Community Strategies

to Reduce Air Pollution and Climate Change





MassDEP would like to thank all of those who contributed to the creation of this document. This compilation of strategies to reduce air pollution and climate change is designed to assist communities in researching and assessing programs that have been effective in other communities. With an understanding that a variety of strategies can be employed in different

communities with varying degrees of success, this document is not meant to be prescriptive but rather to spark interest and discussion resulting in decision-making at the local level that most effectively addresses local air pollution and climate change issues. Mention of trade names or commercial products in this document does not constitute endorsement or recommendation for their use.

MassDEP would like to thank Eastern Research Group, Inc. for its assistance in preparing this document.

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Why did MassDEP prepare this manual?

The transportation sector, while vital to our economy, accounts for a large fraction of harmful air pollution in Massachusetts. Motor vehicle exhaust not only includes toxic air pollutants that can harm human health, but also contains greenhouse gases that can contribute to global climate change. *But solutions to this problem are within our reach*!

MassDEP already has regulations that control pollution from motor vehicle exhaust, and the agency continues to seek opportunities to reduce pollution from vehicles. But municipalities play a very important role, too. Many decisions that affect air quality are made at the local

Did you know?

In 2005, cars, trucks, buses, and other transportation sources accounted for 28 percent of the greenhouse gases released into the air nationwide from human activities. Moreover, the transportation sector is the fastest-growing source of U.S. greenhouse gas releases into our atmosphere.

level—including purchasing only the most fuel-efficient vehicles, zoning and land-use decisions, and making public transit, walking, and bicycling attractive alternatives to driving. Some municipal strategies require minimal effort and limited capital investment.

Many municipalities have already become stewards of the environment by successfully implementing strategies to reduce transportation-related air pollution at the local level. MassDEP prepared this *Community Strategies to Reduce Air Pollution and Climate Change* to share those success stories, in hopes that a growing number of municipalities will join the effort to reduce pollution, slow down climate change, and help give everyone in the Commonwealth a breath of fresh air.

Who is the target audience for this manual?

Many different people or departments make decisions related to use of mobile sources in their communities. For example, some decisions involve city council members and city planners, while others are made by school districts, police departments, public works departments, or fire departments. MassDEP prepared this manual for anyone who makes transportation-related decisions at the municipal level, though we certainly hope that people outside the public sector will take interest in and apply the pollution-reduction strategies presented here.

And what will you find in this manual? A number of *proven* strategies for reducing air pollution from transportation sources. This manual will hopefully steer municipalities in the right direction toward making a big difference on reducing local air pollution and improving your residents' quality of life.

How did MassDEP select the emissions reductions strategies shown in this manual?

Municipalities in New England and nationwide have already implemented countless different strategies to reduce pollution from transportation sources. Rather than attempt to document every possible strategy, MassDEP focused this manual on strategies that are most relevant to transportation challenges that we face here in Massachusetts—and strategies that have *already worked* in communities like yours.

Do you have a success story?

Tell us about it! MassDEP plans to update this manual with additional strategies, so we want to hear what has worked in your community. If you would like us to consider featuring your successes in future releases of this manual, please call us at 617-292-5500. Help us to spread the word to others. Which strategies are best suited for your community? Every community is different and faces unique challenges, so the most appropriate strategies will vary from one community to the next. For instance, some strategies are better suited for rural areas; while others more so for urban settings. To provide a useful resource for all municipalities in the Commonwealth, this manual includes a broad spectrum of emissions reduction strategies, and every community should be able to find some strategies that are suitable to their needs.

This manual introduces you to 18 strategies that have already been implemented successfully by municipalities here in Massachusetts. View this manual as a "menu"—

pick and choose what sounds best for you. But, by all means, select many options!

What information is provided on each emissions reduction strategy?

For each strategy, this manual provides practical information to help you decide whether a strategy is appropriate for your municipality and how it can be best implemented. Each strategy includes:

- A clear definition of the strategy and how it can reduce air pollution and greenhouse gas releases.
- Success stories from municipalities that have implemented the strategy, and testimonials from those with first-hand accounts of the strategy's benefits.
- What to expect from the strategy: What air quality benefits have occurred? What other cobenefits might be expected?
- General descriptions of initial and ongoing costs associated with implementing the strategy and funding sources that can help offset those costs.
- Factors to consider during implementation, including how long the strategy takes to plan and implement, how to surpass certain obstacles that may arise, and other tips that may help you adapt the strategy to your municipality.

Keeping up with the times...

This manual presents a snapshot of effective and viable options for reducing air pollution from transportation sources. A challenge we faced in preparing this manual is that many relevant issues and topics can change over time: motor vehicle technologies advance, new fuels become available, certain funding opportunities end while new funding sources emerge, and some Web links become outdated. MassDEP is committed to keeping this manual current by releasing periodic updates and will inform municipalities as updates become available. Remember to contact us at (617) 292-5500 if you have a success story that we should consider highlighting in the next release of this manual or if you have any other relevant information that we should share with other municipalities.

This manual provides basic information to consider when deciding what pollution-reduction strategies to adopt. If you are interested in a particular strategy, you will probably want to obtain more information to help guide you through the planning and implementation phases. Accordingly, each strategy concludes by listing additional sources of information, whether accessing online resources, contacting MassDEP and other knowledgeable parties, or obtaining related publications.

How should municipalities use this manual?

The manual covers strategies organized into five categories: use cleaner vehicles and cleaner fuels; expand commuter options to reduce air pollution; reduce vehicle idling; design your community for cleaner air; and involve your community. A good way to start is to browse through the individual strategies and decide what might be a best fit for you. Whatever strategies you choose to implement, keep in mind some underlying considerations key to the success of your efforts:

- **Commitment.** An essential element to tackling transportation-related air pollution is having a strong sense of purpose. Make this a priority in your municipality and encourage your staff to always seek innovative solutions to transportation issues.
- Leadership. Whenever you implement one of these strategies, you will set a good example for how residents and businesses can also reduce air pollution from transportation sources. Don't underestimate your influence—be proud of your accomplishments and communicate positive results to your community.
- **Teamwork.** Most every strategy in this manual requires some time to implement, but you need not do everything alone. Contact others who have implemented strategies, consult with the many resources listed in this manual, and recruit motivated volunteers from your community. You may be surprised by the amount of assistance at your fingertips.



Good luck...and thank you for helping us reduce air pollution and address climate change!

I. Use Cleaner Vehicles and Cleaner Fuels

Purchase the Cleanest and Most Fuel-Efficient Vehicles for Your Needs

Substitute Alternative Fuels in Existing Vehicles

Retrofit Existing Diesel Vehicles with Clean Technology

Require Contractors to Use Clean Vehicles and Equipment

Use Cleaner Vehicles and Cleaner Fuels: Purchase the Cleanest and Most Fuel-Efficient Vehicles for Your Needs

Why purchase cleaner, more fuelefficient vehicles?

Cities and towns own and operate many vehicles, such as buses, trucks, fire engines, police cars, and passenger vehicles. These vehicles pollute the air and burn fuel—which costs you money.

When it comes time to buy a new vehicle or replace an old one, go green! Consider buying a vehicle that gets better fuel mileage and produces less pollution. Depending on specific vehicle needs, your options may include hybrid-electric vehicles, gasoline or diesel vehicles that get more miles per gallon, or vehicles that run on alternative fuels like compressed natural gas (CNG) or liquefied natural gas (LNG), which produce less air pollution than diesel and other conventional fuels. The results can be good for the environment, your community's health, and your budget.

What are the benefits of "clean vehicle" purchasing?

A cleaner environment. Diesel engines produce fine particles and toxic pollutants, along with chemicals that form smog and haze. Cleaner vehicles produce much less pollution overall, and more fuel-efficient vehicles burn less fuel, which means less pollution coming out of the tailpipe.

"Weston Public Schools is proud to invest in technology that preserves our local character, contributes to a reduction in greenhouse gases, and most importantly, leads to a cleaner environment for our children today and for the future."

> Cynthia D. Mahr, Director of Finance and Operations, Weston Public Schools

Did you know?

Over the last 35 years, the total number of vehicle miles traveled by Americans has nearly doubled. But, over this same time frame, air pollution from motor vehicle exhaust has actually decreased due to use of increasingly clean and fuel-efficient vehicles.

- A healthier community. The exhaust from motor vehicles can be harmful to your health, contributing to respiratory problems and even cancer. By using vehicles that produce less pollution, you can help reduce exposure to harmful chemicals in the air.
- Savings! Don't be fooled by the higher sticker price for some fuel-efficient vehicles. For many vehicles, your total savings in fuel costs over the vehicle's lifetime will likely offset the higher initial cost for purchasing the vehicle.
- You'll set a good example. By purchasing clean, fuel-efficient vehicles, you will set a good example for residents and businesses. You'll demonstrate that clean, fuel-efficient vehicles can perform just as well as the vehicles they replaced.

Did you know?

Replacing gasoline-powered vehicles with CNG vehicles can substantially reduce the amount of air pollutants in exhaust, including a 66 percent reduction in greenhouse gas emissions.

Where has "clean vehicle" purchasing been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

Weston, MA. Weston recently became the first school district in the state to use buses that run on natural gas. With help from MA Division of Energy Resources (DOER) and Keyspan Energy, Weston obtained a U.S. Department of Energy grant, which allowed the town to buy two new CNG buses for the same cost as

traditional diesel buses.

- Brookline, MA. The Town of Brookline has purchased nine hybrid cars for the Health and Building Departments. These cars get almost twice the gas mileage of the vehicles that they replaced. This strategy not only saves the Town thousands of dollars on fuel annually, but also has reduced greenhouse gas emissions by an estimated 4 tons per year!
- Arlington, MA. In 2002, Arlington's Town Meeting passed a "Fuel Efficient Vehicle Purchasing" by-law, which states that the Town must buy the most fuel-efficient model that serves the intended function. Since then, the town has replaced an SUV and a large sedan with more fuel-efficient smaller cars, and hopes to consider additional clean vehicle purchases as costs allow. Other cities and towns throughout New England have passed similar rules.

A Cleaner Police Car?

Police cars spend more time on the roads and use more fuel than most other municipal vehicles. By purchasing cleaner police cars, cities can greatly reduce air pollution from the vehicles they own. However, some police departments may be reluctant to consider alternatives that are perceived to sacrifice speed, acceleration, or interior space in patrol cars. But there are solutions:

- Hybrid-electric cars. An increasing number of police departments nationwide are replacing their vehicles with hybridelectric cars. These "hybrids" have proven effective both for non-patrol and certain patrol activities.
- CNG patrol cars. In a handful of small and large cities nationwide, police departments have either converted existing patrol cars to run on CNG or purchased new CNG-powered patrol cars—both approaches result in less air pollution released for every vehicle mile traveled.
- Other modes of transportation. Not all police patrols must be conducted in motor vehicles. Police departments across the Commonwealth are replacing some vehicle patrols with bicycle and foot patrols, Segway scooter patrols, and mounted horse patrols.

Where should you begin?

An excellent starting point is having your city or town formally commit—whether through by-law, policy, or other means—to purchasing cleaner and more fuel-efficient vehicles.

Next, take inventory of your vehicles, noting when each vehicle was purchased and estimating when each vehicle will be retired. With this information, you can focus your initial purchasing research on those vehicles that will be replaced first.

Finally, educate yourself on vehicle purchasing options before making decisions. You will want to consider many factors when purchasing a new vehicle, such as unique vehicle performance requirements, costs and benefits of different options, available funding sources, and proximity to refueling stations and maintenance facilities for alternative fuel vehicles.

What are the keys to success?

Look for the most appropriate technology for each application. Some of the vehicles in your fleet (police cars and fire engines, for example) might have special requirements for performance, capacity, and durability. The key is to find the cleanest, most fuel-efficient vehicle that will meet these needs.

And take your time in making a decision: a new vehicle can last for many years—be sure to make an informed choice! The references listed at the end of this fact sheet direct you to vehicle purchasing guides, fuel cost calculators, locations of alternative fuel stations, and other useful tools.

What other strategies address clean, fuel-efficient vehicles?

If you're not able to purchase a new vehicle, see if you can reduce pollution from your older vehicles by switching to alternative fuels (see the strategy entitled "Substitute Alternative Fuels in Existing Vehicles"). You may also be able to retrofit older diesel vehicles with technologies that reduce pollution (see "Retrofit Existing Diesel Vehicles with Cleaner Technology").

Where can you get more information?

For guidance on choosing a clean, fuel-efficient vehicle that's right for you:

• If purchasing cars or light trucks, consult with EPA's "Green Vehicle Guide" for purchasing options:

http://www.epa.gov/autoemissions

If purchasing transit buses, refuse haulers, delivery vehicle, police cars, and other vehicles that municipalities often purchase, consult with the U.S. Department of Energy's "Clean Strategies for Specific Fleets":

http://www.eere.energy.gov/afdc/fleets

• Visit the following Web site for links to fuel savings calculators and locations of alternative fueling stations:

http://www.eere.energy.gov/fleetguide

• Learn more about alternative fuels and fuel economy, including EPA's latest vehicle mile-pergallon ratings:

http://www.fueleconomy.gov

http://www.eere.energy.gov/afdc

• See what other cities and towns around the country have done:

http://www.massclimateaction.org/transportation.htm

For information on potential sources of funding or assistance:

• Learn about state and federal incentives and funding opportunities:

http://www.eere.energy.gov/cleancities/financial.html

http://www.epa.gov/cleanschoolbus/funding.htm

Who can you speak to about clean, fuel-efficient vehicles?

Contact the Massachusetts Division of Energy Resources (DOER) at 617-727-4732 or e-mail inquiries to the agency at doer.energy@state.ma.us.

Use Cleaner Vehicles and Cleaner Fuels: Substitute Alternative Fuels in Existing Vehicles

Why use alternative fuels?

Most gasoline and diesel fuel used in the Commonwealth comes from imported oil. But that trend is changing. A growing number of vehicles run on domestically-produced alternative fuels, which are derived from resources other than petroleum and burn "cleaner" than most conventional fuels.

You may have already heard of some alternative fuels, like compressed natural gas (CNG), liquefied petroleum gas (LPG or propane), ethanol, and biodiesel. While buying vehicles that run on these alternative fuels helps improve air quality, some communities might not be ready to make such an



"The use of biodiesel has provided the University of Massachusetts an environmentally responsible alternative to diesel fuel without compromising our efficiency and quality of work."

> - Pam Monn, Associate Director of Buildings and Grounds Services, University of Massachusetts

investment. But that doesn't mean you can't make a difference. For instance, consider running your existing diesel vehicles on biodiesel, because it's widely available, burns cleaner than conventional diesel, and can be used in most diesel vehicles with little or no engine modification.

Other alternative fuels that require little or no engine modification might become available in Massachusetts in the future. Keep an eve on the references listed at the end of this fact sheet for the latest information on alternative fuels.

What are the benefits of switching to alternative fuels, particularly biodiesel?

A cleaner environment. For several important pollutants, exhaust from biodiesel-powered vehicles is cleaner than exhaust from diesel-powered vehicles. And when you use a biodiesel blend made with ultra-low sulfur diesel (ULSD), the exhaust will be even cleaner! ULSD is a requirement for most new diesel engines as of 2006.

Did you know?

Americans are using increasing amounts of alternative fuels. In 2005, total nationwide usage of two alternative fuels exceeded 100 million gallons.

- A healthier community. Diesel-engine exhaust can be harmful to your health, contributing to respiratory problems and even cancer. By using biodiesel or other cleaner fuels, your vehicles will pollute less and you will help decrease health risks associated with breathing harmful diesel exhaust fumes.
- **Energy security.** Biodiesel is a renewable resource produced here in the United States. More vehicles running on biodiesel means less reliance on foreign oil.
- **Supporting alternative fuel infrastructure.** By encouraging a local market for alternative fuels like biodiesel, you'll help to make them more available to residents and businesses who also want to switch to alternative fuels!

Where has switching to alternative fuels been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

- Boston, MA. Since 2005, the city's parks and public works departments began running 450 city-owned fire trucks, snowplows, and other vehicles on B5 biodiesel blended with ULSD. With regular maintenance, these vehicles performed well and decreased the amount of air pollution released from the city's vehicle fleet.
- University of Massachusetts Amherst. UMass Amherst's utility trucks, dump trucks, and construction equipment previously all ran on diesel fuel, but since 2000 they now run on a blend of B20 biodiesel with ULSD. These vehicles and engines continue to run well using the alternative fuel. During the winter, an "anti-gel" additive (similar to kerosene) is used to enhance the biodiesel fuel flow properties, thus ensuring satisfactory vehicle performance during cold weather.
- Massachusetts Bay Transit Authority (MBTA). The MBTA recently completed a demonstration project to test B20 biodiesel fuel in diesel buses. The study found that biodiesel-powered buses had excellent reliability and performance. The transition to alternative fuels was so smooth that most drivers were unable to tell if their buses were running on diesel or biodiesel fuels.

Where should you begin?

First, take inventory of your community's diesel vehicles. If you are not in the market to upgrade to cleaner vehicles, think about having your current vehicles run on biodiesel.

What is biodiesel?

Biodiesel is a diesel substitute made from soybeans or other plant matter. Pure biodiesel (B100) typically cannot be used in diesel vehicles without some form of engine modification. However, when blended with conventional diesel, biodiesel can be used in most diesel engines with no change at all. Common blends are B5, B10, and B20 (5, 10, and 20 percent biodiesel, respectively).

You will want to consider several factors in this decision, such as proximity of biodiesel fueling stations, differences in fuel prices, and maintenance considerations. While B20 used to cost more than diesel, current nationwide surveys indicate that these fuels now cost roughly the same. Be sure to involve your vehicle maintenance department in this decision and ask your fuel supplier about any specific maintenance considerations. Note that some older model diesel vehicles (pre-1994) may not be able to use biodiesel. If you are hesitant to adopt this change, start with small steps: test the strategy on a few vehicles before using biodiesel on your entire fleet.

Sources that may help you implement this strategy are listed at the end of this fact sheet.

What are the keys to success?

Get public officials and department heads on board, and then spread the word about why the change is a good thing for your community. Be sure to obtain your biodiesel from a reputable dealer that sells commercial-grade biodiesel that meets industry standards. (MA municipalities should refer to the references at the end of this fact sheet for more information about using the state biodiesel contract.) And make sure you maintain your vehicles properly to ensure top performance. Biodiesel generally

Did you know?

Six biodiesel fueling stations are located across the Commonwealth—from the Berkshires to Cape Cod—and more are scheduled to open soon.

does not cause serious maintenance issues, but when you first change to biodiesel, fuel deposits from past diesel use might collect on your vehicles' filters. Replacing the fuel filter may be all that is needed to ensure a smooth transition to using biodiesel.

What other strategies address clean vehicles?

You may use many other alternative fuels if you are willing to modify your engines. You can also purchase new vehicles that run on alternative fuels such as compressed natural gas (CNG) (see "Purchase the Cleanest and Most Fuel-Efficient Vehicles for Your Needs").

Where can you get more information?

For guidance on finding an alternative fuel that works for you:

• Get more information on the costs and benefits of alternative fuels, including biodiesel:

http://www.fueleconomy.gov

http://www.eere.energy.gov/afdc/fuels/index.html

http://www.epa.gov/otaq/consumer/fuels/altfuels.htm

Find an alternative fuel supplier, distributor, or dealer near you:

http://afdcmap2.nrel.gov/locator

Learn more about the Commonwealth's "Clean Cities Coalition":

http://www.mass.gov/doer/cleancities

For information on potential sources of funding or assistance:

• Learn about state and federal incentives and funding opportunities:

http://www.eere.energy.gov/cleancities/financial.html

Who can you speak to about alternative fuels?

Massachusetts cities and towns can buy biodiesel off the statewide diesel contract (ENE23). This contract is available for use by all eligible entities including colleges, authorities, and municipalities. The contract has defined market based pricing for B5 and B20 blends. For more information contact either of these people:

Jim Ferri, Procurement Team Leader for Energy Operational Services Division (OSD) 617-720-3168 james.ferri@osd.state.ma.us

Marcia Deegler, Manager of Environmentally Preferable Product Program Operational Services Division (OSD) 617-720-3356 marcia.deegler@osd.state.ma.us

For general questions about MassDEP's Transportation Program, please contact Richard Blanchet at 617-654-6585 or richard.blanchet@state.ma.us.

Use Cleaner Vehicles and Cleaner Fuels: Retrofit Existing Diesel Vehicles with Clean Technology

Why retrofit diesel vehicles?

Diesel-powered vehicles are everywhere. They bring children to schools, deliver goods and products to our communities, and help construct roads and buildings. Unfortunately, they also pollute the air with toxic gases and particles. This is a serious problem because people live, work, and go to school near bus terminals, loading and delivery zones, construction sites, busy intersections, and other areas where diesel vehicles operate.

But there is good news: Diesel vehicles can pollute less-much less. All new diesel vehicles, for example, are required by law to burn cleaner than ever. Even if you are not ready to purchase one of these new vehicles, today's technology allows you to retrofit *existing* vehicles with effective pollution controls. Most diesel retrofits involve installing special equipment (e.g., oxidation catalysts or particulate filters) in an engine that remove pollutants that otherwise would enter the air.

Diesel retrofits are relatively inexpensive, typically take a few hours to install, and should be considered for any bus, truck, construction equipment, or other existing diesel-powered engine that your community owns or operates. Retrofit today and help reduce the pollutants coming from your diesel-powered vehicles!



"This [diesel retrofit] initiative offers an innovative approach to realizing measurable reductions in air pollutants, strengthening collaborative ties, and demonstrating new technologies that drive excellent environmental performance on campus and throughout the city."

> — Jamie Lewis Kieth, Massachusetts Institute of Technology

Did you know?

Each year, exposures to diesel exhaust are estimated to contribute to more than 20,000 premature deaths nationwide.

What are the benefits of retrofitting diesel vehicles?

- A cleaner environment. Diesel exhaust is not just one pollutant—it contains dozens of toxic substances and pollutants that form smog and haze. Diesel retrofits can significantly reduce the amount of these pollutants released into the air.
- A healthier community. The pollutants in diesel exhaust are linked to numerous health problems, including chronic bronchitis, asthma attacks, and lung cancer. Exposure to diesel exhaust can lead to work and school absences, emergency room visits, hospital admissions, and even premature death. Diesel retrofits help reduce exposure to diesel exhaust and the various associated health risks.
- A cleaner ride. Many mechanics, drivers, and passengers have noticed air quality improvements in vehicles with diesel retrofits. The vehicles release less smoke and odorous fumes. Better yet, these improvements generally come with minimal or no compromises to engine performance.

Where have diesel retrofits been successful?

Between 2002 and 2006, more than 2,700 diesel engines throughout New England were retrofitted with pollution control technologies. These retrofits reduced air pollution from school buses, transit buses, fire trucks, public works vehicles, and construction equipment. Here are just a few success stories:

Did you know?

Some diesel retrofit equipment can reduce the amount of harmful pollutants in engine exhaust by more than **90 percent!**

- The Big Dig. Nearly 200 diesel engines used to power construction equipment were retrofitted with pollution control technologies during Boston's Big Dig Central Artery project. These retrofits helped keep more than 200 tons of diesel pollution out of the air over the course of the project—a reduction comparable, by some estimates, to removing more than 1,000 dieselpowered buses from the roads in a year.
- Medford, MA. With a Clean School Bus grant from EPA, Medford worked with its school bus contractor to retrofit 70 buses. The city also received a MassDEP Diesel Retrofit Climate Protection Grant to retrofit four diesel-powered public works trucks. To maximize the environmental benefits of the retrofits, Medford targeted the vehicles that are used most frequently in the community. These and other pollution reduction efforts earned Medford an EPA "Clean Air Excellence Award."
- Massachusetts Institute of Technology (MIT). Through the Clean Diesel Collaborative for a Healthy Cambridge and with funding from EPA's Voluntary Diesel Retrofit Program, MIT retrofitted 34 diesel-powered vehicles and pieces of equipment with advanced air pollution controls. These efforts significantly cut air pollution in areas frequented by students.

Where should you begin?

Taking inventory of your diesel-powered vehicles and equipment (like forklifts and graders) is a good place to start. Note when each item was purchased, determine how often it is used and how many miles it travels, and estimate when the item will be retired. It is also good to know whether the vehicle operates primarily in areas with high population densities. This initial assessment can help prioritize your efforts. Good candidates for your first retrofits are vehicles and equipment used most frequently and with many operational years remaining on their service life.

The next step is to determine what type of diesel retrofit will work best for your vehicles and equipment. There are many types of retrofits and some are more suitable for certain circumstances. See the references at the end of this fact sheet to learn about EPA's verified retrofit technologies.

Finally, seek funding to support your diesel retrofit efforts. Depending on the technology used, retrofits will cost anywhere from roughly \$1,500 to \$10,000 per vehicle or engine. MassDEP, EPA, and other parties may fund your retrofits. See the end of this fact sheet for more information on funding opportunities.

What are some keys to success?

Coordinate activities with your fleet managers and mechanics to ensure that they understand any specific maintenance requirements for a given retrofit technology. Also, make sure the engine you retrofit runs hot enough. Some retrofit devices (i.e., the particulate filters) need engines that run at 250 degrees for several hours. You may also need to assure these individuals that retrofits won't adversely impact vehicle performance.

What other strategies address diesel vehicles?

In addition to the vehicles owned by your city or town, you can work to retrofit vehicles owned by municipal contractors by including requirements in their contracts (see "Require That Contractors Use Clean Vehicles and

Retrofit your school buses

As the first state in the nation to initiate a statewide retrofit of all eligible diesel school buses, MassDEP's School Bus Retrofit Program seeks to reduce exposures to diesel emissions by providing municipalities and school bus operators with funds and technical assistance for the installation of diesel retrofit equipment. Funding from the Executive Office of Transportation will allow MassDEP to retrofit all eligible diesel school buses in the Commonwealth by 2010.

Equipment"). You can also use cleaner varieties of diesel, such as biodiesel blends (see "Substitute Alternative Fuels in Existing Vehicles").

Where can you get more information?

For technical information about retrofit technologies and their costs and benefits:

• Visit the EPA Web site for technical information on diesel retrofits:

http://www.epa.gov/otaq/retrofit/verif-process.htm

For information on potential sources of funding or assistance:

• These sites provide lists of funding sources for diesel retrofits:

http://www.mass.gov/dep/air/masscleandiesel.htm

http://www.epa.gov/otaq/schoolbus/funding.htm

http://www.northeastdiesel.org/funding.htm

http://www.epa.gov/NE/eco/gb3/resources.html

Who can you speak to about diesel retrofits?

For the MassDEP School BusRetrofit Program, call the program help line (617-292-5809) or e-mail the program help desk (MassClean.Diesel@state.ma.us).

Use Cleaner Vehicles and Cleaner Fuels: Require Contractors To Use Clean Vehicles and Equipment

Why consider requirements for contractors?

Diesel engines are a major source of air pollution, and it's not all from trucks and buses. Bulldozers, fork lifts, backhoes, tractors, road graders, and other diesel-powered construction equipment account for a considerable portion of air pollution across the Commonwealth.

The good news? That black cloud belching out of a truck, bus, or construction vehicle will one day be a thing of the past, once new EPA regulations take effect. But because these regulations don't apply to old vehicles, it could take awhile to see these improvements. As a city or town, you can reduce diesel pollution now by requiring contractors to use clean new engines, cleaner fuel, or pollution control devices.

What are the benefits of requiring contractors to use clean vehicles and equipment?

 A cleaner environment. Diesel engines produce fine particles and toxic pollutants, along with chemicals that form smog and haze. Using ultralow sulfur diesel fuel and pollution control systems

"Managing construction impacts at the Natick Mall has been a cooperative effort. The developer has been a good neighbor, and the community has benefited with cleaner air."

> — Bob Bois, Environmental Compliance Officer, Natick

Did you know?

In New England, diesel engines are the third largest manmade source of fine particle air pollution. These particles pose serious health risks, ranging from respiratory illnesses to premature death.

can reduce the amount of harmful exhaust by more than 90 percent!

- A healthier community. Exposures to diesel engine exhaust are associated with numerous health problems, such as aggravated asthma conditions, heart attacks, and even premature death. These and other health risks will go down if your contractors use cleaner diesel vehicles and equipment.
- One project leads to another. If contractors are required to invest in cleaner engines or pollution control devices for one project, they'll have this clean equipment on hand for future projects, which will continue to reduce pollution down the road. Plus, the contractor can get some good publicity for doing the right thing!

Where have requirements for contractors been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

Boston, MA. During the "Big Dig" project, the Massachusetts Turnpike Author-

Did you know?

Exhaust from a typical bulldozer engine contains as much particle pollution as 500 cars.

ity started a voluntary program with contractors to install diesel oxidation catalysts on several hundred pieces of heavy construction equipment. Installation of the retrofit equipment significantly reduced releases of several harmful air pollutants, including carbon monoxide and fine particles. Moreover, despite some people's fears, these retrofits didn't hurt equipment performance or increase maintenance costs.

- Natick, MA. When approving a special permit for an expansion of the Natick Mall, the Town Planning Board required the contractor to (1) use advanced pollution control technology (diesel oxidation catalysts and diesel particulate filters), (2) use ultra-low sulfur diesel fuel, and (3) limit the amount of time that vehicles could idle on site. According to a monthly report, switching to ultra-low sulfur diesel fuel has reduced releases of some air pollutants by 3,000 pounds a month!
- Statewide projects. The Commonwealth has also taken steps to require clean equipment on state-funded construction projects. For example, the Clean Water and Drinking Water State Revolving Fund construction program requires 100 percent of diesel-powered equipment to be retrofitted with pollution control devices.

Where should you begin?

Most cities and towns contract out support services—like school busing, trash collection, and construction—that rely upon diesel-powered equipment. A good way to help reduce the air quality impacts of those services is to specify "clean air requirements" during the bidding process: Let prospective contractors know that preference will be given to those who use clean vehicles or engines with pollution control devices.

Then, make sure that these requirements become part of your contracts. Here is some sample contract language that you could use:

"Vendors are required to have EPA-certified or CARB-certified emissions control technologies installed on all diesel vehicles [over 50 Horsepower] to be used to perform the work of this contract. Vendors must be able to provide documentation to verify that the equipment on all vehicles is operational and must be capable of reducing particular matter (PM) emissions by a significant, measurable amount."

In some cases, you can even extend these requirements to private developers. One approach is to require use of clean vehicles and clean equipment as a condition for permit approval. Consult with your planning board and legal counsel to determine the extent of your authority over such private development projects.

Sources that may help you implement this strategy are listed at the end of this fact sheet.

What are the keys to success?

Make your preference for clean vehicles and equipment well known to contractors and commercial developers alike. It also helps to put your requirements in plain English—for example, use ultra-low sulfur diesel fuel, obey the state anti-idling law, and retrofit diesel vehicles.

Finally, make sure you have a way to enforce your requirements. Consider visiting construction sites to verify use of clean equipment or requiring contractors to submit periodic reports that document pollution control efforts.

What other strategies address cleaner vehicles?

One concern about construction projects is the amount of time vehicles spend idling on site. The strategy entitled "Create an Idling Reduction Campaign" explains the Massachusetts anti-idling law and how you can raise awareness about idling. Also, if you're going to require contractors to use cleaner vehicles or retrofit existing vehicles to control pollution, why not do the same for your own municipal fleet? See "Purchase the Cleanest and Most Fuel-Efficient Vehicles for Your Needs" and "Retrofit Existing Diesel Vehicles with Cleaner Technology" for more details.

Where can you get more information?

For ideas, technical guidance, and information on potential sources of assistance:

• Learn about the Massachusetts Diesel Retrofit Program:

http://www.mass.gov/dep/water/wastewater/diesel.htm

 Check out EPA's National Clean Diesel Campaign for information about emissions standards, fuel requirements, and "Clean Construction" case studies:

http://www.epa.gov/cleandiesel

http://www.epa.gov/cleandiesel/construction/index.htm

 Download resources from "Greater Boston Breathes Better," a public-private partnership dedicated to reducing air pollution from construction sources:

http://www.epa.gov/NE/eco/gb3/index.html

Who can you speak to about requirements for contractors?

Contact the Massachusetts Department of Environmental Protection (MassDEP) Transportation Program at 617-556-1101.

II. Expand Commuter Options to Reduce Air Pollution

Join or Develop a Commuter Options Program

Comply with the Massachusetts Rideshare Regulation

Develop a Partnership to Expand Commuter Options throughout the Community

Participate in the MA Safe Routes to School Program

Bring Car-Sharing to Your Community

Expand Commuter Options to Reduce Emissions: Join or Develop a Commuter Options Program

How do commuter options help to reduce emissions?

Many commuters feel that they have no choice but to drive to and from work by themselves. In reality, they have many choices or options for commuting. You can help tackle this problem by promoting commuter options that reduce the number of commuter drive-alone trips, and therefore reduce air pollution. Examples of commuter options include:

- Offering a ridematching service to help employees form carpools or vanpools.
- Setting aside preferred parking spaces for carpools and vanpools.
- Providing subsidies or pre-tax benefits for using public transit.
- Encouraging employees to bicycle to work by installing showers and bicycle racks.
- Reimbursing employees for parking spots they don't use ("parking cash out").
- Guaranteeing "emergency rides home" to commuters who have to work late or have an emergency.
- Allowing employees to "telecommute" or work flexible hours.

As a municipal government, you can help improve air quality by providing commuter options to your own em-

ployees and by encouraging employers in your town to provide commuter options to their employees.

What are the benefits of providing commuter options?

- A cleaner and healthier community. By promoting alternatives to driving alone, you'll reduce the number of cars on the road. That means less air pollution and less exposure to harmful pollutants in vehicle exhaust. Additionally, by encouraging employees to bicycle or walk to work, you will be promoting healthy activities!
- Savings! Commuter options can help your employees save money and time. By reducing the number of times they drive to work alone, employees will save on gas and other costs of driving. They also can save time by avoiding rush hour traffic, which may be an option when employers provide flexible work hours.
- Happier, more productive employees. Long, solo commutes in rush hour traffic can be stressful. Employees who take alternative modes, rideshare, or drive at off-peak times are more likely to arrive at work fresh and productive.

"As a municipality, providing our workforce with commuter benefits is a smart investment: while our employees enjoy the flexibility of many commute options, the positive impacts of fewer vehicle trips also extend to our residents, businesses, and the environment."

— Robert W. Healey, City Manager of Cambridge, on becoming an EPA Best Workplace for Commuters

Did you know?

Nearly 80 percent of commuters nationwide drive to and from work in single-occupancy vehicles.

 Less traffic congestion. Every time someone chooses to avoid commuter drivealone trips, a car is removed from the road. Traffic congestion may subside as more commuters opt for different ways to get to and from work.

Where have commuter option programs been successful?

Did you know?

In the Boston area, a commuter who drives alone 25 miles to and from work each day spends nearly \$6,000 a year on gas, vehicle maintenance, and related expenses.

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

- **Cambridge**, **MA**. Cambridge provides many commuter benefits to city employees, including subsidized public transit passes and emergency rides home for employees who do not drive to work alone. The city also encourages alternative transportation by providing bicycles and shared cars that employees can use for business-related travel during the workday, providing showers at the workplace, and sponsoring activities like bicycle tune-ups. Cambridge was the first municipality in Massachusetts to be recognized by EPA as a "Best Workplace for Commuters"!
- Barnstable, MA. Many communities host events or distribute information for MassRIDES, the Commonwealth's free commuter options program. Barnstable stands out because it joined MassRIDES on behalf of its own employees, too. Through outreach events and a monthly newsletter, Barnstable encourages its employees to take advantage of MassRIDES' ridematching service and free emergency rides home. For these and other efforts, MassRIDES recently recognized Barnstable as a "Bronze Level Partner."

Where should you begin?

A good place to start is to figure out route options for your employees. How do people get to work? Could they do some of their work from home? Are employees aware of all public transit options? What incentives can you offer to get employees to carpool, bicycle, or walk to work? Survey your employees to find out what commuter options would be most useful to them.

You can learn how to implement commuter options from various resources. For example, Mass-RIDES offers a free statewide ridematching database for carpools and vanpools, free emergency ride home services for members, training and technical support, and other resources. Additionally, the national EPA Best Workplaces for Commuters program offers a free employer toolkit for implementing commuter options.

Sources that may help you implement this strategy are listed at the end of this fact sheet.

What are the keys to success?

Set a good example. If you want local businesses to offer commuter benefits to their employees, take the lead and do it for your own employees! By getting your employees to use local transit and shuttles, you'll also help keep these services running, which ensures that these options will be available to the rest of the community.

Also consider ways to recruit others in your community. By becoming a MassRIDES partner, you'll gain access to a variety of resources to help you with publicity, education, and events to encourage residents and businesses to take advantage of the statewide ridematching database and other commuting options.

Finally, be creative! Ask your employees for innovative commuter options, encourage employees to track the number of commuter drive-alone trips that they avoid, or reward workers who form new carpools.

Massachusetts Rideshare Regulation—Large Employers Must Comply!

The Massachusetts Rideshare Regulation (310 CMR 7.16) requires businesses and educational institutions with a large number of commuters to develop plans to reduce commuter drive-alone trips by 25 percent. For more information, see the strategy entitled "Comply with the Massachusetts Rideshare Regulation."

What other strategies address commuter options?

To improve your commuter options program, why not pool knowledge and resources with other employers in your area? See "Develop a Partnership to Expand Commuter Options throughout the Community" for further details. Note that state law requires some large employers to provide commuter options (see "Comply with Massachusetts Rideshare Regulation"). Also, the strategies in Chapter 4 all describe how the design of your community affects commuter options.

Where can you get more information?

Massachusetts Rideshare Program. The Massachusetts Rideshare Regulation (310 CMR 7.16) requires many businesses and educational institutions to develop plans and set goals for reducing commuter drive-alone trips by 25 percent. Your organization falls under this state program if it employs more than 250 people or your educational facility has more than 1,000 students and employees combined. For more information, see:

http://www.mass.gov/dep/air/approvals/ridesh02.htm

• Learn about commuter benefits through the Massachusetts Executive Office of Transportation's MassRIDES program:

http://www.commute.com or call (888) 4-COMMUTE

• The federal government's Best Workplaces for Commuters program offers extensive resources, including a commuter options toolkit for employers:

http://www.bwc.gov/about/index.htm

Visit "MassCommute," which lists the Transportation Management Associations (TMA) that operate in the state. A TMA is a private, non-profit association of businesses that has a financial dues structure joined together in a legal agreement for the purpose of reducing traffic congestion and pollution by improving commuting options. The MassCommute Web site describes the services provided, some of which address commuter options:

http://www.masscommute.com

Who can you speak to about commuter options programs?

- Contact the Massachusetts Rideshare Program Coordinator for assistance (617-292-5663).
- Call MassRIDES (1-888-4COMMUTE) and ask about commuter options.
- Call EPA's toll-free information request line (1-888-856-3131) with questions about becoming a Best Workplace for Commuters.

Expand Commuter Options to Reduce Emissions: Comply with the Massachusetts Rideshare Regulation

What is the Massachusetts Rideshare Regulation?

We all know that taking cars off the road helps reduce air pollution. What some people may not know is that state law *actually requires* certain employers in Massachusetts—including some cities and towns—to promote commuting incentives and reduce commuter drive-alone trips.

The Massachusetts Rideshare Regulation (310 CMR 7.16) generally applies to larger businesses, city and town governments, and educational institutions with relatively large numbers of commuting students and employees. You should refer to official MassDEP publications (listed at the end of this fact sheet) for the specific applicability requirements.

So, what do you need to do if this law applies to your city or town? You have to work to reduce your employees' commuter drive-alone trips by 25 percent. Multiply this trip reduction rate by the number of large employers, cities and towns, and educational institutions in the state, and that translates into a significant reduction in air pollution!

What are the benefits of the Rideshare Regulation?



"Completing the Rideshare Regulation reporting process gives us information on the success of our employee commute benefits program.

We not only see data on whether our drive-alone trips are reduced, but we also get valuable feedback on how employees feel about existing programs, and which additional programs might be successful."

 Robert W. Healey, City Manager of Cambridge, on complying with the Rideshare Regulation

Did you know?

Each year in Massachusetts, passenger vehicles drive more than 50 billion miles.

- A cleaner environment. By encouraging alternatives to driving alone, you'll reduce the number of cars on the road. This means less air pollution!
- A healthier community. Exposure to motor vehicle exhaust can contribute to respiratory problems and even cancer. Keeping vehicles off the road will help reduce health risks associated with breathing exhaust fumes.
- Happier commuters. Too many commuter drive-alone trips can cause gridlock during rush hour. As a result, it takes longer for people to get to work or school and back home again. Promoting commuter options is about more than cleaner air—it's also about faster, easier commutes.
- Better business. By providing commuter options, governments, businesses, and educational
 institutions can help boost employee job satisfaction, reduce parking demands, and even
 qualify for certain tax benefits.

Where has the Rideshare Regulation been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

 UMass Memorial Medical Center, Worcester. The UMass Memorial Medical Center is a hospital with over 9,000

Did you know?

In 2006, the combined effort of several TMAs in Massachusetts reduced total vehicle miles traveled by an estimated **38** million miles!

employees. Over the past years, the hospital has achieved continuing reductions in commuter drive-alone trips by implementing, promoting, and maintaining commuting options including: organizing carpool and vanpool matching services, designating preferential parking for carpools and vanpools, installing bicycle racks, holding Transportation Day events, issuing on-site transit pass sales, offering emergency ride home service, and providing other commuting option incentives.

Lahey Clinic, Burlington. The Lahey Clinic is a hospital with over 3,000 employees. Over the past years, it has achieved continuing reductions in commuter drive-alone trips by implementing, promoting, and maintaining commuting options including: helping match employees in carpools and vanpools, offering preferential parking for carpools and vanpools, providing bicycle parking along with showers and locker rooms, allowing flextime schedules, issuing onsite transit pass sales, offering an emergency ride home service, and providing other commuting option incentives.

Where should you begin?

First, determine whether your city or town is required to develop commuter options under the Massachusetts Rideshare Regulation. If you don't meet the applicability requirements, consider complying anyway. By voluntarily reducing drive-alone trips among your employees, you will be an environmental steward and set a good example for other employers in your community.

If your city or town meets the applicability criteria and *must meet* the Massachusetts Rideshare regulation, then you will have to do the following:

- Survey your employees' current commuting patterns.
- Set goals for reducing commuter drive-alone trips by 25 percent.
- Offer various incentives and commuter options to your employees.
- Review changes in commuter patterns and file annual reports with MassDEP.

After establishing a Rideshare program in municipal operations, approach large local businesses to encourage the development of programs.

Sources that may help you implement commuter partnership options are listed at the end of this fact sheet.

What are the keys to success?

Don't go it alone—there are plenty of resources to help you comply. Visit the MassDEP Web site or call their program coordinator if you have questions about complying with the Massachusetts Rideshare regulation. MassRIDES, for instance, provides free ridematching services and information on other commuter benefits. Further, Transportation Management Associations (TMAs) across the state can help you pool resources with other employers to provide more options than you might be able to offer on your own. In fact, some TMAs offer free seminars to help employers comply with the Massachusetts Rideshare Regulation. Take advantage of these resources and others listed at the end of this fact sheet!

What other strategies address ridesharing?

For more information about the wide range of commuter benefits that you can offer, see the strategy entitled "Join or Develop a Commuter Options Program." For even more options, consider teaming up with other employers in your area. See "Develop a Partnership to Expand Commuter Options throughout the Community."

Where can you get more information?

For the full text of the Massachusetts Rideshare Regulation and relevant guidance documents:

• Visit MassDEP's Rideshare Regulation Web site:

http://www.mass.gov/dep/air/approvals/ridesh02.htm

For other resources that might help you comply:

• Tap into ridematching and other commuter benefits offered by MassRIDES:

http://www.commute.com

• Find out if a TMA serves your city or town and learn about the services the TMA offers. Refer to Appendix C of this report and visit the MassCommute Web site:

http://www.masscommute.com

 Read about a far broader range of commuter choice options published by the national Best Workplaces for Commuters program:

http://www.bwc.gov

Who can you speak to about the Massachusetts Rideshare Regulation?

Call the Massachusetts Rideshare Program at 617-292-5663.
Expand Commuter Options to Reduce Emissions: Develop a Partnership to Expand Commuter Options throughout the Community

How does a commuter partnership work?

Many communities and employers do not have enough resources to develop and implement commuter options for their employees. But by joining forces with other employers, you can pool your resources and provide better commuter options for everyone!

One way to expand commuter options is to join a Transportation Management Association (TMA). TMAs are non-profit organizations that improve air quality by enhancing commuter options. Employers pay fees to join TMAs, and receive numerous commuter benefits for their employees, such as ridematching services, shuttles to transit, and emergency rides home. How does this affect you? Your city or town can join a TMA and you can refer local employers to TMAs as well.

What are the benefits of a commuter partnership?

Improved quality of life. By encouraging fewer commuter drive-alone trips, commuter partnerships help relieve congestion and reduce air pollution. They also help employees spend less time commuting, save money on fuel costs, and arrive at work happier and more productive!



- Buzz Stapczynski, Town Manager, Andover

Did you know?

The 10 TMAs in Massachusetts provide commuting options to several hundred members, which include businesses, communities, and universities. Altogether, nearly 250,000 Massachusetts residents work for employers that belong to a TMA.

- Greater resources. After joining a commuter partnership, you'll have a much larger network for ridematching services, generate more demand for shuttles or vanpools, and share costs for emergency rides home.
- Well-managed growth. Commuter partnerships can help lessen the air quality impacts of new development. For example, as part of construction permitting processes, some cities and towns require major new commercial or residential developments to join the local TMA.
- Better business. Commuter partnerships are not only good for the environment; they're good for business, too! Commuter options can reduce parking needs, help businesses attract and retain employees, and may even provide tax savings (e.g., a transit subsidy may be provided tax-free to an employee; for the employer, this benefit can lead to a corporate tax deduction, and may not be subject to the payroll tax). Further, TMAs advocate for infrastructure improvements, like road construction to reduce traffic congestion.

Where have commuter partnerships been successful?

Commuter partnerships have proven successful in urban, suburban, and rural settings throughout New England. Here are just a few success stories:

 Andover, MA. More than 50,000 people work in Andover. To reduce the number of commuters driving on its roads, the town

Did you know?

In 2006, the combined effort of several TMAs in Massachusetts reduced total vehicle miles traveled by an estimated **38 million miles!**

encourages major employers to join local TMAs. Further, TMA membership is now required as part of the permit approval process for certain developments. Town officials and local employers agree that TMA membership has helped reduce congestion and improve employees' quality of life.

- **Framingham**, **MA**. The MetroWest/495 TMA is a valuable resource to commuters and town officials. The TMA serves more than 14,000 people who work in Framingham, including the town's own employees. Further, the town planner regularly attends TMA meetings, allowing her to meet other local employers and learn about their concerns.
- Upper Valley District, New Hampshire and Vermont. Serving nearly 125 cities and towns in New Hampshire and Vermont, the Upper Valley District has many unique distinctions—the first and only Best Workplaces for Commuters (BWC) District to form in New England; the first and only BWC district that serves a primarily rural population; and the recent recipient of an EPA award for its commuter choice benefits. This BWC District proves that commuter partnerships can be effective in rural settings!

Where should you begin?

There are two principal options for joining a commuter partnership. First, find out if a TMA serves your community and ask about becoming a member. If no TMAs serve your area, consider creating one by asking large employers in your community if they would be interested in pooling their resources to start a TMA. Second, think about becoming an EPA Best Workplaces for Commuters (BWC) District.

What are the keys to success?

Though commuter partnerships can work in many different settings, they are best suited to communities that have large employers or a large commuting population. To be successful, commuter partnerships need members. This will ensure enough demand for services that TMAs and other partnerships provide and sufficient membership fees to keep the programs running. Encourage others to join—or, if you're concerned about the impacts of new development, make TMA membership a requirement for major construction permits.

What other strategies address commuter options?

For more information about ways that public or private employers can encourage employees not to drive alone during rush hour, see "Join or Develop a Commuter Options Program." Note that some large employers are required to provide commuter options (see "Comply with Massachusetts Ride-share Regulation").

Where can you get more information?

• Visit "MassCommute," which lists the TMAs that operate in the state and describes the services they provide:

http://www.masscommute.com

• Learn what it takes to be an EPA Best Workplaces for Commuters District:

http://www.bwc.gov/about/districts.htm

Who can you speak to about commuter partnerships?

Call your local TMA. Telephone numbers are listed in Appendix C of this report.

Expand Commuter Options to Reduce Emissions: Participate in the MA Safe Routes to School Program

Why create a Safe Routes to School program?

Did you know that less than 1 in 5 children walk to school? And that vehicles driving students to school can account for nearly 25 percent of morning traffic? Launching a Safe Routes to School (SRS) program can help change these trends by promoting safe, healthy alternatives for getting to and from school. SRS programs encourage walking and bicycling to school—options that reduce fuel consumption and air pollution.

You can become one of a growing number of Massachusetts communities using SRS programs to reduce dependence on motor vehicles used to transport children to and from school. SRS programs don't require any special skills or resources; "The walking school bus has... given some kids their only chance to walk to school with friends, parents and the school principal. This is important for several reasons community-building, exercise, and reduced pollution for every step the children take!"

— Risa Silverman, Coordinator of Northampton
Walking Schoolbus

the main ingredients of success are the commitment and dedication of the people who take on these projects.

What are the benefits of a Safe Routes to School program?

- A cleaner environment. It's simple: decreasing the number of vehicles on the road and idling in parking lots and drop-off areas decreases air pollution from vehicle exhaust. Every car taken off the road helps!
- A healthier community. By promoting walking and bicycling instead of driving, SRS programs encourage children to develop healthy exercise habits early in life. And by reducing vehicle exhaust from school transport, SRS programs lessen exposure to harmful pollutants for all community members.
- **Safer children.** Children are safer arriving at schools with less drop-off and pick-up traffic in parking lots, drop-off lanes, and neighboring streets. And by teaching children to walk and bicycle safely at a young age, you will teach responsible habits that will last a lifetime.

Where have SRS programs been successful?

Successful programs are already in place across the Commonwealth, even in some communities where parents previously relied heavily on personal vehicles to get children to and from school. Here are just a few success stories:

Arlington, MA. Parents, principals, and teachers joined forces to implement successful SRS programs at five Arlington schools. Before Dallin Elementary School launched its SRS program, only 38 percent of kids walked to school. Just 2 years later, 56 percent walked to school.

Are you too far to walk?

Organize a carpool to reduce pollution and congestion!

- Northampton, MA. At Jackson Street School, children are rewarded for frequently walking, bicycling, or carpooling to and from school. This effort has led other Northampton schools to start "Walking School Buses," or groups of students who walk together, sometimes with parents. At some schools, the principal gets together with students to walk to school once a week!
- Lexington, MA. Several Lexington schools have SRS programs. The program at Bowman Elementary School began with an assembly, in which parents, crossing guards, police officers, and teachers gave inspirational talks to students and the community. Some classes presented skits on the environmental benefits of walking to school or taking the bus. Before the program began, 125 cars dropped students off at school daily. Now that number is down to 45 cars!

Where should you begin?

Good news! MassRIDES, the Commonwealth's travel options program, has developed practical, step-by-step guidance that can help you launch a successful SRS program. MassRIDES also offers technical support to help customize programs, train community members, and evaluate your SRS program. The Centers for Disease Control and Prevention and the U.S. Department of Transportation have also published very useful guidance. Refer to the end of this fact sheet for more information on how you can access these and other resources.

What are the keys to success?

You may be surprised at how excited children will be to walk or bicycle to school, and how easy it may be to increase the number of kids walking or riding bicycles to school. Community members and SRS coordinators suggest that you consider the following keys to success:

- Focus on safety. The most important aspect of an SRS program is assuring parents that kids can walk or bicycle safely to and from school. Therefore, it is critical to involve parents in your SRS programs. Communities that are considering an SRS program should use proven methods for teaching children how to be responsible pedestrians and bicyclists. Make sure that safety always comes first!
- **Spread the word.** Get your community involved by coordinating with teachers, principals, local officials, and parents to get your SRS program started. Seek help from volunteers, who often are very eager to help ensure that kids can get to and from school safely.
- Provide rewards. A reward system can remind children of the benefits of walking and riding bicycles to school and encourage healthy habits.
- Organize special "Walk to School" events. Keep the community interested in your SRS programs by organizing routine or special events, like "Walk to School Day."

What other strategies address related transportation issues?

The effort to get families to reduce the amount of trips they take in their motor vehicles is at the heart of an SRS program. Many additional strategies encourage increased bicycle or pedestrian activity as an alternative to driving. See the fact sheets on the following strategies for examples: "Design Roads and Intersections to Encourage Pedestrian and Bicycle Use," "Create Multi-Use Trails," and "Install Bicycle Racks or Bicycle Lockers."

Where can you get more information?

For guidance on launching a successful SRS program, or to learn more about SRS programs nationwide:

• Check out the following Web sites for information on how to get kids walking to school:

http://www.commute.com/default.asp?pgid=massrides/srsMain&sid=mrlevel2

http://www.cdc.gov/nccdphp/dnpa/kidswalk/resources.htm

http://safety.fhwa.dot.gov/saferoutes

http://www.saferoutesinfo.org

View WalkBoston's resources, including their SRS Toolkit, at:

http://www.walkboston.org/projects/safe_routes.htm

• To initiate your participation in the MA Safe Routes to Schools Program, fill out the form at:

http://www.commute.com/default.asp?pgid=massrides/srsGetStarted&sid=mrlevel2

Who can you speak to about SRS programs?

Ms. Davida Eisenberg from MassRIDES at davida.eisenberg@eot.state.ma.us, or 617-892-6096.

Expand Commuter Options to Reduce Emissions: Bring Car-Sharing to Your Community

Why consider car-sharing?

Massachusetts is home to 4.5 million registered passenger vehicles, and the exhaust from those vehicles is a major contributor to air pollution. You can help take some cars off the roads—and clean the air—by inviting or encouraging car sharing in your community.

Car-sharing is a system in which people can use cars without necessarily owning them. Well established in Europe and growing rapidly in the United States, most car-sharing systems are "pay-as-youdrive" operations in which members have access to shared vehicles placed in areas with high transportation demand, such as high-density residential settings, public transit stations, universities, and commercial areas. Ideally, members will get rid of their own vehicles (or not purchase new ones) and instead use the shared vehicles when use of a vehicle is absolutely necessary. Membership in these car-sharing programs should translate into fewer trips by car, because members are less likely to drive when it is clear they are paying for every minute on the road.

What are the benefits of car-sharing?

- A cleaner environment. Some studies suggest that people drive less after joining a car-sharing program. Fewer miles traveled in newer, cleaner vehicles should translate into less motor vehicle exhaust and associated air quality improvements.
- A healthier community. When people don't have access to privately-owned cars, they tend to use other forms of transportation more frequently, including walking and bicycling. This leads to a healthier, more active community!
- Less vehicle congestion. As more people join car-sharing programs, fewer cars will be on the roads and occupying parking spaces.
- Members can save money! Car ownership comes with many expenses. Some people—particularly those who drive less than 10,000 miles per year—can recognize substantial savings from joining car-sharing programs.

"Sharing cars is good for the environment. Think about it. We don't use a car 24/7. Fewer cars on the road would be a good thing. Definitely fewer cars parked in this city would be even better."

- Local Car Cooperative Member

Did you know?

Some car-sharing members save **more than \$5,000 a year** in monthly loan payments, insurance, maintenance, and other vehiclerelated expenses.

Where have car-sharing programs been successful?

Car-sharing programs have been successfully implemented in a number of Commonwealth communities, mostly in urban and suburban areas. Here are just a few success stories:

- **Brookline**, **MA**. Brookline has a strong contingent of car-sharing members. One program has more than 50 shared cars throughout town. The town encourages participation with an additional incentive: free parking spaces for the shared vehicles!
- Amherst, MA. Amherst College has made two hybrid cars available to faculty, staff, and students of the Amherst College community. The goal of the program is (1) to reduce pollution by encouraging greater use of fuel-efficient vehicles and (2) to decrease the number of cars on campus, thus reducing the parking demand in town.
- Cambridge, MA. As part of a pilot program, one city department joined a commercial carsharing program. Now, 12 employees can use a shared car for work related trips around town. As a result, these employees don't have to bring their car to work just because they need to drive to a meeting during the day.

What types of car-sharing programs are available?

- Commercial. These are companies that provide services that typically charge members flat membership fees to cover fixed costs like insurance, plus daily or hourly fees to use shared vehicles. Your community can begin to explore using this kind of program by contacting the appropriate service provider. A major benefit of joining commercial programs is that the business structure is already established. These programs are available to companies as well as individuals.
- Private. Private programs, often referred to as car cooperatives, are simply cars that are shared among a group of individuals, or private partners. Private car cooperatives vary in size from a few friends, to a group of businesses, to an entire community. Members enter into the shared car partnership with an understanding that costs and vehicle time will be shared accordingly. The benefits of a private car cooperative are that its infrastructure can be tailored to community needs and that membership fees are spent largely on maintaining the vehicles, not to make profits for a company.

What are the keys to success?

Car-sharing programs typically are a good option for people who don't need to commute by car to work and who drive less than 10,000 miles a year. Thus, these programs are best suited to communities with concentrated residential, business, or commercial areas. The best programs have a group of dedicated organizers and carefully considered plans for sharing cars.

You can encourage these programs to operate in your community by assigning preferential parking spaces to program vehicles—or by encouraging your own employees to join. The best way to ensure that car-sharing programs lead to cleaner air is to encourage or require that the programs only use cleaner, more fuel-efficient vehicles.

What other strategies address transportation alternatives?

Car-sharing programs can improve air quality by getting people to use cleaner, more fuel-efficient vehicles and to reduce their motor vehicle miles. There are several other means for achieving these goals. The first chapter of this manual presents additional strategies for using cleaner vehicles, and the second chapter describes commuter options to help communities reduce the number of vehicle trips.

Where can you get more information?

For step-by-step guidance on how you might implement a car-sharing program:

 Consider reading this report, "Bringing Car-Sharing to Your Community," published in support of the Car Sharing Industry of North America:

http://www.citycarshare.org/download/CCS_BCCtYC_Long.pdf

For information on for-profit car-sharing programs with nationwide operations:

• Visit these Web sites:

http://www.zipcar.com

http://www.flexcar.com

Who can you speak to about car-sharing programs?

For general questions about transportation options, please contact Richard Blanchet of MassDEP's Transportation Programs at 617-654-6585 or richard.blanchet@state.ma.us.

III. Reduce Vehicle Idling

Launch an Idling Reduction Campaign

Retrofit Diesel Vehicles with Idling Reduction Technology



Reduce Vehicle Idling: Launch an Idling Reduction Campaign

Why consider an idling reduction campaign?

Many people leave their vehicles running when they start their car, go shopping, or pick up passengers. But idling vehicles waste fuel, pollute the air, and expose people to harmful exhaust fumes. The problem is worse in areas where multiple vehicles idle for a long time, like school parking lots.

You can join a growing league of communities in the Commonwealth that have put an end to unnecessary vehicle idling. By encouraging drivers to turn off their vehicles while parked or waiting, your community can reduce air pollution and improve the living, shopping, learning, and recreational environment for everyone.



 Patriot Chapter of the Association for Commuter Transportation Award given to the town of Lenox, MA for its idling reduction campaign

What are the benefits of a campaign?

- Reduction in greenhouse gases. USEPA estimates that for each minute a car idles, it releases 23 grams of carbon dioxide (CO₂). If only 10 percent of the approximately 4.5 million private vehicles in Massachusetts idle for 10 minutes a day, the result is adding 38,000 metric tons of carbon dioxide a year to the atmosphere.
- A healthier community. The exhaust from motor vehicles can be harmful to your health, contributing to respiratory problems and even cancer. An idling reduction campaign can help reduce people's exposures to harmful pollutants in vehicle exhaust.
- Energy and cost savings. Idling vehicles burn fuel, which costs money. The fuel and cost savings of an idling reduction campaign can quickly add up: a fleet of 10 school buses that idles 20 minutes a day wastes more than \$1,000 in fuel costs annually.

Where have idling reduction campaigns been successful?

Successful campaigns are already in place in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

- Belmont, MA. With support from MassDEP, Belmont received \$1,500 worth of idling reduction materials, including road signs, handouts, decals, and fact sheets. Using these and other materials, Belmont launched a town-wide informational campaign publicly endorsed by numerous town officials, including selectmen, the town manager, the superintendent of schools, and multiple department heads.
- Lenox, MA. In 2003, volunteers and local officials teamed up in Lenox to reduce idling in their community, targeting both residents and visitors. The "Idle Free" campaign used flyers, news articles, and signs to communicate the anti-idling message. Lenox's project has been referred to as a "national model" for idling reduction campaigns.

• Lexington, MA. The town started "Idle Free Lexington" by setting up a steering committee, which included town officials, business owners, and residents. They then developed an educational pamphlet on idling reduction, which was mailed to every homeowner in Lexington.

Where should you begin?

Good news! MassDEP has already prepared practical step-by-step guidance to help communities launch successful idling reduction campaigns. The agency even offers free training to school bus drivers and municipal employees to eliminate unnecessary idling. You should

Unnecessary Vehicle idling is illegal

According to Massachusetts General Law (Chapter 90, Section 16A): "No person shall cause, suffer, allow, or permit the unnecessary operation of the engine of a motor vehicle while said vehicle is stopped for a foreseeable period in excess of five minutes." There are exceptions for vehicles being serviced, vehicles making deliveries that need to keep their engines running (to power refrigerators, for example), and vehicles that need to run their engines to operate accessories (such as power lifts). Police officers, local boards of health, and other officials are all authorized to enforce this law.

also know that effective idling reduction campaigns don't have to cost a lot. The main expenses are usually printing informational materials or posting metal signs around town. Funding sources are available to help offset these costs. Volunteers in your community can also lend a hand.

Sources that provide implementation guidance and funding information are listed at the end of this fact sheet.

What obstacles might you encounter?

Vehicle idling can be a habit that is hard to break. However, several communities have proven that they can effectively reduce idling by doing the following:

- Lead by example. Residents will likely be more receptive to your message if you first adopt idling reduction principles in your municipal operations, such as school bus transportation.
- **Communicate effectively.** Your outreach messages should be direct and clear and target many audiences. The more effective your outreach, the faster your message will spread throughout the community and beyond.
- **Dispel myths.** People have common misconceptions about vehicle idling. For example, many people believe it is necessary to warm up a car or let an engine idle rather than shut it off and on. Your campaign can dispel these myths.
- Emphasize benefits of reducing unnecessary idling and the law. Some people may be reluctant to change their behavior, because they resent being told what to do with their vehicles. But informing them of the Massachusetts anti-idling law and the benefits associated with reduced idling may change their mind!

What other strategies address vehicle idling issues?

There are options for equipping school buses and trucks with auxiliary heaters, which can help reduce the amount of time that these vehicles idle. More information on this topic is in the fact sheet titled: "Retrofit School Buses with Auxiliary Heaters."

Where can you get more information?

For guidance on launching successful idling reduction campaigns:

Refer to MassDEP's Idling Reduction Toolkit, available at:

http://www.mass.gov/dep/air/community/schbusir.htm

• Consider Mississauga's ten tips for a successful idling reduction campaign:

http://www.mississauga.ca/portal/residents/idlefree

For information on potential sources of funding or assistance:

• Check information posted at the following Web sites:

http://www.mass.gov/dep/recycle/recawgr.htm

http://www.epa.gov/cleanschoolbus/funding.htm

http://www.fhwa.dot.gov/environment/cmaqpgs/index.htm

To learn more facts about vehicle idling:

• Read about some common misconceptions and realities at the following sites:

http://www.epa.gov/cleanschoolbus/antiidling.htm#myths

http://www.mississauga.ca/portal/residents/idlefree

Who can you speak to about idling reduction?

For questions about the Massachusetts law on vehicle idling and related outreach activities, contact Julie Ross from MassDEP at julie.ross@state.ma.us, or 617-292-5958.

Reduce Vehicle Idling: Retrofit Diesel Vehicles with Idling Reduction Technology

What are idling reduction devices?

Just about any technology that can help to reduce the need to idle a diesel engine could be part of an idling reduction strategy. The technologies range from simple electrical outlets and remote control engine starters to more sophisticated power sources, such as an auxiliary power unit. The first step in identifying what technology might be the best option for your vehicles is to look at and evaluate the reasons why your drivers currently idle their engines. Here are a few examples:

- Do you regularly start up your fleet of vehicles and let them idle to make sure they'll start in cold weather and to warm them up before going into service? Consider using plug-in engine block heaters to help keep engine oil warm, allowing the engine to start more easily and warm up more quickly.
- Do your drivers run the engines to provide warmth to workers? Auxiliary heaters can provide the heat your workers need without the fuel expense and engine wear and tear caused by idling.
- Are your workers running the engines to provide power to operate a hydraulic bucket? A remote



"We have used heaters for over 2 years, and they totally eliminate the need for idling and engine warm-up. Their fuel use is negligible and the comfort and safety benefits of their operation easily offset the up-front costs."

- Ken Blair, Warren Elementary School, Vermont

Did you know?

When warming the passenger compartments of some vehicles, engine idling uses nearly 10 times more diesel than auxiliary heaters.

control engine starter can enable your workers to run the engine to reposition the bucket and shut the engine down for the rest of the time.

Many of the idling reduction technologies that work well in diesel engines work well on gasoline engines too, adding extra savings to your fleet operations budget.

What are the benefits of idling reduction technologies?

- A cleaner environment. Diesel engines release fine particles and toxic pollutants into the air, along with chemicals that form smog and haze. By retrofitting diesel vehicles with auxiliary power units, you can reduce the amount of diesel exhaust released and help improve air quality in your community.
- A healthier community. The U.S. Environmental Protection Agency has concluded that diesel engine exhaust is likely to be carcinogenic to humans and may cause various adverse health effects. By retrofitting diesel vehicles with auxiliary heaters, you can help reduce health risks associated with breathing diesel engine exhaust fumes.
- Energy and cost savings. Idling vehicles waste fuel and money. The fuel and cost savings associated with auxiliary heaters quickly add up and, in most cases, eventually offset the initial investment of purchasing the heaters.

Why retrofit diesel vehicles with idling reduction technologies?

Many school bus and truck drivers think prolonged idling is the only way to warm up diesel engines and passenger cabins on cold days. In reality, idling diesel vehicles unnecessarily waste fuel, add engine maintenance costs, pollute the air, and expose people to harmful exhaust fumes. There's an alternative to excessive idling to keep diesel vehicles warm: retrofitting them with auxiliary heaters.

Many types of auxiliary heaters are available for diesel vehicles, but most share some common design features. Auxiliary heaters are powered by either the vehicle fuel tank or an electric outlet, and are equipped with timers or thermostats that activate the heaters only when necessary. They allow drivers to warm up vehicle

Unnecessary vehicle idling is illegal

According to Massachusetts General Law (Chapter 90, Section 16A): "No person shall cause, suffer, allow, or permit the unnecessary operation of the engine of a motor vehicle while said vehicle is stopped for a foreseeable period in excess of five minutes." There are exceptions for vehicles being serviced, vehicles making deliveries that need to keep their engines running (to power refrigerators, for example), and vehicles that need to run their engines to operate accessories (such as power lifts). Police officers, local boards of health, and other officials are all authorized to enforce this law. In 2006, several dozen inspections occurred at locations where diesel-powered vehicles frequently idle, resulting in multiple violations issued.

engines and passenger compartments without running the engine itself—and they consume much less fuel in doing so. By retrofitting vehicles with auxiliary heaters, your community can reduce air pollution from unnecessary idling!

Where have idling reduction technologies been successful?

Successful projects have been implemented in a number of urban, suburban, and rural communities across New England and nationwide. Here are just a few success stories:

- Warren, Vermont. In 2005, Warren Elementary School launched a pilot project to determine if using a fuel-fired auxiliary heater would help reduce school bus idling. (Note that a heater is generally one component of a larger auxiliary power unit.) The heater was equipped with an automated timer to pre-heat the bus's engine on cold days, which cut down dramatically on the amount of time the engine would otherwise idle. The reduced idling time translated into significant reductions in fuel consumption, engine wear, and vehicle maintenance costs.
- Nationwide Demonstration Study. In 2006, the U.S. Department of Energy completed several technology demonstration projects to assess the performance of auxiliary power units (APUs) in diesel vehicles. The study found that APUs typically lead to increased fuel economy and long-term savings in fuel expenses. Impressed with the results, one trucking company that participated in the study has since decided to equip nearly its entire fleet of newer diesel trucks with APUs.

Where should you begin?

Keep APUs, heaters, and other technologies in mind when you evaluate your community's transportation needs. If you are in the market to purchase new buses or trucks, consider models that come with either the APU or a heater pre-installed. If you are not purchasing new vehicles, assess whether your community's existing diesel buses and trucks would benefit from APUs. Note that some of your vehicles might already have pre-installed APUs, which are now standard features for many newer vehicles. When evaluating retrofit options, research APUs to determine which models are most appropriate for your situation. And when looking at costs, remember that your long-term fuel savings and reduced engine maintenance costs will likely exceed your initial investment!

What are the keys to success?

Vehicle idling can be a hard habit to break, especially during the colder months when drivers need to heat their vehicles to stay warm. To create a lasting change, it's equally important to consider education (like training drivers not to idle) as it is technological solutions (like installing auxiliary heaters). Also, it is important to inform your drivers about the Massachusetts "Anti-Idling" law:

What other strategies address vehicle idling?

For ideas on how you can encourage people throughout your community to idle less, see the fact sheet entitled "Launch an Idling Reduction Campaign." Also, some types of new diesel vehicles come equipped with APUs or heaters. For more ideas about purchasing "clean" vehicles, see the fact sheet titled "Purchase the Cleanest and Most Fuel-Efficient Vehicles for Your Needs."

Where can you get more information?

For more information on the types of auxiliary heaters that might suit your needs:

• Learn what EPA has written about auxiliary heating technologies to reduce air pollution from diesel-powered vehicles:

http://www.epa.gov/otaq/schoolbus/antiidling.htm#tech

http://www.epa.gov/otaq/smartway/idlingtechnologies.htm

For more information on various funding sources for vehicle retrofit projects:

• Visit the following Web sites:

http://www.northeastdiesel.org/funding.htm

http://www.epa.gov/smartway/idle-fund.htm

Who can you speak to about auxiliary heaters?

Contact EPA's SmartWay Transport Partnership Call Center (734-214-4767) to learn more about reducing air pollution from diesel-powered buses and trucks. In Massachusetts, contact Abby Swaine of the EPA New England (Region 1) office at 617-918-1841.

IV. Design Your Community for Cleaner Air

Encourage Smart Growth

Design Roads and Intersections to Encourage Pedestrian and Bicycle Use

Redesign Your Parking Program

Create Multi-Use Trails

Install Bicycle Racks or Bicycle Lockers

Design Your Community for Cleaner Air: Encourage Smart Growth

Why consider smart growth?

We've all heard about "sprawl." It eats up open space, creates costly new infrastructure for cities and towns to maintain, and puts more cars on the road. But it's possible to grow without sprawl. The answer? Smart growth!

Smart growth is about developing communities in central business districts or town centers, near transit stations, or in areas that have been developed already. These development techniques fight sprawl, preserve open space, and reduce the number of cars on the road, which reduces pollution. Two specific elements of smart growth are especially good at taking cars off the road:

- Zoning Strategies. Use zoning strategies to encourage pedestrian access to commercial areas for example, by creating mixed-use neighborhoods.
- **2) Transit-Oriented Development.** Encourage growth in areas with access to public transit, thus reducing the need for residents to drive.

What are the benefits of smart growth?



"The station really revived this part of Somerville, creating easy access to downtown Boston. With housing,

shops, and access to public transportation, an entire community has sprung up. Now, Davis Square is a destination, too."

- Resident of Davis Square, Somerville

Did you know?

Approximately 44 acres of land in Massachusetts are lost to development every day, and most of this land is lost to low-density residential development.

- A cleaner environment. If you make it easy for residents to walk, bicycle, or take public transit to work or to run errands, they will take fewer trips by car. Less driving means less air pollution!
- A healthier community. Smart growth helps reduce motor vehicle trips, which reduces the amount of harmful air pollutants that people breathe. Promoting healthy physical activity by encouraging residents to walk and bicycle to their destinations benefits the whole community.
- Less vehicle congestion. With sprawl, communities become more dispersed and residents take longer motor vehicle trips to reach their destinations. Smart growth, on the other hand, will help decrease the number of vehicles on the road and reduce congestion by incorporating public transit or utilizing mixed-use development.
- **Open space preservation.** Effective smart growth strategies redevelop certain lands, like former industrial sites and abandoned historical structures, thus preserving open space and wildlife habitats for public enjoyment.

Where has smart growth been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are a few success stories that focused on reducing the number of vehicles on the road:

- Somerville, MA. Davis Square was once a declining industrial and commercial area. But city officials, residents, and businesses partnered to form the Davis Square Action Plan—a smart growth plan that promotes mixed-use development, encourages streetscape improvements, and implements parking and pedestrian amenities. With a subway station built in the neighborhood, improved sidewalks and crosswalks, additional bicycle parking, and many other improvements, Davis Square is now a thriving urban center where residents need not rely exclusively on motor vehicles for transportation.
- Mashpee, MA. Developers created a mixed-use, pedestrian-friendly town center called Mashpee Commons on a former strip mall site. Today, this development includes many retailers and a mix of affordable and market-rate housing. Ongoing projects at the Commons will add more mixed-use neighborhoods that feature housing, offices, stores, civic buildings, and open space.
- Canton, MA. Canton recently created a plan to revitalize its traditional town center by promoting development around a commuter rail transit station. Key to this effort was revoking old zoning rules that had discouraged mixed uses. In just a few years, 207 new residential units have been built within a 5-minute walk of the train station.
- Lowell, MA. The Hamilton Canal District project is scheduled to get underway in 2007 to create a mixed use, residential development that will connect the existing Gallagher (commuter rail) Terminal to downtown Lowell. The plan is to create a community that respects the pedestrian-friendly urban character of the City with buildings that meet the sidewalks and active first-floor uses, as well as well-designed sidewalks, street trees, and lighting.

Where should you begin?

Get more information! Many great resources are available to help you implement smart growth in your community. You can learn from what other communities have done by looking at case studies and model bylaws.

Also, make sure you take advantage of the many funding opportunities that are available. For example, a new state law provides incentive payments to adopt "smart growth zoning districts," and the Commonwealth also provides grants and loans for a variety of projects within one-quarter mile of public transit facilities.

Sources that may help you implement smart growth are listed at the end of this fact sheet.

What are the keys to success?

Don't wait until it's too late—plan ahead! Master plans, community development plans, and transportation plans can provide a good foundation for your smart growth decisions. For greater odds of success, keep the public informed and involved in the planning process. Many "success stories" stem from partnerships between public officials, residents, and businesses.

Use a mix of smart growth techniques. One technique alone won't solve the problem of sprawl, but a comprehensive plan will go a long way.

What other strategies can improve air quality in your community?

Smart growth is just one way to encourage your residents to forgo their cars and walk, bicycle, or take public transit instead. Other approaches for achieving this goal are documented in the fact sheets titled "Design Roads and Intersections to Encourage Pedestrian and Bicycle Use" and "Create Multi-Use Trails." Another way to mitigate the impacts of sprawl is by requiring new developments to join a Transportation Management Association (TMA) or other partnership designed to reduce the number of cars on the road. Learn more about this by reading, "Develop a Partnership to Expand Commuter Options throughout the Community."

Where can you get more information?

For more information on smart growth, technical guidance, and information on potential sources of funding or assistance:

Visit the Web site for the Massachusetts Executive Office of Energy and Environmental Affairs and search for "smart growth" and "transit-oriented development":

http://www.mass.gov/envir

Download the "Smart Growth Toolkit" from the Massachusetts Executive Office of Energy and Environmental Affairs:

http://www.mass.gov/envir/sgtk.htm

Consider resources developed by the U.S. Environmental Protection Agency:

http://www.epa.gov/smartgrowth

• Visit the transit Oriented Development Web site:

http://www.transitorienteddevelopment.org

Who can you speak to about smart growth?

- Call Kurt Gaertner, Director of Sustainable Development with the Massachusetts Executive Office of Energy and Environmental Affairs, at 617-626-1154.
- Consult with the Massachusetts Department of Housing and Community Development (DHCD), a statewide agency that provides information and financial assistance to cities and towns on development issues, smart growth planning, and affordable housing:

http://www.mass.gov/dhcd

- Call your regional planning agency for advice on road project design, transit stations, and bicycle and pedestrian issues. Refer to Appendix A for contact information for the agency that serves your community.
- Contact representatives from the Massachusetts Association of Regional Transit Authorities (MARTA):

http://www.matransit.com

Design Your Community for Cleaner Air: Design Roads and Intersections to Encourage Pedestrian and Bicycle Use

Why design roads to encourage walking and bicycling?

Nationwide surveys have shown that Americans want to drive less and walk and bicycle more often. However, people cite many reasons for why they choose to drive to their destinations rather than walking or bicycling. One of the most common reasons cited is that roads and intersections are not safe for pedestrians and bicyclists.

By designing your community to be more pedestrian- and bicycle-friendly, you can encourage people to take more of their trips on foot or by bicycle instead of by car, which helps reduce air pollution. Many available road design options will make walking and bicycling a more attractive transportation option. For example, you can:

- Stripe bicycle or shoulder lanes to existing road-ways.
- Add or improve sidewalks.
- Improve crosswalks by making them more visible and adding countdown timers.



- Add features that slow traffic down (known as "traffic calming").
- Provide safe, well-lit bicycle and pedestrian routes to public transit.

What are the benefits of encouraging pedestrian and bicycle use?

- A cleaner environment. When people walk or bicycle instead of driving to their destination, they produce less motor vehicle exhaust, a major component of air pollution.
- A healthier community. Motor vehicle exhaust is harmful to health, and can contribute to respiratory problems and even cancer. Fewer cars on the road can help reduce exposures to harmful pollutants in vehicle exhaust. Plus, bicycling and walking are healthy, active modes of transportation!
- **Safety.** Adding or improving sidewalks will help keep pedestrians safe, including children on their way to schools and bus stops. Crosswalks, bicycle lanes, and other improvements encourage drivers to share the road and pay closer attention to non-vehicular traffic.



"Our sidewalk project is money well spent. It enhances the community aesthetically, and it definitely makes it safer for people to walk."

 Don Onusseit, Superintendent, Wilmington Department of Public Works

Did you know?

If every resident in a city of 100,000 people replaced just one motor vehicle trip per month with walking or bicycling, that city would release nearly 4,000 less tons of carbon dioxide into the air each year.

Where have road design strategies been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

- Arlington, MA. The city has designed certain dangerous intersections to be safer for pedestrians and bicyclists. As a result, many residents walk and bicycle more frequently and drive less—by some estimates, these efforts have cut motor vehicle usage in the community by more than 5,000 miles per week.
- Cambridge, MA. Recent projects have included countdown timers at crosswalks, raised intersections and crosswalks, curb extensions to reduce traffic speed, and bicycle lanes on major streets. These projects have "paved the way" for greater pedestrian and bicycle use. In one neighborhood, the number of drivers obeying the 25 mph speed limit rose from 41 percent to 95 percent after traffic calming measures were installed. In another neighborhood, raised crosswalks tripled the percentage of drivers yielding to pedestrians.
- Wilmington, MA. Like many suburban towns, Wilmington doesn't have sidewalks on every street. But with support from residents and town leaders, Wilmington has devoted a portion of its state transportation aid to building sidewalks at key locations around town, including 3 miles of new sidewalk along Woburn Street, a major road with a school, parks, and a play-ground. The new sidewalks have encouraged more people to walk and reduced the need to bus students who live close to school.

Where should you begin?

When your community is planning a road construction project, think about how you might be able to improve the area for bicyclists and pedestrians. Can you add a sidewalk or crosswalk? Can you make existing crosswalks safer? If you're repaving, can you add a bicycle lane? Try to get the most "bang for your buck." For instance, you might make the biggest impact by improving access around schools or public transit stops.

Know the Massachusetts Law for Pedestrian and Bicycle Access!

Massachusetts state law requires the Massachusetts Highway Department to make reasonable provisions for bicyclists and pedestrians in road projects. The law is useful for local governments and community groups to use when advocating for pedestrian or bicycle improvements.

The law (Massachusetts General Law, Chapter 90E, Section 2A) reads:

"The commissioner (of the Massachusetts Highway Department) shall make all reasonable provisions for the accommodation of bicycle and pedestrian traffic in the planning, design, and construction, reconstruction or maintenance of any project undertaken by the department. Such provisions that are unreasonable shall include, but not be limited to, those which the commissioner, after appropriate review by the bicycle program coordinator, determines would be contrary to acceptable standards of public safety, degrade environmental quality or conflict with existing rights of way."

You may be able to include bicycle and pedestrian improvements as part of a regular road construction project. Work with your regional planning agency and your MassHighway district staff to identify funding opportunities. Every bit of funding your community acquires can make a difference in how your area handles its transportation needs.

What are the keys to success?

With any road design project, planners, public works staff, and other departments must communicate effectively so they are all working toward common goals. Reach out to residents for ideas (some communities have bicycle advisory committees, for instance) and keep them informed if the project will affect them. New sidewalks might require you to cut down trees or get easements to build on private property. You can return the favor through road, sidewalk, and drainage improvements.

Any project that reduces road capacity or speed may lead to complaints from motorists at first. This is natural, as people are used to their routine driving habits. It takes time for drivers to adjust. Additionally, study all of the likely affects of your design decisions. If you are trying to slow drivers in one part of your community, make sure you don't simply divert traffic to another street and that you don't compromise emergency vehicle access.

What other strategies can encourage people to walk or bicycle?

There are many ways to encourage alternative forms of transportation. Design strategies can range from constructing dedicated bikeways (see "Create Multi-Use Trails") to simply adding secure parking for bicycles (see "Install Bicycle Racks or Bicycle Lockers"). Employers can encourage people to walk or bicycle to work by offering showers and emergency rides home (see "Join or Develop a Commuter Options Program"), while schools can instill these healthy habits in kids through "Safe Routes to Schools" programs.

Where can you get more information?

For technical guidance on designing roads and intersections:

Read MassHighway's Project Development and Design Guide:

http://www.vhb.com/mhdGuide/mhd_GuideBook.asp

For information on potential sources of funding or assistance:

• The Massachusetts Executive Office of Transportation has information on funding programs:

http://www.eot.state.ma.us//default.asp?pgid=content/enhanceProgram&sid=about

To learn more about specific projects:

See what Cambridge, Massachusetts, has done to improve crosswalks and encourage walking:

http://www.cambridgema.gov/cdd/et/ped/index.html

http://www.cambridgema.gov/cdd/et/ped/prog/ped_xwalk.html

See what Cambridge, Massachusetts, has done to improve bicycle transportation:

http://www.cambridgema.gov/cdd/et/bike/index.html

Learn what some non-governmental organizations have published on designing roads to be more pedestrian- and bicycle-friendly:

http://www.completethestreets.org

http://www.ite.org/traffic/index.html

http://www.bikewalk.org

http://www.bikeleague.org

Who can you speak to about bicycle and pedestrian projects?

- Contact the Bicycle-Pedestrian Accommodation Engineer at the MassHighway Headquarters Office: Lou Rabito, 617-973-7729, luciano.rabito@mhd.state.ma.us.
- Call your MassHighway District bicycle-pedestrian contact. Refer to Appendix B for the names and contact information for the district office that serves your community.
- Call your regional planning agency. Refer to Appendix A for contact information for the agency that serves your community.
- Refer to the list of "Local Bicycle Advisory Committees" at the following Web site:

http://www.massbike.org/resources/local.htm

Design Your Community for Cleaner Air: Redesign Your Parking Program

Why should a city or town change its parking program?

The amount, location, and cost of parking can affect driving patterns, and thus air pollution levels. For example, in areas with a high demand for parking but few spaces available, drivers may spend several minutes looking for that ideal parking space, all the while running their engines and polluting the air. As another example, areas with too much available parking are essentially "dead zones" that could instead be developed for a variety of residential, commercial, recreational, and other uses.

City planners should weigh these and many other issues when developing a parking program that meets the needs of residents and local businesses, while being sensitive to negative air quality impacts caused by excessive driving. Fortunately, communities across the Commonwealth have many options for designing effective parking programs. Some of these options include:



"This is about our future. It's about our kids and our grandkids. It's about the air we breathe."

 Thomas Menino, Mayor of Boston, on the air quality benefits associated with preferred parking for hybrid vehicles at Logan International Airport

Did you know?

In commercial areas of some larger cities, drivers looking for parking spaces account for approximately 30 percent of motor vehicle traffic.

- Setting aside preferred parking spaces (parking spaces located closest to building entrances) for fuel-efficient vehicles, carpools, and vanpools.
- Providing discounted or free parking to owners of hybrid-electric vehicles and to those who rideshare.
- Ensuring critical public transportation nodes have adequate parking for their riders.
- Redesigning the number of parking spaces in certain areas to encourage use of alternate modes of transportation.

What are the benefits of a redesigned parking program?

- A cleaner environment. Depending on the specific changes made, redesigned parking programs can: (1) reduce the number of vehicles on the road (by encouraging ridesharing and use of public transportation), (2) increase the number of fuel-efficient vehicles on the road (through preferred parking incentives), and (3) decrease the amount of time that drivers look for parking spaces. All of these changes lead to the same outcome: less motor vehicle exhaust and less air pollution.
- A well-designed community. Your community can reap several benefits from a well-designed parking program. Residents and visitors may be more likely to patronize shopping areas, provided they have accessible parking or reasonable alternatives to driving; and businesses are more likely to locate in areas that do not have complicated parking challenges. Parking is just one element of "smart" community design!

What other resources help address parking issues?

Boston's metropolitan planning agency (Metropolitan Area Planning Council - MAPC) has a Sustainable Transportation Planning Toolkit designed to help local officials, developers, citizen board members, and advocates understand the sources of parking issues in their communities and identify solutions. The MAPC parking toolkit includes strategies on the following topics:

- Variations on and alternatives to the typical minimum parking requirement
- Design strategies to mitigate negative consequences of parking
- Managing the parking supply efficiently
- Addressing overflow and spillover parking
- Strategies to reduce demand for parking
- Conducting a parking study
- Paying for public parking

The parking toolkit is on the MAPC Web site: http://transtoolkit.mapc.org/parking. Communities looking for more information should contact Jim Gallagher at (617) 451-2770 ext. 2053.

Where have redesigned parking programs been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities. Here are just a few success stories:

- Cambridge, MA. The Massachusetts Institute of Technology (MIT) is located in a part of Cambridge that is well-served by public transportation. Yet, thousands of people were driving to the campus daily, in part due to a large number of unrestricted parking spaces in the surrounding areas. To encourage greater use of public transportation and less reliance on commuter drive-alone trips, the City of Cambridge modified the parking program in this area by restricting some parking spaces to 2-hour parking and by installing parking meters at other spaces. These efforts not only helped take some vehicles off the road, but they also provided the city revenue from the meters.
- Harvard University. Every day, several thousand students, faculty, and staff commute to Harvard University, many by car. Recognizing that ridesharing can reduce air pollution, the university has set aside preferential parking spaces for carpools and vanpools in parking lots all across campus. Moreover, the university offers substantial discounts on parking permits for carpools: the discount for a 2-person car pool, for instance, is 50 percent, while the discount on a 3 person car pool is 75 percent. Both discounts amount to more than \$500 savings per year in parking expenses!

Where should you begin?

Start by assessing your community's specific parking needs. After all, no single solution will work for every city and town: the ideal parking program for a low-density, rural community naturally differs from that for a high-density, urban center. Many factors are important to consider, such as parking demand, availability of public transportation, proximity to multi-use trails, pricing strategies, and lo-cal development density.

Next, learn about solutions that have worked in other communities like yours, whether by consulting with your regional planning agency or by accessing relevant publications. A good starting point is to consider EPA's recent report on "Parking Spaces and Community Places: Finding the Balance through Smart Growth Solutions." Refer to the end of this fact sheet for further information on how to access this and other relevant publications.

What are the keys to success?

As with any design project, planners will want to consult with residents, local businesses, and other stakeholders to ensure that everyone is working toward common goals. Keep in mind that proposals to change parking supply are often met with criticism, but do not let any such complaints deter your plans as most residents can easily adjust to reasonable changes.

Also, think outside the box! When making parking decisions, do not simply defer to generic guidelines that recommend a minimum number of parking spaces for certain land uses. Take your time, be thorough, and consider a far wider range of alternatives.

What other strategies address community design issues?

Many design strategies can encourage residents in your communities to drive less, thus reducing air pollution. Parking considerations are particularly relevant to "smart growth" strategies (see "Encourage Smart Growth"), especially transit-oriented development. Additionally, communities can alleviate parking demand by encouraging people to walk or bicycle to their destinations, rather than drive (see "Create Multi-Use Trails," "Install Bicycle Racks or Bicycle Lockers," and "Design Roads and Intersections to Encourage Pedestrian and Bicycle Use").

Where can you get more information?

Read EPA's publication on "Parking Spaces and Community Places":

http://www.epa.gov/piedpage/pdf/EPAParkingSpaces06.pdf

Read the Boston Metropolitan Area Planning Council's parking toolkit:

http://transtoolkit.mapc.org/parking

Who can you speak to about bicycle and pedestrian projects?

Call your regional planning agency for advice on road project design, transit stations, and bicycle and pedestrian issues. Refer to Appendix A for contact information for the agency that serves your community.
Design Your Community for Cleaner Air: Create Mulit-Use Trails

Why develop multi-use trails?

Motor vehicle use and the associated exhaust are a leading cause of air pollution in many communities. By encouraging residents to forgo their cars in favor of walking or bicycling to their destinations, communities can reduce motor vehicle trips and improve local air quality.

Many people don't walk or ride bicycles due to the real or perceived dangers of walking and bicycling on local roads. Often, driving to destinations may seem to be the only "safe" option. By creating multi-use trails between residential, commercial, recreational, and transit destinations, your community can encourage bicycling and walking as primary forms of transportation.

What are the benefits of multi-use trails?

Safer bicycling and walking. Multiuse trails can offer bicyclists and walkers a safe, efficient, motor-vehicle free route



"The popularity of the Minuteman Commuter Bikeway is breathtaking... People are literally voting with their feet—and their wheels for a transportation infrastructure that

welcomes bicyclists and pedestrians instead of intimidating them."

> - Lexington resident on the popularity of multi-use trails

Did you know?

In a recent nationwide survey, 53 percent of adults said they would bicycle more often if they had safe, designated trails to use.

to their destinations. When trails connect residents with desirable destinations such as shops, schools, parks, restaurants, playgrounds, services, and transit stops, bicyclists and pedestrians can avoid congested streets and highways.

- A cleaner environment. By encouraging bicycling and walking to and from choice destinations, your community can decrease the amount of time vehicles spend on the road every day. That means less air pollution and reduced exposures to harmful pollutants in vehicle exhaust.
- A healthier community. Bicycling and walking are healthy, active modes of transportation for all age groups. A well-maintained multi-use trail provides an excellent exercise resource for all of your residents.
- Less vehicle congestion. It's simple: replacing motor vehicle trips with walks or bicycle rides decreases the number of motor vehicles on the road and relieves traffic congestion.

Where have multi-use trails been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities.

 Amherst to Northampton, MA. The Norwottuck Rail Trail is an 8.5-mile trail built on an inactive railroad right-of-way in 1993. The trail links Northampton, Hadley, and Amherst—towns that are

Did you know?

A survey of Norwottuck users showed the trail remains a viable alternative to driving along heavily congested Route 9 and provides people with an alternative to car travel.

home to colleges, shops, and businesses—and students, professionals, and recreational users all enjoy the trail. Free parking is provided at both ends of the trail and at multiple points along its route.

Bedford to Cambridge, MA. Since its conversion from a railroad right-of-way in 1992, the Minuteman Commuter Bikeway has become one of the most successful rail trails in the country. Connecting suburbs northwest of Boston with the Alewife subway station in Cambridge, the 11 mile trail is used by thousands of commuters, students, and recreational riders and walkers. In fact, by some estimates, the Minuteman Bikeway is the second most widely used "rail trail" in the entire country!

How can you build a multi-use trail?

There are numerous strategies for trail development, and trail projects can vary widely in scope and complexity. Depending on your project's specific circumstances, the trail-building process may take a short time or a period of years. But by cooperating with local residents, landowners, government, and other stakeholders, you can gather helpful information on funding, land acquisition, and construction methods. With careful planning, you can develop a multi-use trail that will help increase local air quality, and bring enjoyment to the community as well.

Sources that may help you with the implementation of this strategy are listed at the end of this fact sheet.

What are the keys to success?

- **Communicate with your community.** Because a trail will affect the entire community, including adjacent landowners, it's important to keep everyone involved. If not, local opposition may become an obstacle.
- Select the best route. Multi-use trails only reduce vehicle miles traveled when they connect destinations that residents would otherwise reach by car. While your options may be limited by existing land uses, be sure to select a route that will provide maximum benefit for transportation-minded users. Recreational use by bicyclists and walkers is a beneficial byproduct, but not the primary goal.
- Mark the trail. Help community members use the trails by providing maps and signage for pedestrian and bicycle routes. A Web site with this information is a great idea!

What other strategies address bicycle and pedestrian transportation?

By helping people get around by bicycle and on foot, your community will reduce the number of single-occupancy vehicles on the road. More information can be found in the fact sheets entitled, "Design Roads and Intersections to Encourage Pedestrian

and Bicycle Use" and "Install Bicycle Racks and Bicycle Lockers."

Where can you get more information?

For technical guidance on project design:

 Visit this Web site to learn more about building multi-use trails in your community:

http://www.railtrails.org/whatwedo/ railtrailinfo/resources/development.html

• Calculate potential costs of your multi-use trail here:

http://www.bicyclinginfo.org/bikecost

For information on potential sources of funding or assistance:

• Start your research into available funds at these Web sites:

http://www.bostonmpo.org/bostonmpo/resources/tip/tipdinit.htm

http://www.fhwa.dot.gov/environment/te/overview.htm

http://www.mass.gov/dcr/stewardship/greenway/grants.htm

Who can you speak to about creating a multi-use trail?

- Call your regional planning agency. Refer to Appendix A for contact information for the agency that serves your community.
- Call your MassHighway District bicycle-pedestrian contact. Refer to Appendix B for the names and contact information for the district office that serves your community.
- Contact the Massachusetts Department of Conservation and Recreation (DCR), which manages many bicycle paths statewide and plays an important role in planning future projects of state importance. For more information, call Danny O'Brien 508-866-2580 (x120) or Dan Driscoll 617-626-1438, or visit DCR's Web site on bicycle paths and trails:

http://www.mass.gov/dcr/recreate/biking.htm

 Contact the Massachusetts Bicycle Coalition (MassBike), a non-profit membership organization that helps organize community support for bikeways (e.g., paths, trails, and routes). This organization has a Web site dedicated to bikeways:

http://www.massbike.org/bikeways

Did you know?

Since 1992, more than \$50 million of federal funding has supported multi-use trail development in Massachusetts.

Design Your Community for Cleaner Air: Install Bicycle Racks or Bicycle Lockers

Why install bicycle racks or lockers?

Every mile that cars travel in your community means more air pollution. Bicycling can provide an environmentally friendly alternative, but the potential for theft deters many people from using bicycles for transportation.

Fortunately, there are solutions to this problem. By placing bicycle racks or bicycle lockers at key locations—like commercial centers, public transit stops, museums, and theaters—communities can encourage bicycle transportation, thus reducing emissions from short and frequent commuter drive-alone trips.

What are the benefits of installing bicycle racks or lockers?

- A cleaner environment. By providing more secure bicycle parking in your community, you will make bicycling more attractive to residents. And the more people bicycling for transportation, the less car miles they travel—this means less vehicle exhaust and congestion, and better air quality.
- A healthier community. Fewer motor vehicles on the road means less human exposure to exhaust and the harmful pollutants it contains...not to mention that bioveling is a healthy active mode of tr

"The bike lockers at the South Acton train station provide secure, dry, and reliable bicycle storage for commuters... Such details matter in a future low emission society. Secure bicycle storage should be at every station, at every work place, and in every downtown."

- Roland Bartl, Planning Director, Town of Acton

Did you know?

According to a recent survey of Boston area residents, 1 out of 3 respondents said they would use bicycles more often when shopping or visiting friends if better bicycle parking were available.

mention that bicycling is a healthy, active mode of transportation!

- Less bicycle theft. More than 1.5 million bicycles are reported stolen every year in the United States. Secure, well-designed racks and lockers help reduce the rate of theft and make people feel more secure in using their bicycles for transportation.
- Minimize pedestrian conflicts with bicycle parking. Designating "bicycle parking" areas on streets, in parking lots, and near other public ways will provide alternatives to people locking their bicycles on street signs and fences, which can block the way for pedestrians. This may help minimize unwanted conflicts between pedestrians and the owners of parked bicycles.

Where have bicycle rack or locker installations been successful?

Successful projects have been implemented in a number of urban, suburban, and rural Commonwealth communities:

Brookline, **MA**. To make it easier for residents to ride bicycles around town, Brookline launched a program to install 100 bicycle racks, at a total cost of \$11,000 dollars. By some

estimates, the increased bicycle use as a result of this effort could reduce vehicle exhaust by several hundred tons over the next 5 years!

- Franklin County, MA. Franklin County secured \$150,000 in funding from various state and federal sources for a bicycle awareness program called "Share the Road in the Connecticut River Valley." This program included numerous individual projects to promote bicycle use, including installation of bicycle racks in 22 towns. These racks have enabled hundreds of additional users to enjoy local bicycle trails, without worrying about the security of their bicycles during stops.
- South Acton Commuter Rail, Acton, MA. With federal funding, the Town of Acton installed several dozen bicycle lockers and bicycle rack spaces at the South Acton Commuter Rail Station. Residents and commuters frequently use these facilities, and usage is expected to increase with the eventual completion of the Assabet River Rail Trail. Reasonably-priced rental fees help pay for any maintenance or replacement costs.
- Pioneer Valley Planning Commission (PVPC). When funding is available, PVPC purchases bicycle racks and lockers for the 43 cities and towns within the Pioneer Valley Planning Region. Previous purchases have included bicycle lockers for park and ride lots and parking garages and bicycle racks in central business districts and at popular area destinations. PVPC orders the bicycle lockers and racks, and local municipalities provide the required match to federal and state funds through in-kind services and installation.

Where should you begin?

Some key issues should be considered up front: How much bicycle parking is needed? Where is the greatest demand for bicycle parking in your community? What type of bicycle rack or locker is most appropriate for your needs? Keep in mind that many different types of bicycle racks and lockers are available, and these vary in cost, size, and the amount of security they provide. However, by working with community members to select equipment and bicycle rack locations, you can help guarantee that the bicycle racks and lockers will contribute to your community's environmental and transportation goals.

Sources that may help you implement this strategy are listed at the end of this fact sheet.

What are the keys to success?

You shouldn't expect too many surprises when you implement this strategy, provided you first work with your community to resolve some key issues:

- Location, location, location! This cannot be emphasized enough. Placing bicycle racks or lockers in high visibility locations where community members frequent will help ensure that residents use their bicycles a little bit more, and their cars a little bit less. In addition to raising awareness, high-visibility locations also help to deter theft.
- Local considerations. Be sure to consider any laws or regulations that might affect placement of bicycle racks, such as ensuring that sidewalks are not obstructed. Coordinate with local organizations, community groups, and business associations to ensure success.

What other strategies encourage greater bicycle use?

For other ideas on how to make your community more bicycle-friendly, see the fact sheets "Design Roads and Intersections to Encourage Pedestrian and Bicycle Use" and "Create Multi-Use Trails." Employers can also help by encouraging their employees to bicycle to work (see "Commuter Options").

Where can you get more information?

For technical guidance on project design:

• Visit these Web sites to learn more about installing bicycle racks in your community:

http://www.bicyclinginfo.org/de/park.cfm

http://www.ibike.org/engineering/parking.htm

http://www.portlandonline.com/transportation/index.cfm?c=34813&a=58409

http://www.mapc.org/transportation/bike_parking_program/intro.html

http://www.cambridgema.gov/cdd/et/bike/bike_park.html

For information on potential sources of funding or assistance:

• The Metropolitan Area Planning Council lists a number of potential sources of funding on their Web site:

http://www.mapc.org/transportation/funding_opportunities.html

Who can you speak to about installing bicycle racks and lockers?

For assistance at the local level, consider contacting the following individuals and organizations:

- Barbara Lucas (617-451-2770 ext. 2043, blucas@mapc.org), Manager of Transportation Planning of the Metropolitan Area Planning Council, which offers grants for installing bicycle racks (and other projects) to 101 cities and towns in eastern Massachusetts.
- The Pioneer Valley Planning Commission (413-781-6045), which helps fund purchases of bicycle racks and bicycle lockers for 43 cities and towns in the Pioneer Valley area.

V. Involve Your Community

Reach Out to Residents and Businesses

Designate or Hire a Transportation Manager

Involve Your Community: Reach Out to Residents and Business

Why reach out to the community?

Americans have become increasingly environmentally conscious over the years and are often more than willing to help reduce air pollution. However, many people are not aware of some simple steps they can take to improve air quality.

By reaching out to your community, you can educate residents on how they can join communitywide efforts to reduce air pollution from transportation sources. Remember, knowledge is power!

What information can you offer to the community?

First, let people know why they should care about air pollution from transportation sources. The bottom line is that air pollution is bad for the environment and for human health. Pollutants in motor vehicle exhaust can damage the lungs, aggravate health conditions such as asthma, and even increase the risk of cancer. They also contribute to smog, acid rain, and climate change. Let people know that even small changes in their everyday activities can improve air quality for everyone!

Next, tell people what they can do to help. One approach is to list ten ways that residents can reduce transportation-related air pollution. Many different items can be included on such a list to suit your community, but here are ten to consider:

"For a city government, whose city-owned facilities and fleet represents only maybe 2 percent of total community-wide emissions, it's really important for the city to get community involved because they represent about 98 percent of total emissions."

 Program Officer at the International Council for Local Environmental Initiatives (ICLEI)

Did you know?

Through motor vehicle use, home energy use, and other activities, the average American generates about 20,000 pounds of greenhouse gases each year.

- 1) **Buy a "low emissions" vehicle.** When it's time to replace your old vehicle, consider buying one that emits the least amount of air pollutants. This will reduce the amount of harmful vehicle exhaust released into the air. For the greatest reduction, consider purchasing a hybrid vehicle or one that runs on alternative fuel.
- 2) Drive less. Every trip you can skip helps reduce air pollution. If you leave your vehicle at home one day a week, you may decrease the amount of vehicle exhaust released by your vehicle by as much as 15 percent. Also look for ways to combine errands into a single trip instead of taking many smaller trips, and avoid driving during rush hour.

3) Keep your automobile well tuned and maintained. By following the manufacturer's recommended maintenance guidelines, you can improve gas mileage and reduce air pollution. You'll also improve your vehicle's performance, extend its life, and increase its resale value. It's especially important to keep the engine tuned, use the proper motor oil, and replace the air filter regularly.

Did you know?

Every gallon of gasoline saved keeps 20 pounds of carbon dioxide out of the atmosphere.

- **4) Check the air in your tires weekly.** Keep your vehicle tires inflated to the recommended pressure. This will minimize tire wear, improve safety, and help your car get the best possible fuel economy—improving gas mileage by more than 3 percent.
- 5) Drive "smart." Even a perfectly maintained vehicle will pollute more than necessary if it is driven aggressively or too fast. On the highway, rapid acceleration and braking can reduce your gas mileage by as much as one-third. By driving smoothly and obeying the speed limit, your vehicle will pollute less. Also, avoid idling in your vehicle, which pollutes while getting you nowhere!
- 6) Drive with a lighter load. Hauling unnecessary weight in your vehicle reduces your fuel efficiency. Driving with an extra 100 pounds in your trunk, for instance, can reduce your gas mileage by up to 2 percent. By driving with a lighter load, you'll increase your fuel economy and help reduce air pollution.
- 7) Walk, bicycle, or take public transit. Before you get in your vehicle, consider whether you can get where you need to go on public transit, on foot, or by bicycle. For every mile you don't drive, you reduce motor vehicle exhaust. Walking and bicycling also provide healthy exercise.
- 8) **Start a carpool.** Find a carpool partner and take turns driving. This will not only help reduce air pollution and save money, but also give you a break from road stress a few days a week. Every single-occupancy vehicle taken off the road is a step in the right direction.
- **9) Telecommute.** If available, consider telecommuting, because it saves fuel costs, reduces air pollution, and leads to less traffic. Work with your employer to identify ways that you can work efficiently from home.
- **10**) **Spread the word!** Pass these tips on to co-workers, friends, and family to help take transportation-related air pollutants out of the air. The more people who receive this information, the bigger difference you can make!

Keep in mind that residents have many options for reducing air pollution from transportation-related sources. You can tailor this list to the specific needs of your community, as appropriate. Whatever you do, remember that education is key: The more people know, the more changes they can make in their lives to help clean the air for everyone.

How can you share this information with your community?

- Mail fliers. You can quickly reach all of your residents with fliers, possibly including them with periodic town-wide mailings. Lexington residents, for example, recently learned about vehicle idling in fliers that accompanied property tax bills.
- Take advantage of meetings. Town meetings, school events, concerts, theater productions, and other gatherings all offer an opportunity to spread the word about reducing air pollution. You can reach a large group of people by speaking or distributing fliers at these events.
- Develop a Web site. More and more people get information online. Consider posting a list of "Tips for Reducing Air Pollution" on your community's Web site.
- **Tap into the media.** Local newspapers, magazines, and radio and television shows often help relay important environmental initiatives to large audiences. Some media outlets may broadcast such messages for no charge or at a highly discounted rate.
- Refer to MassDEP's Idling Reduction Tool Kit. MassDEP offers grants to cities and towns to develop local *Idling Reduction Campaigns* to educate residents, town officials, and schools about reducing unnecessary engine idling. The toolkit grant provides materials to support a local program. (See strategy titled "Launch an Idling Reduction Campaign.")

Who should be involved?

Community outreach requires teamwork and a dedicated group of individuals. Some communities have coalitions or networks that already communicate important environmental information. For instance, Newton residents created the "Green Decade Coalition," a grassroots volunteer organization dedicated to helping the community improve the way resources are used. Take advantage of motivated community groups when reaching out to residents!

Did you know?

Massachusetts has more than 6 million residents. Think of the difference that 6 million informed people could make!

Where can you get more information?

• Access lists for reducing transportation-related air pollution from the following Web sites, which primarily address driving practices and vehicle maintenance:

http://www.mass.gov/Eoca/docs/doer/pub_info/dt.pdf

http://www.fueleconomy.gov/feg/driveHabits.shtml

http://www.fueleconomy.gov/feg/maintain.shtml

Inform residents that they can track the amount of pollution their driving and other activities create using an "online calculator," such as the following one developed by the U.S. Environmental Protection Agency:

http://www.epa.gov/climatechange/emissions/ind_calculator.html

Who can you speak to about public outreach campaigns?

- Contact officials from MassDEP about:
 - Idling Reduction Tool Kits and Municipal Programs (617-556-1021)
 - General Diesel Idling and Reduction (617-292-5958)
- Call the Transportation Management Association that offers services to your community. Telephone numbers are listed in Appendix C of this report.
- Call your regional transit authority. Refer to Appendix A for contact information for the agency that serves your community.

Involve Your Community: Designate or Hire a Transportation Manager

Why designate or hire a transportation manager?

Air pollution reduction strategies for transportation sources involve numerous activities, ranging from purchasing lower emitting vehicles to reviewing roadway design plans. In most cities and towns, different people in different departments handle these various activities, complicating efforts to have a single, coordinated approach for addressing transportation-related air pollution.

One solution is to designate or hire a "transportation manager," who can oversee transportation programs, coordinate with other departments, and work with regional planning agencies. In large cities, you might be able to hire a full-time employee—or maybe even an entire staff—to work on transportation issues. In smaller communities, you might hire a part-time, find a volunteer coordinator, or make transportation management a portion of someone's job duties. Either way, the idea is the same: designating a "point person" will help you get more done!

What are the benefits of having a transportation manager?

 Create a central resource. The transportation manager will be a single resource for municipal departments, businesses, and residents who want

"In the difficult financial times that municipalities are facing and with increasing demands with limited resources, this [transportation manager] position allows us to focus our planning, engineering, and maintenance efforts related to transportation with a single point of contact."

David Matton, Transportation Manager
 Coordinator, Town of Bridgewater

Did you know?

By designating a transportation manager, your community will have a central resource who can solve current problems *and* plan for the future.

to know how they can help reduce congestion and improve air quality. This person might also advise local leaders on zoning, permit requirements, or other decisions related to transportation.

- Make sure transportation is a priority. Having a dedicated transportation manager on staff will ensure that someone is always thinking about how a proposed project will affect transportation and, subsequently, air quality—especially if this person is part of the permit review process.
- Stay on the "cutting edge." Emerging technologies and new pollution-reduction strategies are always becoming available. Having a well-connected and informed transportation manager will help ensure that your community is doing all it can to keep the air clean.

Where has designating a transportation manager been successful?

A number of urban, suburban, and rural Commonwealth communities have found ways to centralize their transportation management. Here are just a few of the ways they've done it:

- Newton, MA. Newton has a full-time Transportation Planning Coordinator, whose duties include reviewing planned developments, serving as a liaison to the Metropolitan Planning Organization, and working closely with the City's traffic engineer. The coordinator has already helped ensure that new developments provide bicycle and pedestrian access and helped create a centralized process to review citizens' requests for traffic calming measures.
- Bridgewater, MA. Bridgewater hired a local traffic engineer to work part-time as the Town's Transportation Management Coordinator. The coordinator reviews all major project proposals and recommends traffic mitigation measures. He also coordinates traffic issues with other town departments and engages in outreach—for example, talking to schoolchildren about pedestrian awareness.
- Cambridge, MA. The City of Cambridge has an entire department devoted to transportation issues, including a Traffic Calming Project Manager, a Transportation Improvement Coordinator, a coordinator for the City's Parking and Transportation Demand Management ordinance, and an employee who oversees commuter options for employees. The department's Web site (http://www.cambridgema.gov/Traffic) documents numerous ongoing transportation management initiatives.

Where should you begin?

If you don't have a point person for transportation issues, find out who does work on transportation in your community. Figure out which department is the most logical place for a transportation manager to work.

Next, determine what the transportation manager's duties will be. In a large community with many concerns about traffic and development, you might have enough work to keep someone busy full-time. In other cases, there may only be enough work to make it part of somebody's job description.

Finally, find the right person for the job. It helps if this person is highly motivated, has a background in transportation (e.g., a planner or engineer), and understands how things get done in local government.

Sources to help you implement this strategy are listed at the end of this fact sheet.

What are the keys to success?

Even with a single person in charge, it's still important for that person to work closely with other departments in your community. Transportation issues can involve the public works department, planners, economic development staff, school districts, and others. By working together to set priorities and review proposed projects, you'll have a unified approach that makes it easier to get things done.

Also, it is important for your transportation manager to work with your regional planning agency and local transportation management associations (TMAs). These groups can provide expertise and resources, which can be a big help for communities with limited budgets. They also can help with comprehensive regional planning—which is important because many transportation issues can

affect multiple neighboring communities. For example, the Pioneer Valley Planning Commission assists its 43 member communities with long-term regional transportation planning, and each member city or town has a designated representative to the commission.

Remember: Good transportation planning leads to better traffic flow, increased use of alternative transportation, and more livable communities—all of which reduce motor vehicle use and associated air pollution.

What other strategies address transportation management?

All of them! Every strategy in this manual is related to managing transportation. Your transportation manager should determine which strategies are best suited for your community and work with appropriate community officials and residents to implement the strategies accordingly.

Where can you get more information?

After your community has hired or designated a transportation manager, encourage that person to tap into other statewide resources for reducing air pollution from transportation-related sources. Specifically, your transportation manager should:

- **Establish a working relationship with your regional planning agency.** Refer to Appendix A for contact information for the agency that serves your community.
- Learn what other Massachusetts communities are doing to reduce air pollution from transportation sources. Start by visiting the Web sites for the following organizations and programs:

A Better City Transportation Management Association (ABC TMA), a non-profit organization dedicated to address transportation issues and improve air quality in parts of Boston (http://www.abctma.com).

The Massachusetts Climate Action Network (MCAN), a network of local and statewide groups dedicated to halting the threat of climate change through reduced emissions of greenhouse gases (http://www.massclimateaction.org/transportation.htm).

The Massachusetts Clean Cities Coalition, a program designed to encourage greater use of alternative fuel vehicles (AFVs) (http://www.mass.gov/doer/cleancities).

Who can you speak to about transportation management?

For more information about transportation management issues, contact the MassDEP Transportation Program at 617-292-5663.



Contact information for the state's 13 regional planning agencies is listed below. To find out which regional planning agency represents your community, refer to: http://www.matransit.com.

Berkshire Regional Planning Commission

1 Fenn Street, Suite 201 Pittsfield, MA 01201-6629 Phone: (413) 442-1521 Fax: (413) 442-1523 Web: http://berkshireplanning.org/9

Cape Cod Commission

P.O. Box 226 3225 Main Street Barnstable, MA 02630 Phone: (508) 362-3828 Fax: (508) 362-3136 Web: http://www.capecodcommission.org

Central Massachusetts Regional Planning Commission

35 Harvard Street, 2nd Floor Worcester, MA 01609 Phone: (508) 459-3316 (Community Development) (508) 459-3337 (Transportation) Web: http://www.cmrpc.org

Franklin Region Council of Governments

425 Main Street, Suite 20 Greenfield, MA 01301-3313 Phone: (413) 774-3167 Fax: (413) 774-3169 Web: http://www.frcog.org

Martha's Vineyard Commission

The Stone Building 33 New York Avenue P.O. Box 1447 Oak Bluffs, MA 02557 Phone: (508) 693-3453 Fax: (508) 693-7894 Web: http://mvcommission.actwin.com

Merrimack Valley Planning Commission

 160 Main Street

 Haverhill, MA 01830

 Phone:
 (978) 374-0519

 Fax:
 (978) 372-4890

 Web:
 http://www.mvpc.org

Metropolitan Area Planning Council

60 Temple Place Boston, MA 02111 Phone: (617) 451-2770 Fax: (617) 482-7185 Web: http://www.mapc.org

Montachusett Regional Planning Commission

 R1427 Water Street

 Fitchburg, MA 01420

 Phone: (978) 345-7376

 Fax: (978) 348-2490

 Web: http://www.mrpc.org

Nantucket Planning and Economic Development Commission

2 Fairgrounds Road Nantucket, MA 02554 Phone: (508) 228-7237 Fax: (508) 228-7278 Web: http://www.nantucket-ma.gov/Pages/NantucketMA_Planning/npedc

Northern Middlesex Council of Governments

Gallagher Terminal 115 Thorndike Street, Floor 3B Lowell, MA 01852-3308 Phone: (978) 454-8021 Fax: (978) 454-8023 Web: http://www.nmcog.org

Old Colony Planning Council

70 School Street Brockton, MA 02301 Phone: (508) 583-1833 Fax: (508) 559-8768 Web: http://www.ocpcrpa.org

Pioneer Valley Planning Commission

26 Central Street, Suite 34 West Springfield, MA 01089-2753 Phone: (413) 781-6045 Fax: (413) 732-2593 Web: http://www.pvpc.org

Southeastern Regional Planning and Economic Development District

88 Broadway Taunton, MA 02780 Phone: (508) 824-1367 Fax: (508) 823-1803 Web: http://www.srpedd.org

Appendix B. MassHighway District Bicycle-Pedestrian Contacts

Contact information for individuals responsible for bicycle and pedestrian issues is listed below, by district. To find out which district contains your community, view a map of the five MassHighway districts at the agency's Web site (http://www.mhd.state.ma.us). You can view this map by selecting the link for "MassHighway by district" found on the right-hand side of the page.

MassHighway Headquarters Office – Boston

Bicycle-Pedestrian Accommodation Engineer 10 Park Plaza Boston, MA 02116 Phone: (617) 973-7729 e-mail: luciano.rabito@mhd.state.ma.us

District One

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Contact information for transportation management associations (TMAs) and transportation management organizations (TMOs) operating in Massachusetts is listed below. To find out whether a TMA serves your area, view a map of the TMAs at the MassCommute Web site: http://www.masscommute.com/tma_map.htm.

1) TMAs that serve the Boston and Cambridge areas

A Better City (ABC) TMA

Area served: Downtown Boston, Financial District, and Back Bay 75 State Street, 2nd Floor Boston, MA 02109 Phone: (617) 557-7322 Fax: (617) 227-7505 Web: http://www.abctma.com

Charles River TMA

Area served: Cambridge 238 Main Street, Suite 306 Cambridge, MA 02142 Phone: (617) 324-6119 Fax: (617) 253-9402 Web: http://www.charlesrivertma.org

Commute Works/MASCO

Area served: Longwood Medical and Academic Area 375 Longwood Avenue Boston, MA 02215-5328 Phone: (617) 632-2796 Fax: (617) 632-2779 Web: http://www.masco.org/commuteworks

Seaport TMA

Area served: South Boston Waterfront Seaport World Trade Center Boston 200 Seaport Boulevard, Suite 75 Boston, MA 02210 Phone: (617) 385-5510 Fax: (617) 385-1788 Web: http://www.seaporttma.org

TranSComm

Area served: Boston University Medical Center (South End) 710 Albany Street Boston, MA 02118-2515 Phone: (617) 638-7473 Fax: (617) 638-7176 Web: http://www.transcomm.org

2) TMAs that serve suburban communities

128 Business Council

Area served: Burlington, Lexington, Needham, Newton, Waltham, Wellesley, Weston, and Woburn
P.O. Box 54120
Waltham, MA 02454
Phone: (781) 890-0093
Fax: (781) 890-4736
Web: http://www.128bc.org

The Junction TMO

Area served: I-93 Junction Area of Andover, Wilmington, and Tewksbury One Burtt Road Andover, MA 01810 Phone: (978) 247-3100 Fax: None listed Web: http://www.junctiontmo.com

Merrimack Valley TMA

Area served: Andover, North Andover, Lawrence, and Methuen 28 Brook Road Marblehead, MA 01945 Phone: (781) 639-6262 Fax: (781) 639-6263 Web: http://www.merrimackvalleytma.com

MetroWest/495 TMA

Area served: Ashland, Framingham, Holliston, Hopkinton, Hudson, Marlborough, Natick, Sherborn, Southborough, Sudbury, Wayland, and Westborough
1671 Worcester Road, Suite 201
Framingham, MA 01701-5400
Phone: (508) 879-5600
Fax: (508) 875-9325
Web: http://www.metrowest.org/MW495TMA



Neponset Valley TMA

Area served: Canton, Dedham, Norwood, and Westwood 709 Main Street Waltham, MA 02451 Phone: (781) 441-8320 Fax: (781) 895-1122 Web: http://www.neponsetvalleytma.org