commercial at redondos and transit stops, coexisting with new housing and office space. And put a stop to any more big box retail; the latest Wal Mart is the nail in that coffin.

As has been pointed out many times, the east side of Santa Fe cannot be recreated under our current land use zoning framework. The world renowned, wonderfully small streets, with buildings and walls abutting the right of way in a delightful jumble of corners just off kilter, are illegal. Now you must take to the motor vehicle to get all your daily needs; walking to them is highly unusual in today's Santa Fe.

A complete overhaul of our zoning framework is needed, based on a policy of creating convenient communities, where you can walk to a wealth of markets, restaurants, coffee shops, child care and services, give their residents more healthy physical exercise as a part of everyday living.

While we're at it, let's return the Santa Fe Plaza to its citizens. Block off vehicular traffic from 10am- 9pm, even permanently. Allow sidewalk cafes to come out onto San Francisco St. Set up a Plaza business improvement district, with the

State paying a fair share of the program, for proper management of the Plaza's daily life and special events.

Instead of continuing to merely sprawl outward, let's redevelop the following areas to accommodate the majority of Santa Fe's new housing, retail and office space needs in the triangle formed by St. Francis, St. Michals and Cerrillos, with the train tracks bisecting the triangle.



Santa Fe should adopt the Eco City Cleveland Community Design Scorecard (see bibliography) as a way to judge new development, starting with our streets, making them lively and interesting, not just traffic sewers.

Modern roundabouts, which are forms of intersection traffic control, are becoming more common in the U.S. as ways to control traffic by yielding rather than by



requiring vehicles to stop. Pedestrians cross the intersection in designated locations on each of the approaches to the intersection. Refuge areas are provided between travel lanes for pedestrians in the designated crosswalks.

The modern roundabout not only provides landscaping opportunities but has been shown to reduce the severity and number of vehicle accidents – up to 90 percent fewer left turn accidents. And

they reduce time waiting for red lights from minutes to seconds.

Roundabouts need no traffic lights, saving \$100,000's in capital and operating costs. Instead they rely on common courtesy of yielding to traffic already in the circle to regulate traffic flow. Backups are minimal, often in the range of 2 to 5 seconds, and the motorist can choose to go any which way.

Major intersections such as St. Francis and Cerrillos have 32 points of potential accidents; add in the train passing through it, and little wonder that it is the third most dangerous intersection in the state. A roundabout reduces accident points to 8, and left turn accidents, the most common kind at intersections, are reduced 95 percent.

Trains, even the commuter versions needed between here and Albuquerque, can easily be accommodated with signalized crossings or pop up ballards; pedestrians likewise. No widening of the intersection is needed, as there is already plenty of room to install one. The corners save the Deaf School's could be filled in with liner commercial buildings, and the roundabout could host a statue representing the city's culture. This would make the statement to motorists and train passengers alike that they have truly arrived in downtown Santa Fe, minutes from the forthcoming railyard and historic downtown plazas.

Modern roundabouts are the prettiest and safest form of traffic control in the world. Roundabouts slow all vehicles, provide refuges for pedestrians, and are the only traffic control device in which trees can be planted, fountains can spray, statues can sparkle into the next century. If used instead of traffic signals they save us all money. No maintenance cost, they require no electricity, no regular tune ups and no annual replacement of parts, suffer no blackouts and cannot be blown away... and they achieve 50 to 90 percent reduction in crashes. Roundabouts are the complete opposite of the old traffic circles. The most important design criterion is design speed..., which is no more than 25mph.

- Roundabouts Information Book, Michael Wallwork P.E., 2002

Beyond St. Francis and Cerrillos, intersections in Santa Fe that could easily accommodate and greatly benefit from roundabouts include:

- ? St. Francis and W. Alameda;
- ? St. Francis and Zia;
- ? Paseo de Peralta and N. Guadalupe;
- ? Paseo de Peralta and S. Guadalupe;
- ? Old Las Vegas Highway and Old Pecos Trail;
- ? Airport/Rodeo and Cerrillos Roads;
- ? St. Francis and Cordova;
- ? St. Francis and Siringo;
- ? Paseo and N. St. Francis
- ? N. St. Francis and W. Alameda
- ? W. Alameda and Cerrillos



- ? E. Alameda and Paseo
- ? Cerrillos and St. Michaels
- ? Paseo and Old Santa Fe Trail
- ? Paseo and Cerrillos
- ? Paseo and S. Guadalupe
- ? St. Francis and St. Michaels
- ? St. Francis and San Mateo
- ? Cerrillos and Siler
- ? Cerrillos and Richards
- ? Airport and 599
- ? St. Michaels and Llano
- ? St Michaels and Pacheco

Many of these intersections could serve as neighborhood nodes, accommodating a mix of commercial, office and apartment units in densities higher than allowed in surrounding zoning. As roundabouts both calm and accommodate greater volumes of traffic, perhaps they would mollify NIMBYs who otherwise oppose traffic generators.

Roundabouts are becoming more commonplace in American cities throughout the U.S., with new ones popping up nearby in places such as Park City UT, Albuquerque, Ruidoso, and Pagosa Springs. Santa Fe stands poised to take advantage of an eminently sensible and civilized approach to transforming what for most is a frustrating and potentially dangerous daily situation into a beautifying and calming asset.

Other recommendations include:

- ? Line parking lots and big box buildings with liner retail
- ? Locate housing above big box buildings and institutions
- ? Install continuous sidewalks, unimpeded by trees, trucks, utility boxes, mailboxes or light poles
- ? Direct housing, road and infrastructure funds to accommodate aspirations of the five flows
- ? Lease space at each public library for coffeehouses
- ? Offer location efficient mortgages to those living within walking distance of a train stop
- ? Extend land-banking beyond Tierra Contenta to the Northwest Quadrant, to set aside land for the development of affordable housing along with the producing of organic food and renewable energy
- ? Apply CDBG and other public housing funds to underwrite affordable housing and expand community land trust properties within walking distance of a train stop
- ? Make all areas of Santa Fe walkable and bikeable

- ? Declare 2<sup>nd</sup> St. area as a redevelopment area, and apply to NM Finance Authority for tax increment financing of public infrastructure improvements needed to attract significant private and state investments
- ? Seek a state real estate transfer tax law, with proceeds devoted to affordable housing construction within walking distance of a train stop and public space acquisition
- ? Ban subdivisions. Require neighborhoods. The latter must include the ability of one to live, work, shop, play, learn or recreate, or have access to trails or transit to reach any of the above within a reasonable time period.
- ? Establish a neighborhoods design standard based on:
  - o Housing choice: Probability that any two dwellings will be different in type or size
  - o Mixed use: Number of categories counted
  - o Connectivity: Intersections per square mile
  - o External connections: Number of entrance/exit points per foot of perimeter length
  - o Proximity: Percent of residential land within walking distance of town/neighborhood center, schools, parks and transit
  - o Location: Evaluation of project location in the regional context
  - o Streetscapes: Evaluation of overall quality of public frontages, private frontages and thoroughfares
  - o Civic space: Evaluation of overall quality of civic space
  - o Architectural aesthetics: Evaluation of overall quality of architectural exteriors
  - o Intensification: permit accessory units as of right in all low-density areas of the city

#### Pedestrian Oriented Plan

1. The neighborhood has a **discernible center**. This is often a square or a green and sometimes a busy or memorable street corner. A transit stop would be located at this center.
2. Most of the dwellings are within a **five-minute walk** of the center, an average of roughly 2,000 feet.
3. There are a **variety of dwelling types** ? usually houses, rowhouses and apartments so that younger and older people, singles and families, the poor and the wealthy may find places to live.
4. At the edge of the neighborhood, there are **shops and workplaces** (and/or transit stations leading to workplaces) of sufficiently varied types to supply the weekly needs of a household.
5. An elementary school is close enough so that most **children can walk** from their home.
6. There are small **playgrounds accessible** to every dwelling - not more than a tenth of a mile away.
7. Streets within the neighborhood form a "connected network, which **disperses traffic** by providing a variety of pedestrian and vehicular routes to any destination.
8. The streets are relatively **narrow** and shaded by rows of trees. This slows traffic, creating an environment suitable for pedestrians and bicycles.
9. Buildings in the neighborhood center are placed **close to the street**, creating a well-defined outdoor room.
10. Parking lots and garage doors rarely front the street. Parking is relegated to the **rear of buildings**, usually accessed by alleys.
11. Certain prominent sites at the termination of street vistas or in the neighborhood center are reserved for civic buildings. These provide sites for community meetings, education, and religious or cultural activities.
12. The neighborhood is organized to be self-governing. A formal association debates and decides matters of maintenance, security, and physical change. Taxation is the responsibility of the larger community.
13. For single-family homes: A small ancillary building is permitted within the backyard of each house. It may be used as a rental unit or place to work (e.g., office or craft workshop).



### ***Flows Payment Plan***

The intent of this blueprint is to offer a strong rationale for involving environmental, neighborhood, energy, transportation, community, and water activists in a local priority campaign that responds to global warming, drought and peak oil through water, energy, and location efficiency -- resource effectiveness. Such a campaign might be described as "assuring the future."

Of course, many people will ask, "How are we going to pay for such a campaign?" That is a good question. Just as this blueprint suggests many strategies beyond conventional wisdom for the City Different, let us look at some different funding sources.

The first source of funding might be called Look Homeward First. Santa Fe's property value collectively can support nearly \$200 million in general obligation bonds. While such bonding is rarely used in Santa Fe, Albuquerque by contrast relies on GO bonds for the bulk of its infrastructure investments. It's time to conduct a Look Homeward First Campaign to help pay for the following investments in Santa Fe's future:

- ✍ Sidewalks, to repair what's broken, install what's missing, and connect homes to trails and transit;
- ✍ Roundabouts at major intersections;
- ✍ Transit, both on the existing rail lines and trolley lines;
- ✍ Water for the Santa Fe River, both purchase of rights and solar pumping;
- ✍ Purchase of land to grow our own food and renewable energy;
- ✍ Renewable and energy efficiency fund



The second source of funding is called tax increment financing, or TIF, which assesses the value on property tax and/or gross receipts tax collection above a benchmark to pay for needed public infrastructure. Once this is in place, private dollars typically flow in at a rate ten to fifteen times the public investment. Here's how TIFs can be used in walkable portions of Santa Fe:

- ✍ Redondos;
- ✍ Sidewalks;
- ✍ Trolleys, train cars, and tracks;
- ✍ Transit oriented development infrastructure;
- ✍ Pocket parks;
- ✍ Bicycle trails and fleets.

A third financing source is a real estate transfer tax. Applied to the increment of a residential sale of above \$300,000, the resulting revenue could be used for:

- ✍ Affordable housing units located within ten minute walk of a transit stop;
- ✍ Parks, plazas and other public infrastructure of the green kind;
- ✍ Renewable and energy efficiency fund;
- ✍ Location efficient mortgage underwriting.

A fourth source of funds can come from the city's existing annual capital improvement program, by setting aside five percent to establish a walkable neighborhood grant program, for planning, construction and education activities aimed at improving or promoting travel on foot. Types of projects to be funded include:

- ✍ Safety improvements to high hazard intersections or sidewalks
- ✍ Safe routes to school
- ✍ Walking school bus project
- ✍ ADA transition plans and projects
- ✍ Arterial redesign projects to increase pedestrian friendliness and safety educational programs



A fifth funding source is a transportation utility district: charge property owners fees based on estimates of their use of city streets. The fees charged to residential and various classes of commercial and business properties would be based on the average number of vehicle trips generated each day by those properties, as estimated by the Institute of Engineers' Trip Generation Manual. Properties are classified by how many vehicles could be expected to go to and from them in a typical day. WalMart would be

near the high end of that measure, while single-family homes would be near the bottom. Types of projects to be funded include:

- ✍ Sidewalk improvements
- ✍ Roundabouts
- ✍ Road repairs and maintenance
- ✍ Connector streets and bridges

Great cities elevate the human spirit through beauty, amenity, culture and history. Elements of greatness:

- 1, allow everyone to live in well planned neighborhoods
- 2, save natural areas and open space and protect cultural and historic features
- 3, provide adequate infrastructure
- 4, locate all intense, attraction activities in well planned, mixed use areas..

"The Heart of The Matter" Rodney Engelen, AICP, Planning June 2005

## Conclusion

Confronting, addressing and ultimately reducing the threat of global warming means "building lifeboats", Richard Heinberg's term in "Power Down: Options and Actions for a Post-Carbon World" (Ecology Action Newsletter, May 2005). This means taking action at the community level to learn and preserve skills necessary for survival and hopefully finding ways to also preserve the best of our civilization. Such skills must include producing our own energy and food, getting around in ways not dependent on just the automobile, supporting landscape only with precipitation, and designing in neighborliness.

Each natural and human disaster that comes our way – tsunami, typhoon, tornado, drought, hurricane, toxic waste spill, terrorism – tests the mettle of society like nothing else. A disaster also exposes both our fragility as well as our resiliency. The same can be said about nature, however, when human fingerprints are all over the global warming disaster, we have a moral responsibility, through society and its handmaiden, government, to act to restore nature's ability to absorb blows to its very fiber.

Collectively the five flows in this blueprint must meet tests of resiliency to sustain Santa Fe as a great place to live:

*Tricycle Test:* Does the place make it easy for children to be mobile? Children cannot become active citizens without experiencing the places they live, listen, look and feel a place out. places are good that allow for children to do this safely and with some degree of independence.

*Popsicle Test:* Is the place accessible for most daily needs on foot or bike and within a short distance? Access to activities in means other than automobile is good for adults as well as children. This too makes one healthier, more productive, and more pleasant.

*Smooch Test:* Does a certain place in Santa Fe make you want to be with your significant other? Romance is important in life, which is why we need places of the heart, from a great vista of the mountains and desert, to a kiss and ride spot at a rail station. It makes one healthier, more pleasant to be around, and some say, more productive. If a practice, policy or prescription passes the smooch test, it is good for the community.

*Elder Test:* Does the place make it possible for seniors to be active members of Santa Fe by means other than automobile? Seniors desire to be involved with communities, and Santa Fe gains much from this involvement. If our elders are not engaged because of limited mobility and accessibility options, Santa Fe loses out.

*Collective Memory Test:* Communities need places where the history of the community can be symbolized, recorded, and celebrated, places that transcend

the lifetime of individuals and that connect one generation to the next, past, present and future, places that give the individual a sense that they are part of something larger than themselves.

Let's look back at this first decade of the 21<sup>st</sup> century when Santa Fe began to meet these tests.



Ah, there it is, yet another massive big-box mega-strip mall, a giant beacon of glorious community decay, a wilted exclamation point of consumerism gone wild. This is America. You have arrived. You are home. Eat it and smile. There is the Target. There is the Wal-Mart and there is the Home Depot and the Kmart, the Borders and the Staples and the Sam's Club and the Office Depot and the Toys "R" Us and of course the mandatory Container Store so you may buy more enormous plastic tubs in which to dump all your new sweatshop-made crap.... Anyone over 30 has seen the plague evolve from a mere germ of disease in the late '80s to a full-blown pestilence of big-box shopping hell...I have little real clue as to what children growing up in this sort of bizarre megaconsumerist dystopia will face as they age, what sort of warped perspective and decimated sense of place and community and home. But if you think meth addiction and teen pregnancy and wicked religious homogeny and a frightening addiction to blowing s-- up in violent video games isn't a direct reaction to it, you're not paying close enough attention. This is the new America. Our crazed sense of entitlement, our nearly rabid desire for easy access to mountains of bargain-basement junk has led to the upsurge of soulless big-box shops which has, in turn, led to a deadly sense of prefabricated, vacuous sameness wherever we go. And here's the kicker: We think it's good. We think it helps, brings jobs, tax money, affordable goods. We call it progress. We call it choice. It is the exact opposite. One Happy Big-Box Wasteland/Oh my yes, there is indeed one force that is eating away the American soul like a cancer  
Mark Morford, SF Gate, August 17, 2005

## Acknowledgements

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## Annotated Bibliography

### Sierra Club

Sierra Club's Building Healthy Communities Campaign [www.SierraClub.org/sprawl](http://www.SierraClub.org/sprawl) describes how the campaign "works to fight poorly planned runaway development and promotes smart growth communities that increase transportation choices, reduce air and water pollution, and protect our natural places."

The Club's Healthy Growth Calculator helps local group design a community that can reduce land, pavement, water and driving consumption. Using real communities, explore how healthy growth uses land, public transit, roadways and other public infrastructure efficiently, and pollutes less.

[www.sierraclub.org/sprawl/density/](http://www.sierraclub.org/sprawl/density/) This calculator is intended to offer the big picture perspective to decisions regarding growth. It allows us to explore the consequences of growth decisions, and their fairness to all residents -- including those who can no longer drive, or those who would rather walk or take public transit for some trips. The calculator is linked to photos of existing neighborhoods and projects, so the visitor can visualize the density. It calculates land occupied, pavement, water use, likely local shopping and transit service nearby, vehicles owned and parking spaces needed, annual mileage and gasoline consumption, auto costs and resulting auto pollution.

Another nifty calculator put out by Healthy Communities Campaign lets one calculate how neighborhood density affects the environment (land, materials, energy and driving). Wander around San Francisco and explore many of these neighborhoods in person. Move your mouse over the pictures below to see the impact. [www.sflcv.org/density](http://www.sflcv.org/density)

What does smart growth look like? Click on [www.sierraclub.org/sprawl/community/transformations/index.asp](http://www.sierraclub.org/sprawl/community/transformations/index.asp) to see computer generated before photos and after simulations when redevelopment transforms dumpy parts of town into irresistible spots.

An overview of sprawl <http://www.sierraclub.org/sprawl/overview/> and, by contrast, smart growth.

The Club's reports and factsheets on sprawl <http://www.sierraclub.org/sprawl/reports/>

Resources to fight sprawl <http://www.sierraclub.org/sprawl/resources/>

Five steps you can take to stop sprawl [http://www.sierraclub.org/sprawl/get\\_involved/](http://www.sierraclub.org/sprawl/get_involved/)

Factors that go into making communities livable

[www.sierraclub.org/sprawl/community/](http://www.sierraclub.org/sprawl/community/)

Dozens of links to sources on information on sprawl, land use, and transportation

<http://www.sierraclub.org/sprawl/articles/>

Explore the the complex relationship between sprawl and population growth

<http://www.sierraclub.org/sprawl/population/>

### **Other Web sites**

Common ground article: green cities and the end of the age of oil

<http://www.commongroundmag.com/2005/cg3206/greencities3206.html>

The article discusses how are current cities have been adapted to the automobile. To reduce our dependence on oil cities must become friendly to foot traffic. The article continues on to describe what car free cities would look like.

Green Cities Declaration, adopted by the UN Environment Program at World Environment Day in June 2005, <http://www.urbanaccords.org/> is comprised of 21 actions a city can adopt to address global warming.

Permaculture Activist article: Urban versus Rural Sustainability by Toby Hemenway

<http://energybulletin.net/3757.html>

This article as a personal account of Toby Hemingway of living in a rural setting and what prompted him to move to an urban setting. Toby is a leading author and practitioner in the area of Permaculture and therefore this article is written from a Permaculture perspective.

Web site of the Community Food Security Coalition, [www.foodsecurity.org/](http://www.foodsecurity.org/), an organization “dedicated to building strong, sustainable, local and regional food systems that ensure access to affordable, nutritious, and culturally appropriate food for all people at all times. We seek to develop self-reliance among all communities in obtaining their food and to create a system of growing, manufacturing, processing, making available, and selling food that is regionally based and grounded in the principles of justice, democracy, and sustainability.”

Rocky Mountain Institute: profitable climate protection

<http://www.rmi.org/sitepages/pid125.php>

This area on the Rocky Mountain Institute web site describes how effective climate protection measures can actually help the economy. This approach appears to maximize climate protection by adjusting the current infrastructure.

The Kyoto Protocol

[http://unfccc.int/essential\\_background/kyoto\\_protocol/items/3145.php](http://unfccc.int/essential_background/kyoto_protocol/items/3145.php)

This site contains the targets of the Kyoto protocol.

<http://unfccc.int/resource/docs/convkp/kpeng.html>

This site contains original language of the protocol.

Sites listed on the Electronic Journal of US Department of State

<http://usinfo.state.gov/journals/itgic/0300/ijge/gj-12.htm>

The City of Santa Fe Transportation Plan

<http://santafenm.gov/cms/kunde/rts/santafenmgov/docs/445771226-08-23-2005-15-29-24.pdf>

This is a long document. Page 32 starts to get meaty with plans for public transit. Also a Santa Fe County Growth Management Plan. There are detail plans for bike travel and pedestrian passage.

CarbonFund

<http://carbonfund.org/carbon/index.php>

This site could be used as educational tool about carbon emission. There is a foot print calculator. It has a program where one can make a donation to fund projects that reduce CO2 emissions. To me this has the feel of taking vitamins instead of eating your broccoli.

Climate Change Resource Information

[http://ccir.ciesin.columbia.edu/nyc/ccir-ny\\_q1a.html](http://ccir.ciesin.columbia.edu/nyc/ccir-ny_q1a.html)

This site includes illustrations of carbon cycle, climate system and greenhouse gas cycle which are very easy to understand. It is an excellent primer on what climate change is and what is causing it. The page on regional impacts is specific to the NYC metro area. The Page on mitigation is another primer source that is helpful as to why people need to take action locally.

University of Arizona Southwest Assessment

<http://www.ispe.arizona.edu/research/swassess/pdf/chapter3.pdf>

2001 prediction from U of AZ

[http://www.ispe.arizona.edu/research/swassess/release4\\_10.html](http://www.ispe.arizona.edu/research/swassess/release4_10.html)

This appears to be a synopsis of the above sited report. In a nutshell, Wetter winters & higher temps. Does this mean dry summers? Hopefully the report above speaks to this.

[http://www.gcrio.org/OnLnDoc/climate\\_initiative010713.html](http://www.gcrio.org/OnLnDoc/climate_initiative010713.html)

[http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/SHSU5BVRBN/\\$File/southwest.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/SHSU5BVRBN/$File/southwest.pdf)

US EPA

[http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/SHSU5BVJHF/\\$File/nm\\_impct.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/SHSU5BVJHF/$File/nm_impct.pdf)

This is the paper specific to the changes in New Mexico.

Energy Star [www.energystar.gov](http://www.energystar.gov) provides a framework to track energy expenditures and the savings that simple behavioral changes can produce. The Albuquerque Public Schools' teachers, custodians and students are involved in simple things like turning off lights and turning down thermostats. The school district saved over \$400,000 last year as a result of this program. There's a financial incentive to schools; they get to keep 1/3 of the \$ saved.

US EPA: Global Warming: where you live

<http://yosemite.epa.gov/oar/globalwarming.nsf/0/us-newmexico.html>

This handy little map of the US allows you to click on your state and receive a list of links specific to your state.

City of Portland, OR Global warming reduction plan.

[http://www.sustainableportland.org/osd\\_pubs\\_global\\_warming\\_report\\_6-2005.pdf](http://www.sustainableportland.org/osd_pubs_global_warming_report_6-2005.pdf)

- ? 1993 Portland city to locally address global warming. This document is a report on the city's success. It is very inspiring.
- ? In 2004 the city had only slightly elevated 1990 levels of Green house emissions.

Portland's Green Office Guide [www.sustainableportland.org/Grn\\_Off\\_Guide.pdf](http://www.sustainableportland.org/Grn_Off_Guide.pdf) is a very matter of fact solution oriented presentation. The attitude is consumption fossil fuels cause global warming, the more energy you use the more fossil fuels you consume the greater levels of green house emissions. The city wants less of that, therefore it will assist conserving electricity, heat & water.

Governor Richardson's executive order to make New Mexico the clean energy state

[http://www.governor.state.nm.us/orders/2005/EO\\_2005\\_033.pdf](http://www.governor.state.nm.us/orders/2005/EO_2005_033.pdf) . And New Mexico's climate change initiative is at [www.nmclimatechange.us](http://www.nmclimatechange.us).

State of California Clean Air Plan

<http://www.ccap.org/guidebook/index.html>

State of Maine Climate Action Plan

<http://maineghg.raabassociates.org/Articles/MaineClimateActionPlan2004Volume%201.pdf>

Community Solution: Peak Oil

<http://www.communitysolution.org/>

- ? This site discusses an intentional low energy community.
- ? This site has information on how Cuba adapted after they lost cheap oil from Russia

New article: Global warming linked to increase of hurricanes

<http://www.timesonline.co.uk/article/0,,3-1782829,00.html>

- ? This article briefly describes the increasing trend of hurricane occurrence and severity.

Friends of the Earth

[http://www.foe.co.uk/resource/notes\\_and\\_queries/questions/help\\_planet\\_2005.html](http://www.foe.co.uk/resource/notes_and_queries/questions/help_planet_2005.html)

- ? This site from the UK gives tips on how to reduce one CO2 impact.
- ? It describes global warming and the growing coalition to reduce greenhouse emissions.

Take it to the Limit

<http://www.grist.org/cgi-bin/printthis.pl>

- ? This article discusses why going 55 mph can save up to 20% on fuel consumption.

World Leaders Urge UN to take action against climate change

<http://www.un.org/apps/news/story.asp?NewsID=15833&Cr=world&Cr1=summit>

- ? This article discusses the appeal of several world leaders to the UN to take action to reduce global warming.
- ? There was an appeal to all countries to ratify the Kyoto Protocol as a means to reduce global warming.

New American Dream

<http://www.newdream.org/make/auto/>

- ? On this site you can post to car makers about what you would like in the new generation of cars
- ? On the conscience consumer section one can find about different product and technologies and how to access them.

Utne Reader

[http://www.utne.com/webwatch/2005\\_216/news/11788-1.html](http://www.utne.com/webwatch/2005_216/news/11788-1.html)

- ? Several environmental impact calculators

30-story greenhouses may be vital as population grows, professor says

[http://www.timesdispatch.com/servlet/Satellite?c=MGArticle&cid=1031784882370&pagename=RTD/MGArticle/RTD\\_BasicArticle&path=!business&s=1045855934855](http://www.timesdispatch.com/servlet/Satellite?c=MGArticle&cid=1031784882370&pagename=RTD/MGArticle/RTD_BasicArticle&path=!business&s=1045855934855)

No city has been more proactive in the fight to stop global warming and develop efficient energy solutions than Aspen, where citizens, elected officials, and business leaders launched the Aspen Global Warming Alliance. Aspen instituted a "fee" on new homes and renovation projects that exceed local energy standards. Homeowners can either pay the fee, which goes into a city fund for renewable energy projects or they can off-set their excess global warming pollution by investing in their own renewable energy system. Now almost 2/3 of Aspen's energy is renewable—from wind, solar and other sources—38% of which is generated and harnessed locally. [www.aspenglobalwarming.com](http://www.aspenglobalwarming.com).