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Transportation Opportunities

Transportation—specifically motor vehicle use—is a major contributor to Burlington’s emissions of greenhouse gases, accounting for roughly 30 percent of the total 1997 emissions¹. In 1996, each day approximately 120,000 vehicles traveled in and out of Burlington: 29,000 over the Winooski River Bridge; 13,000 across the Heineberg Bridge; 42,000 via Main Street; and nearly 36,000 on Shelburne Street.

There are major opportunities for individual choices, private and public investments, and public policies that can dramatically reduce transportation emissions over the next five years. Virtually all these opportunities also carry economic benefits—and they can help alleviate other growing problems, such as traffic congestion, increasing dependency on foreign fuels, and local air and water pollution. Five major transportation opportunities as set forth in the City’s Municipal Development Plan are as follows:

- Develop a more balanced and efficient use of existing facilities;
- Consider both land use and transportation decisions together;
- Enhance pedestrian, bicycle and public transit opportunities and experiences as alternatives to the single occupant vehicle;
- Share transportation resources and facilities between and among land uses; and,
- Strengthen connections among various modes of transportation.

Drive less and save. . .

Drive your car one less day a week. You can save about \$110 a year in operation and maintenance costs in addition to 1,200 pounds/year in CO₂ emissions.

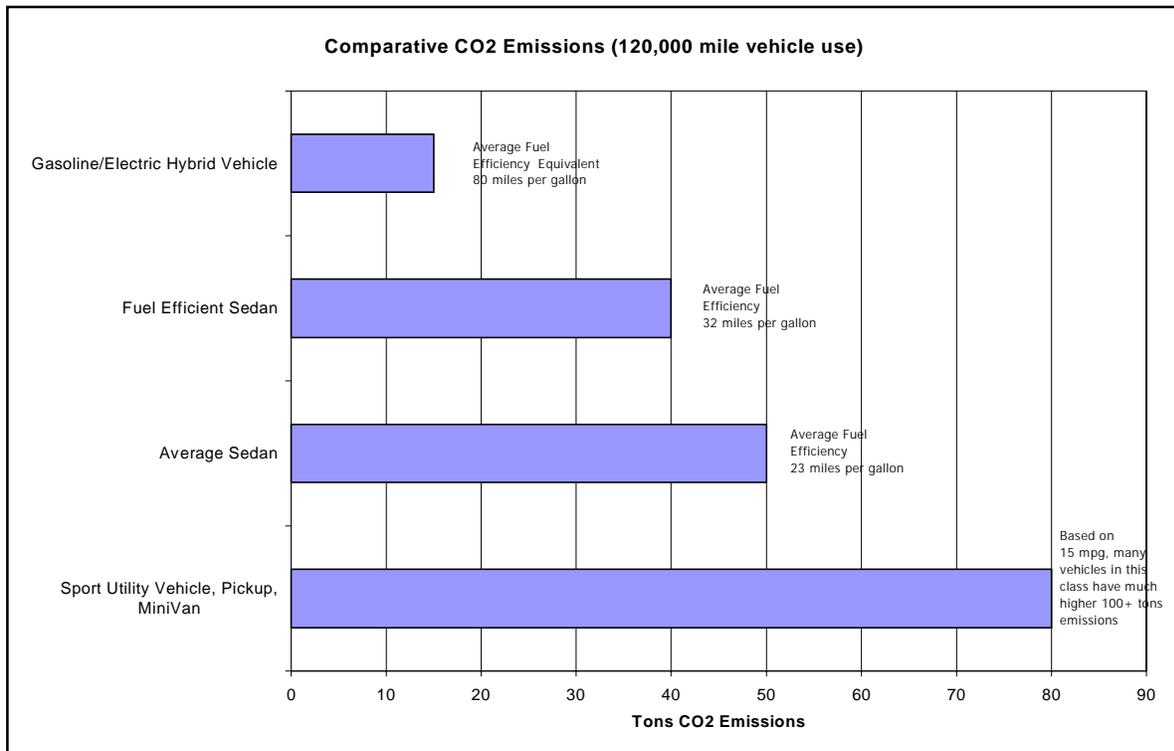
1. New Habits for Personal Vehicle Use

For those who regularly drive a private vehicle, there are many personal transportation choices you can take to reduce greenhouse gas emissions. Depending on your situation these include strategies for decreasing car-trips such as ridesharing, walking, biking, telecommuting, and the use of public transportation. You can also decide to drive a more fuel-efficient vehicle. A simple rule of thumb is that each gallon of gasoline that you can save prevents approximately 20 pounds of carbon dioxide emissions.²

Driving more efficient vehicles also has a tremendous potential for reducing emissions. Over a vehicle lifetime of 120,000 miles, a sport utility vehicle, pickup truck or mini-van with an average fuel efficiency of fifteen miles per gallon will emit more than 80 tons of carbon dioxide. Many of today's popular models have even lower fuel economy and will emit even more. In contrast, a typical mid-sized sedan or medium station wagon with average fuel efficiency of twenty-three miles per gallon will produce around 50 tons of carbon dioxide over its lifetime. Fuel-efficient cars (thirty-two miles per gallon) reduce emissions over the same number of miles to less than 40 tons.³

Four Simple Ways to Cut Car Emissions

- By making sure your tires are fully inflated, you can save up to 220 pounds of CO₂ per year.
- Keeping your engine tuned can save up to one ton of CO₂ per year.
- Don't let your engine idle. Restarting uses less energy than idling (even for 20 seconds).
- Drive a fuel-efficient car!



2. Transportation Opportunities for Businesses

Significant opportunities exist for businesses to reduce greenhouse gas emissions caused by transportation. Virtually every aspect of a business operation can use strategies that will positively impact the bottom-line and the environment.

In a recent publication the International Council For Local Environmental Initiatives (ICLEI), several business strategies for transportation efficiency were identified:

Managing the company fleet

- Increase the vehicle efficiency
- Modify vehicle procurement specifications
- Downsize vehicle fleet

Moving inventory

- Optimize routing
- Reduce truck idling
- Offer financial incentives for efficient fleet operation

Getting employees to the work place

- Subsidize employee transit passes
- Start a guaranteed ride home program
- Match up employees interested in ride-sharing

Providing employee parking

- Provide preferential parking for car-pools
- Provide financial incentives for car-pooling
- Initiate parking fees

Using information technologies

- Allow telecommuting options
- Establish satellite offices
- Conduct business by teleconferencing

Managing personnel

- Designate an employee transportation coordinator
- Stagger work hours
- Allow flex time

Planning facilities

- Build transit amenities
- Provide bicycle amenities (e.g., secured bike lockers and showers)
- Locate new business facilities in areas near housing and transit centers

Fleet-Scale Demonstrations

Vehicle fleets, whether public or privately operated, often provide good opportunities to demonstrate alternative-fuel vehicles and reduce emissions. Fleets are often good candidates because of limited range requirements and the opportunity for central refueling infrastructure. Alternative fuel options for fleets include electric, natural gas and fuel-cell power.

The Bicycle-Friendly Bus

The Chittenden County Transportation Authority (CCTA)'s promotion of bus/bike transportation is an example of the type of effort that local government is making to expand transportation opportunities.

Since May 1996, every CCTA bus has been equipped with two front-mounted bicycle racks. CCTA estimates that the buses have carried 37,000 bikes so far; in 1998 close to nine out of every 1,000 passengers brought their bikes on board.

Assuming a vehicle trip reduction of five miles per carried bicycle, the program has saved close to 11,000 gallons of gasoline, and prevented approximately 110 tons of CO₂ emissions.

3. Reducing Emissions through Transportation Demand Management (TDM)

Policies and public investments aimed at reducing vehicle miles traveled are collectively referred to as *transportation demand management* strategies. Priority transportation demand management (TDM) strategies now being evaluated by regional and local planners in Burlington and Chittenden County include:

- Expanding and further developing park-and-ride lots to encourage ride-sharing and shuttle services;
- Expanding public transit system routes, increasing the frequency of service, and providing free shuttles for large events;
- Initiating Charlotte–Burlington–Essex commuter rail; and
- Encouraging increased employer initiatives that promote ride-sharing, telecommuting and bicycling.

These, along with 15 other TDM strategies (contained in Appendix E), have been analyzed using the Chittenden County Transportation Model. Appendix E presents the results of this analysis, outlining two approaches with different levels of impact. The first would reduce annual vehicle miles traveled by close to 17 million miles, saving close to one million gallons of gasoline and preventing more than 9,100 tons of CO₂ emissions each year. The more aggressive of the two approaches would reduce annual vehicle miles traveled by 30 million miles, save 1.7 million gallons of gasoline per year, and reduce CO₂ emissions by more than 15,000 tons annually.

4. Changes in Transportation Policy

Significant reduction in emissions will also require some major modifications to transportation policy at the federal, state, and local levels. The state has studied the potential impacts of some of these policies (identified in the table below) as part of Vermont's 1997 Comprehensive Energy Plan.

Translating these estimates directly to emissions reductions in Burlington is not a simple matter. Differences in land-use, population densities and transportation patterns exist throughout the state. Even so, a modest estimation of the potential impact of these policies in Burlington is a 5 percent reduction in emissions—which translates to roughly 10,000 tons of CO₂ avoided in 2005. Most of these measures fall outside of the city's direct control—but the city can provide political support for these policies at both the state and national levels.

Some additional policies that have not been quantified but could provide significant CO₂ reductions include:

- Shifting funding for transit from the property tax to new funding sources.
- Developing tax incentives to further encourage vanpools, carpools and public transportation.
- Establishing carbon-based or transportation fuel sales taxes. Carbon tax or the removal of sales tax exemptions for transportation fuels can be designed to be revenue-neutral, with the revenues generated returned to taxpayers in the form of reductions in other tax burdens (e.g., income, property or social security).
- Developing a revenue-neutral sales tax structure for new vehicle sales. Vehicles significantly more efficient than the fleet average receive a rebate, those with average efficiencies are not impacted, and those significantly worse than average pay an extra sales tax—which offsets the rebates paid for the more efficient vehicles.

5. Building a Strong Transportation Infrastructure

Changes in individual transportation behavior, business strategies, TDM techniques, and transportation policy will not be adequate unless the City moves aggressively to improve its transportation infrastructure.

Transportation Demand Management Strategies	Estimated Vermont reduction in greenhouse gas emissions compared to 2005
1. Increase federal minimum vehicle efficiency standards to 45 mpg for cars, and 30 mpg for light trucks by 2005.	5 percent
2. Adopt higher density mixed use planning	6 percent
3. Shift hidden transportation costs to motor fuel taxes	5 percent
4. Shifting fixed-cost fees for transportation to variable-costs fuel taxes	4 percent
5. Implement pay-at-the-pump insurance	2 percent

The 1996 Municipal Development Plan identifies the following:

- Work with CCTA to shorten headways of existing routes—especially the New North End. Increase the frequency of buses, more free shuttles.
- Explore the establishment of a multi-modal transportation district in the vicinity of Battery Street.
- Expand bicycle infrastructure including connected bike path system for the county, bike amenities, and shared the road initiatives (e.g., clean shoulders).
- Pursue connections to Colchester for the Burlington Bike Path; complete Northern Connector bike path; plan and develop an east-west bike path across the New North End; and develop a bike path along the eastern boundary of the City making linkages to neighboring communities.
- Improve incentives to use the Parking and Mass-Transit Capital Fund as an alternative to on-site parking.
- Implement the Waterfront Transportation Center at Union Station.
- Initiate Riverside Avenue improvements for multi-use traffic.
- Complete way-finding signage system.
- Design new development with transit/pedestrian orientation in mind.
- Expanded parking shuttle systems.

6. The Transportation Challenge

In 1997 transportation was responsible for around 30 percent of Burlington's total greenhouse gas emissions. If fully implemented, the transportation demand management initiatives described above (and detailed in Appendix D) are estimated to reduce emissions by about 9,000-15,000 tons annually. TDM programs already implemented are already estimated to be preventing roughly 800 tons per year.

The potential impacts from additional policy measures, such as tax and fee shifting, are estimated to be 10,000 tons or more.

These savings are encouraging. But reaching the city's climate protection goal and progress targets will require a broad diversity of individuals choosing to modify their transportation habits.

Reducing transportation-related greenhouse gas emissions by 10 percent in the transportation sector by 2005 will require reductions of more than 46,000 tons annually. By 2005 the measures and

policies discussed in this section can reduce total emissions by 27,000-33,000 tons each year. The resulting gap—about 20,000 tons per year—requires additional reductions of gasoline and other motor fuel usage of roughly two million gallons per year.

New, more efficient vehicles, altered personal habits, and forward-thinking transportation policy and planning decisions can bring this degree of progress within reach—but the targets clearly call for a broad-based response from the community at large.

ENDNOTES:

- 1 The methods used to estimate baseline emissions and action plan reductions for the transportation sector are described in Appendix E.
- 2 Burning one gallon of motor gasoline results in 19.564 pounds of carbon dioxide emissions. Source: Energy Information Administration, 1999. "Instructions for Voluntary Reporting of Greenhouse Gases" Appendix B.
- 3 A personal vehicle emissions calculator is located on the Environmental Defense Fund web-site: www.edf.org/cgi-bin/TailpipeTally.pl

Transportation Sector Resources

Organization	Services	Contact/Phone	Email
Chittenden County Transportation Authority	Transit service on a fixed route system serving the greater Burlington area. Other programs include rideshare.	Chris Cole 864-0211	ccole@cctaride.org
Department of Public Works	Responsible for all Capital improvement to the transportation Infrastructure	Dan Bradley 863-9094	dan.bradley@ci.burlington.vt.us
Metropolitan Planning Organization	Responsible for regional transportation planning and improvements	William Knight 660-4071	wkinght@ccmpo.org
CATMA	Campus transportation and parking services including: shuttle and busing, bus charter and motor pool rentals	John Casey 656-2031	jcaseysr@zoo.uvm.edu
eVermont	Is dedicated to promoting the use of alternative fuel vehicle technology	Erin Russell 241-3556	erinr@dec.anr.state.vt.us
Vermont Transportation Alliance	VTA is a coalition of citizens businesses and environmental groups supporting alternative to single occupancy vehicles	Peter Sterling 865-9020	psterlin@zoo.uvm.edu
Local Motion	A 501.c.3 dedicated to improving the bicycle network in the greater Burlington area	Chapin Spencer 652-2453	chapin@together.net