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# IMPROVING Air Quality



Through Land Use Activities

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*Getting There with Clean Air*

## INTRODUCTION

EPA recently published guidance, "Improving Air Quality Through Land Use Activities" (EPA 420-P-00-002), that is designed to help communities address the linked problems of community growth, increased demand for transportation, and reduced air quality. The Guidance describes the options that local, state, and regional air quality agencies, in cooperation with other interested citizens and groups, can use to account for the air quality benefits of certain land use activities in the air quality planning process. The Guidance is a voluntary information tool that

may be used to determine the environmental benefits of certain development patterns.

This brochure describes the types of issues that the Guidance can help communities address as they plan for land use. It also contains examples of the kinds of land use activities that might qualify for air quality credit and information on how to secure the Guidance and related publications that can help communities evaluate land use activities and their potential impacts on air quality.

## THE RELATIONSHIP BETWEEN Transportation and Air Quality

Much has been done to reduce emissions of air pollution from cars and trucks over the last 25 years. These efforts have focused on the use of technology and tailpipe controls, and have been very successful at reducing the emissions of air pollutants from transportation sources.

However, since 1970, the number of cars and trucks in the U.S. has more than quadrupled while the U.S. population has not quite doubled. Furthermore, the

average annual mileage driven by Americans in 1997 was almost twice as high as it was in 1970. So, even while automobiles are getting cleaner, the number of vehicles on the road and the frequency and length of trips have been increasing. This is especially true in areas that are currently experiencing high rates of growth in population and development.

monetary incentives for people to buy a house near their workplace. The state will contribute \$1,000 toward the closing costs of such a home purchase to be matched by \$1,000 from the employer and \$1,000 from the city. Anyone buying a home that is walk- or transit-accessible to their workplace can apply for the grant, provided that their employer has agreed to participate. The program was listed in the 1998 conformity determination document of the Baltimore Region Metropolitan Planning Organization.

**Orengo Station, Oregon.** Orengo Station is a new pedestrian and transit oriented community in East Hillsboro, Oregon. It was named the 1999 "Masterplanned Community of the Year" by the National Association of Homebuilders (NAHB). In 1998, it won the Governor's Livability Award and the Gold Nugget Design Award. Orengo Station is being praised as a successful example of the move to combine successful elements of traditional neighborhoods with modern technologies, to present a functional and attractive alternative to sprawl. In the 1980s, when Pacific Realty Associates (PacTrust) acquired more than 200 acres of land near the old company town of Orengo, about 10 miles west of Portland, the property was zoned for commercial use. In the early 1990s, Portland's Westside light rail line brought mass transit service to the area, and zoning of the

property was changed from industrial to station area residential. This meant that Orengo Station would now be designated a town center, which would require the property to be developed as high-density mixed-use property. The result was a master plan envisioning a transit and pedestrian oriented community, with a 7-acre town center linking the residential area with the light rail station to provide a traditional main street, with restaurants, stores and professional offices, all within walking distance. Within the town center are residential lofts and live/work townhomes. The townhomes, reminiscent of old brownstones, allow residents to have an office or studio on the first floor of their home. Around the town center are single family cottage homes. These homes feature traditional regional architecture. Garages are set behind the homes on rear driveway lanes. There are many pocket parks scattered throughout the community, along with two large central parks. The design of the community encourages neighbors to get to know one another. Residents can walk to get a quart of milk, a cup of coffee, or a nice meal. Orengo Station is attracting professional singles and couples, empty nesters and small families. The fact that these homes sell at 20-25% higher than other homes in the area has not in any way hampered sales, according to the company. (Rosemary Leonetti, March 17, 2000, <http://www.office.com>, used by permission)



*"Rapid growth and sprawl are destroying the fabric of our communities, creating congestion and costing taxpayers billions of dollars. Americans should not have to spend more time in traffic than they do at the family dinner table." (Maryland Governor Parris Glendening, quoted in Charlotte Observer, July 14, 2000)*



## EXAMPLES OF LOCAL LAND USE PLANNING

Here are some examples of local land use activities that may have air quality benefits. Air quality agencies in these areas can use the Guidance to identify air quality benefits for these and related activities.

**Monterey Bay Area, California.** The 1997 Air Quality Management Plan for the Monterey Bay Area includes a transportation control measure called “Livable Communities.” The plan satisfies the California Clean Air Act, and recognizes the adoption of a Livable Communities Initiative by the Region’s Metropolitan Planning Organization in 1995. The Initiative establishes regional policies to promote mixed land uses, transit-supportive density and zoning for new development, pedestrian/bike circulation and access, transit access, and pedestrian-friendly designs. The measure was included in the plan for two reasons. First, it helped establish the Livable Communities program as a long-

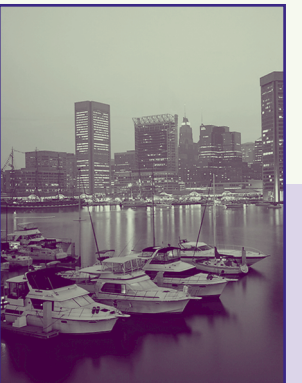
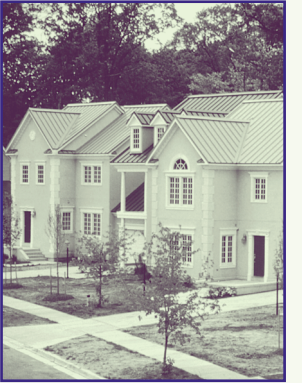
range planning goal for local governments. Second, inclusion of the program made bicycle and pedestrian projects eligible for particular state funding sources that are dedicated to transportation projects that benefit air quality.

**Baltimore, Maryland Metropolitan Area.** The Phase II Attainment Plan for the Baltimore Region identifies several “non-traditional approaches to ozone control.” One of these is the State of Maryland’s Smart Growth initiative. The Smart Growth legislation, adopted by the state in 1997, limits most state infrastructure funding and economic development, housing and other program monies to those places local governments determine to be growth areas. The law is intended to ensure that the state will not facilitate development in areas where it is not desired by local governments. Part of the Smart Growth legislative package is a program called “Live Near Your Work.” The program provides

These trends – more cars on the road, people driving more, and increased trip lengths – are in some areas decreasing the impacts of improved emissions technology. To combat these trends, state and local government agencies seeking to reduce emissions from cars are increasingly looking not just at technological strategies, but at strategies to reduce driving.

As local government agencies plan and evaluate the best growth and development strategies to meet their communities’ needs, the impacts of these strategies on air quality should also be

considered. There is evidence that some types of development patterns necessitate the use of a car, while other types can reduce reliance on cars and trucks for transportation. In some cases, such development patterns can mean shorter and fewer trips, thus reducing vehicular miles traveled by cars and trucks and improving air quality; other development patterns have the potential to improve or mitigate air quality problems by providing and promoting alternatives to vehicular travel, such as mass transit, walking or biking.



## EXAMPLES OF LAND USE ACTIVITIES

- ◆ **Transit-oriented development (TOD):** encouraging transit travel by developing moderate- to high-density housing, shopping, and employment centers along a regional transit system, with pedestrian access.
- ◆ **Infill development:** encouraging pedestrian and transit travel by locating new development in already developed areas, so that activities are closer together.
- ◆ **Brownfield development:** remediation and redevelopment of under-utilized or abandoned lands, usually in already developed areas, that have been contaminated during previous use.
- ◆ **Mixed-use development:** development that locates complementary land uses such as housing, retail, office, services, and public facilities within walking distance of each other.
- ◆ **Neotraditional design/pedestrian-oriented development:** creating a set of land development and urban design elements with the purpose of creating pedestrian oriented neighborhoods.
- ◆ **Developing concentrated activity centers:** encouraging pedestrian and transit travel by creating “nodes” of high density mixed development that can be more easily linked by a transit network.
- ◆ **Strengthening downtowns:** encouraging pedestrian and transit travel by making central business districts concentrated activity centers which can be the focal point for a regional transit system.
- ◆ **Jobs/housing balance:** reducing the disparity between the number of residences and the number of employment opportunities available within a sub-region by directing employment developments to areas with housing, and vice versa.

*“We need to design sidewalks and street crossings that allow people to walk and ride bicycles. We have to be careful that we don’t divide neighborhoods if we do a major road project or when we provide transit facilities. And we need to create mixed-use developments that include both residential and retail components, condominiums, extensive rentals, restaurants and bars, and offices. Zoning and building codes make it a very difficult thing to do right now. We’ve got to make it easier to put housing above shops. Code officials need to...encourage mixed-use developments. And developers ought to do a better job, too.” (John Williams, developer of “new urban” projects that favor density, walkability, mass transit, and mixed residential and commercial zones, as quoted in “Doing Something Constructive, by Jonathan Lerner, Hemispheres Magazine, August 1999)*

## WHAT KINDS OF INFORMATION DOES The Guidance Provide?

The Guidance:

- ◆ Describes the options for accounting for the air quality benefits of land use activities in the air quality planning and transportation planning process (i.e., state implementation plans (SIPs), and conformity determinations)
- ◆ Helps you determine which accounting option is appropriate for a chosen land use activity
- ◆ Helps you model the air quality impacts of land use activities
- ◆ Educates local and state government officials about land use planning as a tool for achieving clean air
- ◆ Will assist air quality and transportation planners in accounting for the impacts of the land use strategies which local and state governments voluntarily adopt.

## HOW CAN THIS Guidance Help?

Air pollution emissions from cars are a function of how many trips people make using these vehicles, how far they have to drive, and the types of vehicles they drive. The way land is developed and how residences, jobs, shopping, recreation, and other destinations are situated within an area have an impact on the length and number of auto trips that people must take, which in turn affects pollution. Transportation and air quality planners

must estimate future pollution levels from motor vehicles in their SIPs and conformity determination processes (see box below).

The Guidance describes EPA policies and practices for quantifying the air quality benefits of land use activities. Accounting for air quality benefits, in SIPs or through the conformity determination process, is appropriate for land use policies and projects where EPA has assurance that

reduced emissions from transportation sources (such as cars, trucks and buses) will result. The Guidance presents the conditions under which the benefits of land use activities could be

included in a SIP or a conformity determination, and provides guidelines for quantifying the emissions reductions and meeting EPA reporting criteria.

## WHO WILL BENEFIT From This Guidance?

State and local air quality agencies and metropolitan planning organizations responsible for quantifying air quality programs can use the Guidance, especially those located in maintenance and non-attainment areas. Of course, many other key stakeholders play a significant role in successfully employing land use as a tool

for improving air quality. Therefore, the Guidance will also be of interest to others, such as citizens, community organizations, state, regional and local government agencies, private developers, financial institutions, and members of academia who want to improve air quality in their communities.

## COMMENTS RECEIVED On The Guidance

*"EPA's guidance on land use is timely given the current movement among communities to refocus land use decisions to achieve livability and sustainability." (California Department of Transportation, Office of Community Planning)*

*"(This document) will bring together two groups of practitioners that traditionally have not worked closely: local government land use planners and MPO modelers." (Criterion Planners/Engineers - Eliot Allen, AICP)*

*"I am pleased to observe that this guidance identifies the specific ways that air quality benefits of land use policies and projects could be accounted for in the air quality and transportation planning processes. I commend the technical merits of the methodologies described in the document and their applicability to accounting for the air quality impacts of infill developments in the air quality and transportation planning processes." (Senator Richard L. Russman, Chairman, Senate Environment Committee, State of New Hampshire)*



**State Implementation Plan (SIP):** State air quality plans required by the Clean Air Act for non-attainment and maintenance areas. The plans are prepared by state air quality agencies and include estimates of future air quality and plans to attain appropriate air quality standards.

**Conformity Determination:** The process (as defined by the Clean Air Act) to assess the compliance of any transportation plan, program, or project with air quality control plans.