Sustainable Transport Primer

Outline

Introduction

Vision

Fuels and energy sources

Basic intro Bio Diesel - what it is and how it is sustainable
Q & A that covers what vehicles can use it, problems and issues, clean diesel situation etc
Basic intro Electric vehicles plugged into renewable electric - what they are and how they work
Q & A
Basic intro Bio Mass conversion for ethanol and methane - what it is, how it is sustainable, and what needs to happen to get it working.
Q & A that includes Flex fuel vehicles what they are and how to tell if you have one.

Vehicles - what they are - how they are sustainable

Bicycles -

1. Moving from recreation to major transport alternative
2. How they are a solution to problems in intro.
3. What people need to make transition to bicycle transport - safety etc.
4. Other human powered options - skates and skate boards.

Neighborhood Transport Vehicles

1. What they are - electric scooters, gas (preferable flex fuel) scooters. Mobility scooters. Electric mopeds, electric motorcycles, Cushman vehicles, Gems, other NEV's
2. How they help
3. Who they help
4. What it takes for people to use them.

Re-localization - Neighborhood centers for a city that drives less

Near term goals

(One Paragraph for each of the following)
Get the schools involved with education about our oil addiction and the alternatives.
Fueling station for all sustainable fuels
Safe parking and storage for all vehicles in commercial areas, city facilities, apartments and condo's
A bicycle and NTV center to help get bicycle riding and NTV easier and safer for all
Safe routes that provide full access to the entire city for all forms of Sustainable transport
Create a sustainable transport center like a Green Depot so the community can act to realize these goals.

Introduction

This Primer presents solutions to some of the pressing issues confronting our communities and our country. The possibility of creating a sustainable transportation system creates solutions for at least three key transportation issues as follows:

Traffic Congestion and Parking.
The daily problems of traffic congestion, parking limitations and aggravations as well as providing local actions that deals with two much larger problems.

Oil Addiction
We have a larger problem of being addicted to imported oil. This addiction is a threat to both our domestic economy and our national security

Air and Water Pollution
The other large-scale problem with our oil based transport system is the significant impact on our environment. Not only does the exhaust poison the air we breathe but also the emissions are impacting and destabilizing our global climate. The oil that leaks from our vehicles is also a real source of pollution that runs into our streams, lakes and oceans.

A Vision of a Sustainable Future

The solutions to these key transportation issues are to build our lives around a sustainable system. The system involves building cities that do not require people to travel far and when they do travel they do so in a wide range of vehicles other than gasoline powered cars. The systems require developing renewable energy sources and implementing a range of new technologies that become build into our lives.

The final details of what this sort of system will look like will unfold as we move through the process of creating the new system. This primer will provide the details of what sustainable options are currently available as well as the information that is currently know about other possible parts of this puzzle. It is possible to bring together some of the best ideas about what a sustainable system would look like and to start building the vision of how this might work.

Let us now project our thinking into that future and see how people deal with their needs for transportation. A vision of a Sustainable Transportation future would look something like this:

The roads are filled with a wide range of vehicles. These include everything from lots of bicycles and scooters up to cars and trucks running on renewable clean fuels. The young people and the physically vigorous ones are using everything from standup scooters, skates, skateboards and bicycles to get what they need from with in their communities. The busy moms and dads are getting their errands done more quickly and easily with things like electric mopeds, the Seqways and neighborhood electric vehicles that go up to thirty miles an hour. The seniors and those with physical challenges are using a range of mobility scooters.

The range of vehicles that are slower than full automobiles are referred to as Neighborhood Transport Vehicles or NTV's. The NTV's can go up to 25 or 30 miles per hour and are either human powered, bio-electric hybrids or run on clean fuels like electric and hydrogen.

All of the vehicles described have pathways and lanes on the roads that keep them safe while giving them access to all parts of the city. There are bicycle boulevards that are dedicated to these kinds of machines.

The city has safe routes for young people to use low speed neighborhood transport vehicles to get to all schools, recreational facilities and mass transit centers. These all feature ample safe storage and parking for all these types of machines.

All high-density commercial areas have pathways for neighborhood transport vehicles that are providing easy and safe access to the businesses. Most of these were once alleyways that have been redesigned for delivery vehicles and NTV's only. Parking and safe storage for all NTV's is ample and strategically located along these routes.

The most used advanced bicycle boulevards have lanes developed for the full range of NTV's. They start with top quality, very smooth, sidewalks for pedestrians, mobility scooters and any vehicle that goes up to 4 miles hour and is safe to use on a sidewalk. Then there is a lane, possibly a high-speed sidewalk, for vehicles in the 4 to 12 mile an hour range. Then comes the full size lane primarily for bicycles and mopeds that travel between 12 and 25 miles an hour. Cars can visit these routes but they are blocked to through automobile traffic every three quarters of a mile or so.

All the parking areas in the city feature rows of bicycles lined up with ten bikes taking the space of one car. Then come the motor scooters with five scooters in the place of one car. The commercial centers have places near all their entrances for parking mobility scooters and safe storage of standing scooters and electric skateboards.

The safe movement of NTV's and pedestrians is supported by a system of bridges, tunnels and overpasses to make movement easier. There may even be raised pathways for NTV's and pedestrians as these would be less expensive than raising roads for full size vehicles. These raised pathways include solar powered escalators to help get vehicles and people to the higher levels.

Electrical powered vehicles move silently and with zero emissions. These include bio-electric hybrids with pedals. They include electric mobility scooters being used by seniors and people with physical challenges. They include electric mopeds, motor scooters, motorcycles and neighbor hood transport vehicle. The full sized electric cars are the cleanest and quietest on the roads. All these can be charged and stored safely and easily at all homes, apartments, and commercial parking areas as well as at all places of employment. Some of these are hybrid vehicles using renewable fuels with electric power.

The full size cars and larger vehicles all run on renewable energy including electric from solar and wind, bio-diesel from environmentally sound production as well as bio-alcohol and bio-methane fuels from green waste and agricultural by-products. Solar panels and new wind turbines specifically designed for urban residential and commercial roof tops are powering the electric machines. The community collects all bio-wastes and processes them into bio fuels that are supplied to the community from local plants. All food waste is added to the bio-digestion tanks of local sewage processing plants to produce bio methane. There are service stations that

provide these fuels at all appropriate locations and bio-methane is delivered in ways similar to current natural gas.

This is all supported by a mass transit system that ties all the neighborhood centers together and that reaches into the surrounding metropolitan and rural areas. The transit system includes local buses, express buses and a rail system that ties into the national rail system as well as feeding all air and seaports.

The buses and trains can easily move people and their neighborhood vehicles through out the system. This means that there is a ramp for mobility scooters and places to accommodate the scooters on board. It means there are bicycle racks on the front and the back. There is a way to get folding bikes and skateboards inside safely. There are train cars and special commuter express buses that can accommodate clean energy mopeds and electric bikes.

This vision not only gives us a picture of a sustainable future but of a healthier one. The extent to which people move out of their cars and toward human powered vehicles is the extent to which they are getting more exercise and gaining the health benefits of being fitter and less obese. This creates the possibility of reducing the burden of health care in our communities, provided we can create safe ways to use the sustainable options.

Re-localization - Neighborhood centers for a city that drives less

The best solution to the key transportation issues is to simply get peoples needs met in ways that require less use of automobiles. The idea is to give people the opportunity to live, work, shop and play in their own neighborhood as much as possible. This means building communities that bring goods and services closer to where people live. It means having employment and the sources of these goods as close to their homes as possible.

Creating a re-localized community means building neighborhood centers that provide for the people in these areas. These centers would have all the basic supplies for living including groceries, drug stores, fuels, hardware, repair services, restaurants, as well as social and entertainment functions.

People who use the terms smart growth and or re-localization have advanced this solution in various ways. There is a large amount of information about how to do this and most of the work is common sense efforts that brings all the things it takes to bring what people need closer together. Businesses and government working together through community action and governments efforts around planning and zoning laws can do the work.

One of the best examples of how re-localization works comes from the farmer's market experience. There were virtually no farmers markets in California in 1970. Now the markets are bringing fresh fruits and vegetables right into almost 500 communities across the state. These markets not only bring the food closer to the people, there is a deeper re-localization going on.

When the farmers markets started to take hold the food industry was becoming very centralized. Ever larger farms were producing massive volumes that were shipped over tremendous distances to get to the consumer. The farmers markets make it possible for local farmers and even urban gardeners to produce food for their neighbors. In the process the growers are creating local employment that allows people to work near their homes. There are literally thousand of localized businesses that have developed around the markets. There are hundreds of communities, just in California, that are getting a significant part of their food from local farmers where they once were fed by food that traveled hundreds or even thousands of miles.

In addition the more local farms have been able to use more natural practices that use production

resources from the local area. These resources would often be wasted in centralized system. This has the added benefit of reducing the negative environmental impact of our food production system and has actually created positive environmental results in many areas.

Creating neighborhood centers will have similar ancillary benefits. It starts by creating more ways for people to work, shop and play closer to home. This then makes it possible for people to use neighborhood vehicles like electric and human powered bikes and scooters. As the neighborhood centers accommodate these vehicles then the mass transit can adjust to the higher use of these vehicles and that would lead to being able to use neighborhood vehicles to get to other neighborhoods and city centers. As the use of these vehicles spreads it then would become possible to use local sources of energy - solar and biomass sources - to power these vehicles.

Creating cities with active neighborhood centers will take the same sort of effort it took to create the farmers markets. That effort started with community groups getting together to work on the problems. It started with the businesses involved, both the farmers and local food businesses working together to deal with the problems. It took the state government passing regulations and helping diverse communities to deal with creating the solutions. It took local governments supporting their community groups and helping people try out different solutions. This same process can be used to deal with creating sustainable solutions to the key transportation issues.

Thinking outside the car

Another source of solutions to our transportation problems comes from freeing ourselves from the tender trap of the automobile. This is where the new technologies and new mass transit solutions come in and there are ways to rethink our car buying and use that will help as well.

Does it really make sense to use 5000 pounds of car to move a 200 pound person around a city? The reality is that the bigger the vehicle the more energy/fuel it takes to use it. Is the energy better used to move steel and plastic or would smaller lighter vehicles allow more people to get the transportation they need?

Cars are so integral to our culture that we take it for granted that we have to own and use one. Not only that but our net worth and social status is somehow tied up in our cars. We have such a deep-seated cultural commitment to the automobile that it has created a huge dependency on gasoline.

With shrinking supplies of oil and an increased global demand for energy, it is time to start thinking outside the car and creating ways to get around that make more sense.

One adjustment we can make is to start thinking about how our social status could be defined more by how efficient we are in using resources and how we are choosing to be less of an energy hog. It seems more appropriate for young boys and girls to be excited and impressed by big shiny trucks than for responsible adults facing global competition and conflict over energy resources. What if we gave value and status to people who are concerned about conserving resources and living a pollution free life?

The other adjustment is to rethink the issue of how we are going to get around. One of the things that we tend to do is to buy cars that will do everything we ever want a car to do. That sounds reasonable on the face of it but it creates an 80-20 conflict. The 80-20 conflict around our cars is that eighty percent of the time we need much less from our vehicles than we do the other twenty percent. The twenty percent is the time when actually have six people in our cars, when eighty percent of the time there is only one or two people. The twenty percent is when a truck actually has a load in the back and the eighty percent of the time it runs with an empty cargo space. There are lots of other twenty percent uses like four-wheel driving or camping or long distance driving that cause us to drive bigger, high gas consuming vehicles than we need for eighty percent of our simple driving needs.

So one way to think outside the car is to find ways to break the 80-20 conflict. Simple things like flying to the places you want to go camping and renting campers from nearby towns instead of driving a camper a thousand miles or more. Having companies that make pick up trucks available to employees might be a good employee benefit. Renting cars for long distance trips would let people keep their cars longer and

having lighter cars for home use than they would want on a long trip.

A really good idea is to use vehicle sharing membership programs. There are people who have given up their car ownership completely. They use other means of transport like bikes, scooters, and mass transit for their daily needs and then use their shared car membership when they need a car for one of those twenty percent purposes. This same idea can be applied to the situations where a multi passenger van is needed occasionally. Smaller more efficient vehicles can handle the every day situations and then vans are available through a van sharing membership group. Pickup trucks could be handled in this way also.

With over six billion people on the planet, what would happen if all of us used SUV's to get around? The result would be to use our last oil reserves in a really short period of time and to release so much toxic gas and CO2 into the air that our planet would choke in one desperate gasp.

No one in his or her right mind would run a car in a limited space like a garage and have someone try to breath that air. How much sense does it make to have six billion people driving big vehicles on a planet with a limited (if very large amount of) space. Think about that when you walk into a garage and turn on your engine before opening a door. Is our planet large enough to house six billion garages?

It really is time to think outside the car.