Community mobility needs include transport by foot, bicycle, transit, rail, car, or truck. Mobility is essential for access to jobs, shopping, schools, churches, hospitals, libraries, city hall and all other elements of a community’s life. In short mobility is essential to a community’s economic well-being. Non-auto mobility also provides equity for those who cannot or choose not to rely on automobiles to move around. The environment and social equity value of public health, specifically clean air, is directly benefited by alternatives to petroleum fueled vehicles. Human powered means of mobility can also promote health and productivity of citizens.

With respect to alternative fuels, economic benefits to a municipality can result from reducing reliance on imported petroleum based energy sources and, instead, promoting energy independence through alternative, renewable energy sources. These benefits can be realized by building an alternative fuels research and production industry locally and by promoting the use of alternative sources in the municipality. These actions will assist municipalities which in time may face federal and state mandates.

Thinking more broadly, alternative fueled vehicles operate on fuels other than gasoline or ordinary diesel. Alternatives include compressed natural gas (CNG), liquid natural gas (LNG), propane, biodiesel/petroleum blend, electricity, hybrid gasoline and electricity, and hydrogen. The benefits of alternative fuel vehicles include improvement in environmental and human health resulting from reduced dependence on fossil fuels, greenhouse gas emissions and air pollution.

Why are Mobility and Alternative Fuels Essential to a Sustainable Community?

Those engaged in transportation planning related work spend a lot of time and energy monitoring and measuring congestion and system performance. Annual average daily traffic, the capacity of roadways, and rush hour congestion are only some of the ways to determine if our mobility systems are functioning well. Less rigorous measures used by most of us include the time we sit in traffic, how many cycles we must wait at a traffic signal or weight restricted bridges, etc. Such measures create pressure on officials to make changes. However, the priority of changes is most often determined by transportation professionals using quantitative measures. While congestion in the Pittsburgh region is not as bad as many others, it is still a frustrating experience. Ironically some congestion is good as it induces us to consider alternate transportation or reduce trips in the first place. An overarching measure is that of carbon footprint analysis; an increasing number of municipalities are using this important sustainability metric to reduce their greenhouse gas emissions.

Increasingly, fiscal constraints are reducing commitments to construct new highways and increasing attention to maintaining our existing system and improving its functionality. This trend is captured in the phrase, “Fix it first”.

The number, mileage, and use of pedestrian and bicycle trails can also be used to determine progress toward a sustainable system. Transit patronage can also be measured over time. Similarly average daily vehicle trips can be measured to determine if, over time, travel habits are changing.

Regarding alternative fuels, bio-fuel measurements must be consistent with what is being measured. It is important to distinguish between ethanol (a fuel created by fermentation of carbohydrates such as corn starch) and biodiesel which is created from fats. There are fuels on the market with varying amounts of biodiesel which, it should be noted, can be used - up to 100 percent - in existing diesel engines without modification. Clearly the use of biodiesel in a municipality’s diesel fleet can be measured directly as can the use of ethanol in the non-diesel fleet. The number of vehicles and the percentage of alternative fuels used would be included in the calculation.

How Can this Essential be Measured?

Photo: Jason Cohn
Actions for Implementation

Responsibility for the transportation system is shared between federal, state and local governments plus public agencies and private companies. Municipal actions must, therefore, be coordinated with their counties and the Southwestern Pennsylvania Commission (SPC) through which federal and state dollars flow. However, some actions that can be undertaken by municipalities include:

- Create a comprehensive – preferably multi-municipal - plan and implementing ordinances such as zoning and subdivision/land development and budgets that focus public and private investments in existing places and restricts sprawl development in greenfields. This conserves tax dollars by not building costly redundant infrastructure that must be maintained and replaced. Instead the existing core of the area can remain vital. Higher density, mixed use development can also reduce auto dependency and promote transit, walking and bicycling.

The Southwestern Planning Commission’s recently adopted Regional Plan supports this approach as illustrated by several of its Regional Policy Statements including:

- “The region will place a priority on business development with a focus on existing business retention and expansion.”
- “Revitalization and redevelopment of the region’s existing communities is a priority.”
- “Maintenance of the existing transportation system will be a regional priority.”
- “The region’s transit system will connect people with resources throughout the region.”

- Ensuring a safe and efficient non-vehicular experience by developing and maintaining well lighted bicycle and pedestrian trails and bicycle racks at destination points, installing traffic calming measures through the use of lighting, signals, signage and street furniture. These may include bulb-outs at intersections to reduce the street crossing distance, special paving at intersections denoting a pedestrian zone, count-down pedestrian crossing signals, and a pleasant pedestrian environment by the use of street trees, planters, benches, ramps at intersections, pocket parks, and pedestrian friendly lighting that adds light to sidewalks in addition to conventional lighting mainly used to illuminate the roadway. More information and details can be found at www.spcregion.org.

- Promote demand management in areas of high employment. Some techniques include ridesharing, van pooling and bus pass subsidies in lieu of some parking spaces. SPC actively promotes these techniques through its CommuteInfo Program.

- Ensure broadband access, especially in rural areas.

- Promote transit oriented development to support core areas and the transit system. Again, see www.spcregion.org.

- Ensure that streets and turning radii can accommodate buses.

- Specify minimal cartways (travel lanes) for streets as a means of traffic calming.

- Cooperate with transit companies to provide park and ride locations.

- Discuss with SPC staff the applicability of programs such as signal synchronization, congestion management, and similar programs, including their CommuteInfo program.

- Use of biodiesel in the diesel fleet and ethanol in the non-diesel fleet.

- Encourage producers and providers of alternative fuels and pursue incentive funds for use of alternative fuels.

- Create or join an inter-municipal purchasing cooperative for alternative fuels.

- Develop a program to collect waste grease and toll it to biodiesel producers.

- Conduct a vehicle fleet assessment.

- Adopt a green vehicle fleet purchasing policy.

- Promote complete streets.

- Promote walking school buses.

Resources for Communities

Bike Pittsburgh
www.bike-pgh.org
412/325-4334

Pennsylvania Department of Transportation
www.dot.state.pa.us

Public Transportation Agencies

Southwestern Pennsylvania Commission
www.spcregion.org
412/391-5590

Steel City Biofuels
www.steelcitybiofuels.psu.edu
412/241-9322
SUSTAINABILITY CASE STUDY: Indiana County Transit Fuel Conversion

In 2000 when Indiana County Transit (Indigo) was considering acquisition of new buses, they were approached by the local gas company with information favorable to conversion from diesel to natural gas fueled vehicles. Specifically this involved a grant to construct a compressed natural gas (CNG) fueling station.

Purchase of a CNG powered bus can add between 13 percent and 17 percent to the cost of the vehicle. However, considering that a bus can be in service for 12 years the acquisition cost can be calculated at slightly more than 1 percent a year. In addition the cost of the fuel can be as much as 40 percent cheaper than the cost of diesel. In addition to the positive economic benefits, CNG powered buses do not emit black exhaust associated with diesel fuel - clearly an environmental benefit.

Indigo reports that there was a learning curve associated with maintenance of the CNG vehicles. However, this was overcome in a short period.

Today 60 percent of Indigo's bus fleet is CNG powered with additional buses on order with a goal of total conversion. Clearly, this is a sustainable model that must be considered by other transit operators as they evaluate actions to save money, operate in an environmentally friendly manner and serve all citizens.

The trails portion of the program is constructed of asphalt which permits use by bicycles and strollers regardless of the weather.

This is a multi-year project. The governing body is supporting the program with funds on an annual basis and other funding sources such as the Safe Routes to School and Hometown Streets program are being solicited as they become available.

There were no real impediments to implementation of the program. In several cases the sidewalks had to be placed, in the PennDOT right of way which took a bit more time; however, a cooperative relationship resulted in success.

The major success factor in the planning of the program was to involve the community and the range of people who would benefit from it, thus assuring support of the committee and the elected officials.