

A large, dark blue outline of an oil drum is centered on the page. The drum has a handle on top and a spout on the left side. The text is contained within the drum's outline.

OIL INDEPENDENT OAKLAND ACTION PLAN

February 2008





TAKE STEPS

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EXECUTIVE SUMMARY

The Oil Independent Oakland by 2020 Task Force (OIO) is presenting a series of recommendations to enable the City of Oakland to reduce its dependence on oil and become one of the world's leading cities in sustainable development. The focus of the OIO was on oil reduction not on greenhouse gas emissions, although the two are closely aligned and reducing oil use will decrease greenhouse gas emissions.

A key factor in this report is the concept of "Peak Oil," defined as the time when the global rate of extraction of petroleum will reach a maximum and begin to decline. The Task Force did not debate when this peak would occur and accepted the opinion of many experts

To avoid major disruptions anticipated by Peak Oil, the OIO Task Force recommends that the City of Oakland begin making a series of changes to reduce its dependence on oil in both the near term and long term.

The primary focus of OIO recommendations is on the transportation sector. That is where 97% of oil is directly consumed in Oakland.

Quite simply, if Oakland is to reduce its dependence on oil, its residents must DRIVE LESS.

that it will occur within a few years time—if it has not already occurred. As oil supplies begin to decline, there will be an estimated shortfall of approximately 2.6% or more per year worldwide. Although 2.6% may not sound like a lot, in ten years the cumulative shortfall would be 29%. In twenty years the shortfall would be 67%. This could be devastating for a world accustomed to continued expansion in available energy supplies. The shortfall could be even higher as economies expand, population grows, and affluence spreads. Countries such as the U.S. that import most of their oil supplies may also be more severely impacted.

To avoid major disruptions anticipated by Peak Oil, the OIO recommends that the City of Oakland begin making a series of changes to reduce its dependence on oil in both the near term and long term. Many of the changes the Task Force recommends will take many years to implement but will have significant long term benefits that will help the City to avert potentially catastrophic economic, infrastructure and social

repercussions. Given the long lead times required to change such things as transportation and infrastructure, it is imperative that many of the actions begin immediately.

The primary focus of the OIO recommendations is on the transportation sector. That is where 97% of oil is used in Oakland. The OIO did not focus on natural gas or on electricity since none of the electricity supplied to Oakland is generated from oil.

The Task Force recommends first and foremost that the City formally adopt the Oil Depletion Protocol. This is the approach set forth by author Richard Heinberg in his book by the same title which outlines a plan to avert disaster by having all nations commit to reducing oil usage by approximately 3% per year. The OIO recommends that the City of Oakland adopt this protocol locally and to take immediate steps to implement it. While San Francisco has already endorsed the Protocol, Oakland would be the first government at any level in the world to adopt and implement the Protocol.

Quite simply, if Oakland is to reduce its dependence on oil, its residents must **DRIVE LESS**. This is the title of Chapter 1 and includes the two most important recommendations of the Task Force. They are:

- Begin the process of **gradually redesigning the city so that residents can reduce their automobile dependence**. This can be done by creating vibrant neighborhoods where jobs, housing and a full range of services are available within short distances.
- **Advance transportation alternatives** so that when residents do need to travel, they have options other than driving private automobiles. Details regarding how to accomplish this are included in the report.

The Task Force encourages the City to take a leadership role in a number of regional and statewide initiatives that will assist in the transition to an Oil Independent Oakland. Additional recommendations are included that cover oil used in Food and Materials, as well as the Port of Oakland.

In order to implement these recommendations, the OIO also strongly recommends that the City do the following:

1. Establish an Oil and Energy Team to coordinate the actions outlined in this report.
2. Explore financing mechanisms to help pay for infrastructure changes such as applying for federal and state grants, assessing developer impact fees, researching the feasibility of regional congestion charges or carbon/gas taxes, and selling local carbon offsets.
3. Develop a contingency plan to address future oil price and supply shocks on Oakland residents. These may be short term due to regional supply disruptions or long term due to factors mentioned above.
4. Begin a Public Education and Outreach campaign to educate Oakland residents about this issue and to encourage them to adopt the Oil Depletion Protocol as individuals. A section of the report is devoted to showing how an individual can reduce their oil consumption by 3% each year.
5. Set up a process whereby there is consistent/regular collaboration and outreach with regional transportation agencies such as MTC, BART, AC Transit, CALTRANS and neighboring cities to expand public transit.



RUNNING ON EMPTY

OVERVIEW

Peak Oil and The Oil Depletion Protocol

SUMMARY OF TASK FORCE RECOMMENDATIONS

Adopt the Oil Depletion Protocol as a City

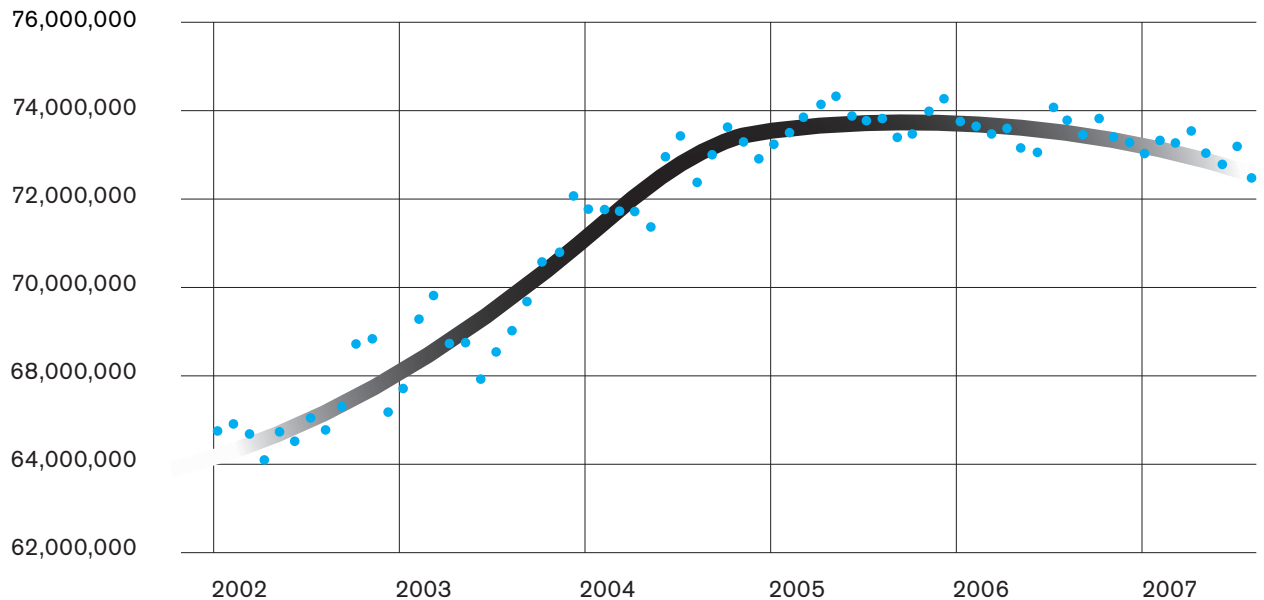
Adopt the Oil Depletion Protocol as Individuals

During the past decade a growing chorus of energy analysts has warned of the approach of “Peak Oil,” the time when the global rate of extraction of petroleum will reach a maximum and begin its inevitable decline. While there is some dispute among experts as to *when* it will occur, there is none as to *whether*.

How near is the global peak? Today the majority of oil-producing nations are seeing reduced output. US oil production has been declining since 1970. Meanwhile global rates of discovery of new oilfields have been declining since 1964. According to the Energy Information Administration (EIA), a division of the US Department of Energy, the monthly average for daily world production rates for conventional crude oil achieved 74.2 millions of barrels per day in May 2005; that figure has not been equaled since.¹ During the past decade, oil prices have soared from \$12 per barrel to \$100, reflecting growing demand and a supply has which has leveled off. (See Appendix for a graph showing changes in global petroleum traded and related prices in this decade)

Oil depletion: the decline of world crude oil production

Barrels per day



Source: www.oildrum.com

Oil depletion presents a unique set of vulnerabilities and risks. While global warming is a problem that has gained increasing public awareness, “Peak Oil” is less well understood. The potential is not just that we will have less oil in the future, but also that the resulting shortages will be both disruptive, and costly. Still, oil depletion and global warming are intertwined, as the solutions to oil depletion must not sacrifice efforts to reduce carbon-loading in the atmosphere; simply replacing oil with large amounts of liquefied coal or other carbon-producing products, for example, could worsen global climate change.

¹ Simmons, Matthew R., Another Nail in the Coffin in the Case Against Peak Oil, November 16, 2007. <http://www.simmonsco-intl.com/files/Another%20Nail%20in%20the%20Coffin.pdf>

The peak in oil production is forecast to be followed shortly by a peak in global natural gas production, complicating a simple shift from one type of fossil fuel to another. It is surely fair to say that fossil fuel dependency constitutes a systemic problem of a kind and scale that no society has ever had to address before. The human community's central task for the coming decades must be the undoing of its dependence on oil, coal, and natural gas in order to deal with the twin crises of resource depletion and climate chaos. If policy makers fail to take steps to reduce the effects petroleum shortages, society could be left mired both in internal economic turmoil and additionally, in international conflict over constrained oil supplies. In that environment, the pursuit of international climate policies (or any other international agreement) becomes much more difficult than is already the case.

If we are to deal with this challenge successfully, we must engage in systemic thinking that leads to sustained, bold action. Those cities that undertake careful planning will find themselves able to respond a more resilient way, providing a relatively better refuge for their citizens than those cities that do not have a plan.

Local inaction could render Oakland defenseless against the rising price of oil affects economic growth and employment—higher oil prices slow business expansion, impact wages and jobs and increase production costs. The continued burning of fossil fuels, one of the chief causes of global warming, threatens the living conditions of future generations of Oakland residents- Oakland suffers from asthma disproportionately in neighborhoods adjacent to freeways and other major sources of exhaust and pollution generated by traffic and the burning of fossil fuels. Global warming will exacerbate these health problems.

Our recommendations emphasize **preparedness**², ensuring that Oakland is:

- prepared for escalating energy prices and supply disruptions
- committed to using less energy and developing near term plans to do so, and
- rethinking policies, procedures, and existing conditions that require a high volume of energy consumption (e.g., reconfiguring the built infrastructure for less transportation)

Adopt the Oil Depletion Protocol as a City

The OIO recommends first and foremost that the City formally adopt the *Oil Depletion Protocol*. The protocol set forth by author Richard Heinberg in his book by the same title outlines a plan to avert disaster by having all nations commit to reducing oil usage by approximately 3% per year.³ The Task Force recommends that the City of Oakland adopt this protocol locally and to take immediate steps to implement it. While other cities including San Francisco have already endorsed the protocol, Oakland would be the first government at any level in the world to officially adopt and implement the protocol.

The Oil Depletion Protocol, if adopted as a global initiative, would proactively address the Peak Oil crisis, setting a target of about 3% reduction per year in oil consumption, without specifying how this goal should be achieved. The 3% reduction trajectory approximates the annual depletion rate for world oil (the amount produced each year as a percentage of what remains). It should be regarded as a minimum reduction target, since actual declines in available oil may be significantly greater.

2 Energy Preparedness: A Municipal Perspective, Energy Preparedness, January 2008. Available at <http://www.energypreparedness.net/resources/whitepaper/1>.

3 Richard Heinberg, *The Oil Depletion Protocol – A Plan to Avert Oil Wars, Terrorism and Economic Collapse*, New Society, 2007. <http://www.oildepletionprotocol.org>.

Implementing a citywide program to proactively and cooperatively reduce the use of oil (effectively, a reduction in *demand*) ahead of actual production declines would ameliorate the impacts of Peak Oil on Oakland. As part of adopting the protocol, the Task Force recommends the City establish a minimum annual oil consumption reduction goal of 3%.

A minimum 3% annual reduction in oil consumption by the City of Oakland is commensurate with carbon emissions reduction targets adopted by the State of California, and will lead to over 30% reduction in oil consumption from 2008-2020. Were a 3% annual reduction carried through 2050, the reduction would be on the order of 72%. If Oakland were to meet its minimum reduction target for the next four decades, it is likely that years which exceed the target would result in an even larger cumulative reduction.

Without an annual reduction target, efforts of this Task Force will likely result in making fuel usage more efficient, while total fuel consumption continues to grow. In that case, vulnerability to supply shocks actually **INCREASES**, because the slack in the system (inefficiency) has already been removed, while dependency has worsened. The only way for Oakland to reduce its vulnerability to supply shocks is to reduce its actual consumption of fuel.

Adopt the Oil Depletion Protocol as individuals

Individual households should be encouraged to make a commitment to reduce their oil use by 3% per year also. There are many ways this might be done, and the chart below shows one possible scenario for a typical Oakland household to achieve a 3% reduction.

Oil consumption footprint

Transportation is the largest share of the typical Oaklander's oil consumption footprint. The average Oakland household travels about 58 miles per day. About 30 percent of vehicle trips are for travel to work and the remaining trips are for other purposes.⁴ The table below shows some statistics for transportation in Oakland.

Baseline statistics: Oaklanders, transportation and oil

40%	Transportation as a share of Oakland energy use
47%	Transportation as a share of greenhouse gas emissions in Oakland
97%	Transportation as a share of Oakland oil consumption
58.4 miles/day	Vehicle miles traveled each day, per household
6.9 trips/day	Daily trips per household
8.4 miles/trip	Vehicle miles traveled for a typical trip
30%	Work trips as a share of total
17.4 miles/day	Vehicle miles traveled for work, per household
20.2 mpg	Average vehicle fuel economy

Sources: Metropolitan Transportation Commission, and ICLEI

⁴ Statistics are calculated based on data from the Metropolitan Transportation Commission http://www.mtc.ca.gov/maps_and_data/datamart/stats/baydemo.htm

Assuming that the typical Oakland household completes all of its travel in a single occupancy passenger vehicle that meets the average fuel economy of today's fleet (20.2 mpg), the household will consume just over one thousand gallons of gasoline per year.

To meet the goal of the Oil Depletion Protocol, each household needs to reduce its oil use by 3 percent.

There are several simple steps that a household could take to achieve this:

- Eliminating one work trip per week by telecommuting.
Approximate Reduction 4%
- Eliminating one non-work trip per week through walking or biking rather than driving.
Approximate Reduction 4%
- Replacing all work trips with commuting by bus or carpooling with one person.
Approximate Reduction 13%

Another way to greatly reduce oil consumption would be to replace trips in the household's gasoline powered cars with electric car trips as feasible. (See "Consumer Vehicle Choice" section in the Appendix) Most commercially available electric vehicles have a range on the order of 30–40 miles. A substantial oil savings (potentially greater than those indicated above) is possible if common, short-range auto trips are done with electric instead of gasoline vehicles.⁵

Background

Oil Independence

Following the lead of Sweden's Oil Independence initiatives, this Task Force was created to investigate what it would take to make Oakland oil independent by 2020. At the beginning, the Task Force recognized that being completely oil free was not attainable by 2020, if at all, and therefore it has been focused on relative rather than absolute oil independence. In the Oakland context, the Task Force considered the initial objective to be relative oil independence by 2020 and suggested that oil independence efforts should be an ongoing focus for Oakland for at least the next five decades. Through these efforts, Oakland should continually reduce its vulnerability to oil price and supply shocks and its contributions to the oil economy.

The Oil Independent Oakland by 2020 Task Force

The Oakland City Council established the "Oil Independent Oakland by 2020" (OIO) Task Force on October 17, 2006. The Task Force was asked to develop an action plan for Oakland to become oil independent by 2020, and that would include strategies to create jobs and economic growth in Oakland.

Recognizing the many problems associated with our dependence on oil, the City Council realized the great potential for making significant changes to reduce that dependence. In so doing, Oakland could become one of the world's leading cities in sustainable development.

⁵ Depending on the household's travel needs, the percentage of vehicle miles accounted for by shorter trips could vary greatly, but could be 100% for some households.

Members and Structure

The Task Force convened in April 2007, met at least monthly and delivered its final report in December 2007. Ten members were appointed by the Mayor and City Council. Those members were Chair Parin Shah, Vice Chair Ian Kim, and members Louise Bedsworth, Shannon Graham, Richard Heinberg, James Lutz, Mike Petouhoff, Richard Register, David Room and Jane Seleznow. Task Force members had a wealth of knowledge and expertise in the following areas:

- Alternative Fuels/Transportation
- Energy Efficiency/Energy Conservation
- Urban Land-Use Planning
- Community Choice Aggregation
- Economic Development
- Environmental Health/ Air Quality
- Sustainability Indicators
- Port of Oakland
- Public Policy
- Renewable Energy
- Workforce/Job Development

The OIO by 2020 Task Force began with a review of work by two similar groups who had studied this topic. One was the June 2006 report by the Sweden Commission on Oil Independence entitled *Making Sweden an Oil-Free Society*.⁶ The other was the March 2007 Report of the City of Portland, Oregon Peak Oil Task Force entitled *Descending the Oil Peak: Navigating the Transition from Oil and Natural Gas*.⁷

At various Task Force meetings, members heard presentations from a wide range of experts including:

- Peter V. Schwartz, California Polytechnic State University, on Navigating The Way Out of Fossil Fuel Dependence
- Daniel Lerch, Post Carbon Institute on Post Carbon Cities: Planning For Energy and Climate Uncertainty
- Ian Kim, Ella Baker Center, Oakland, CA on Green Jobs and Eco-Equity
- Kirsten Miller, Executive Director of Ecocity Builders on Ecocities and Oil Independence
- Robert Baertsch of University of California, Santa Cruz on Solving Transportation, Land-Use, and Energy Issues Using Personal Rapid Transit.
- Ron Swenson, advisor to the Swedish Institute for Sustainable Transportation on a more sustainable transportation system.
- Richard Heinberg summarized his book entitled The Oil Depletion Protocol, and
- Task Force member Mike Petouhoff showed a segment of the film, Urban Solutions from Curitiba, Brazil, highlighting the transformation from auto to into an extremely efficient bus-centered urban area.

In addition to meetings of the Task Force, the Land Use and Transportation working groups (subcommittees of the Task Force), along with Oakland's Planning Department, convened a public "charrette" or workshop to discuss the urban villages concept and to elicit recommendations on transportation issues from regional agencies and the public. (See *the Appendix for the charrette agenda*)

To focus its efforts, the Task Force established four working groups were. These were:

6 Sweden Commission on Oil Independence, June 21, 2006 "Making Sweden and Oil- Free Society",. found online at: <http://www.sweden.gov.se/content/1/c6/06/70/96/7f04f437.pdf>

7 City of Portland Peak Oil Task Force, March 2007. "Descending the Oil Peak: Navigating the Transition from Oil and Natural Gas", found online at: <http://www.portlandonline.com/shared/cfm/image.cfm?id=145732>

- Transportation – This group focused on reducing dependence on oil by reducing car use in Oakland and the region, exploring energy choices in public, private, and municipal fleet, and new green jobs that could be developed along with new policies.
- Land Use & Infrastructure – This group focused on reducing dependence on oil through better urban planning including transit oriented development and urban villages to create neighborhoods where residents could shop and work close to where they live.
- Food & Materials – This group focused on recommendations that would help the City reduce the amount of oil that is used in food production and distribution, in producing plastics and chemicals and in road-paving materials.
- The Port of Oakland – This group considered ways to make the Port less oil dependent by reviewing operations at Oakland's maritime port (including the significant rail and trucking operations) and the international airport.

City Of Oakland: Current Environmental Efforts

There is already a high degree of consciousness and progress in Oakland around sustainability and environmental issues. Examples of recent programs and initiatives are:

- March 2006: Oakland City Council adopted a Zero Waste Goal by 2020 and in December 2006 passed a resolution adopting a Zero Waste Strategic Plan. The Zero Waste Strategic Plan provides a framework of policies and initiatives that guide the planning and decision-making process to achieve the City's Zero Waste Goal.
 - June 2006: City of Oakland, along with 10 other local governments in Alameda County, committed to becoming a member of the International Council for Local Environmental Initiatives (ICLEI) and participating in the Alameda County Climate Protection Project. See the ICLEI website, at <http://www.iclei.org>.
 - June 2006: Oakland City Council adopted a Resolution banning polystyrene foam disposable food packaging, and requiring the use of biodegradable or compostable disposable food service ware, by food vendors and City facilities. See the Staff Report and Resolution at <http://clerkwebsvr1.oaklandnet.com/attachments/13659.pdf>.
 - November 2006: The City of Oakland entered into an agreement with the Port of Oakland and Clean Energy (a California corporation supplying vehicles with natural gas) for the funding, design, and construction of a downtown Compressed Natural Gas (CNG) Refueling Station.
 - December 2006: Oakland City Council authorized \$50,000 allocation to provide start-up funding for the establishment of a Food Policy Council for the City of Oakland
 - June 2007: Oakland City Council appropriated funds from the Williams Energy Settlement for: an energy-oriented green jobs program, a youth training program that provide energy and water-saving services to Oakland households, creating a Climate Action plan, upgrading City facilities with energy efficiency upgrades including a new 35kW solar project.
 - Community Efforts: Various environmental health impact and emissions studies by the West Oakland Environmental Indicators Project, the West Oakland Toxics Reduction Collaborative, the Ditching Dirty Diesel Collaborative, and the Pacific Institute, to name a few.
-

Principles

In order to determine what actions to propose to the City Council, the Task Force decided to employ the following principles:

- Ensure recommendations are City actionable
- Pursue bold ideas
- Make use of similar efforts and other experts in the area
- Consider impacts on the environment, equity and the economy
- Consider both/and rather than an either/or approach
- Ensure recommendations have a positive impact on workers and businesses

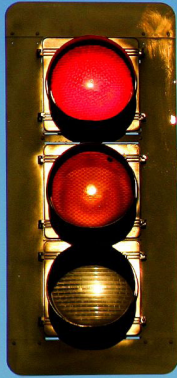
Timing of potential actions

Determining when actions should occur or the length of time required to implement them was an important consideration for the Task Force (see Table opposite). Priority recommendations were designated “short”, “mid”, and “long”-term actions. The table also indicates who should carry out the particular action: individual citizens, City of Oakland, or the City in a leadership role in the region or state (when the action cannot be implemented unilaterally).

The degree to which individuals can take transit, or bike or walk to work, is an individual choice, but one that is greatly enhanced by the decisions and actions the City and other governments make, in terms of infrastructure, urban design, and transit. In the longer term more options are available to individuals for a number of reasons, including through government actions.

What to do: a summary of recommendations

	Actions			Timeframe in years		
	Individual	City	Regional	1-3	4-7	8+
TWO MAIN RECOMMENDATIONS						
1	●	●	●			
2	●			●		
DRIVE LESS/LAND USE AND TRANSPORTATION						
Design Urban Villages						
3		●		●		
4		●			●	
5		●			●	
6		●	●			●
Advance transportation alternatives to the car						
7		●		●		
8		●		●		
9		●	●	●		
10	●	●	●	●		
11	●	●	●	●	●	●
LEAD THE WAY/ REGIONAL & CITY INITIATIVES						
12		●		●		
13		●	●	●		
14		●	●		●	
15		●	●		●	
16		●	●		●	
17		●	●		●	
18		●			●	
19		●			●	●
BUY SMART/FOOD AND MATERIALS						
20	●	●	●			
21		●	●			
22		●	●			
MOVE WISELY/PORT OF OAKLAND						
23			●		●	
24			●	●		
25			●	●		●
26			●	●		
27			●	●	●	●



DRIVE
LESS

CHAPTER 1

Land Use and Transportation

SUMMARY OF TASK FORCE RECOMMENDATIONS

1 Redesign the City using the concept of Urban Villages

Step 1– Amend the Land Use and Transportation element of the General Plan and the Zoning Ordinance to create a framework for Urban Villages

Step 2 – Craft high density and mixed use design review standards

Step 3 – Develop a financial strategy for infrastructure and public improvements to support the preferred transportation hierarchy and urban villages

Step 4 – Revise the Transfer of Development Rights ordinance to establish additional conservation and open space areas

2 Advance transportation alternatives to the car

Implement the Pedestrian and Bicycle Master Plan

Develop and implement Public Transit Master Plan

Set up processes and outreach to collaborate with regional transportation agencies and neighboring cities to expand public transit

Encourage transportation sharing

Promote less oil-intensive transport

Synopsis

Transportation is the largest consumer of oil (97%) and the largest source of greenhouse gas emissions in Oakland. (See *Appendix for information supporting the Task Force emphasis on reducing private automobile use*) Therefore, the most effective way to reduce oil consumption would be to significantly change travel behavior. This would require an investment into strategies that would make transit, bicycle and walking more practical as well as more desirable than they are today. An important first step is to make land use decisions that reduce the need to use a personal automobile.

The first recommendation, **develop Urban Villages**, captures this idea and would entail strengthening vital focal points of the City, such as neighborhood centers, transit centers like Fruitvale and downtown with more development. That development would be “village-like” in having most of the full range of life’s activities all provided for close together: living, working, commercial, social and cultural spaces. Integral to the “urban villages” notion is removing development outside the concentrated cores steadily over the years to open creek systems, expand community and commercial gardens for food production and security, for parks, sports, recycling and other open space uses. The overall pattern of change thus will support bicycle, transit and pedestrian access and thereby create the foundation in urban form for greatly reducing demand for energy and land, and thus creating a basis for adding exactly the right technologies and jobs that fit a more localized economy and an energy conserving and benign renewable energy future. That is a potential future so low in demand for energy that oil independence becomes a real possibility.

From this foundation on up, the City can save enormous quantities of energy and can more successfully implement other recommendations, such as promoting public transport and transport sharing, creating disincentives for the use of private automobiles and promoting the use of less oil-intensive transport that will support the “drive less” ideal.

The Task Force established the preferred transportation hierarchy chart (opposite), roughly based on the amount of oil required per person per trip (listed from least to most oil intensive). The Task Force used the hierarchy as a prioritization scheme and as guidance for recommendations throughout the Action Plan. We especially encourage its use in determining land use and zoning priorities.

Priorities: getting to least oil-intensive trips

Ranking based on the amount of oil required per person per trip

Least oil-intensive	Rank	Mode of travel
	1	Walking
	2	Bicycling
	3	Electric scooters and carts
	4	Electric rapid transit, such as BART or streetcars
	5	Diesel bus rapid transit
	6	Electric cars
	7	Plug-in hybrids a. electric drive train with onboard fueled generator b. gasoline drive train with electric assist motors
	8	Alternative fueled vehicles and hybrids
	9	Petroleum fueled cars
	10	Airplanes

Most oil-intensive

1 Redesign the City using the concept of Urban Villages

Over decades, the organization of our cities has been based on separating residential from small scale commercial and office, and separating those from large scale manufacturing and warehousing districts. Today, most of the heavy industrial uses are gone and there are more advantages in bringing distinct uses together rather than separating them. Zoning needs to be overhauled not by changing patterns indiscriminately, but with an updated understanding of work and jobs. An urban village approach would be more focused on a wider range of businesses and services to provide the daily needs of the residents and workers, while reducing trips in private automobiles.

The design of cities greatly affects how people move around in them. Land use and transportation are tightly linked in more sustainable urban environments. When home, work, school, and shopping destinations are separated by long distances or inefficient routes, more energy is required to fulfill daily needs. Cities in Europe and the United States that matured prior to the pervasiveness of the automobile have a variety of uses within shorter distances and are more energy efficient per capita than cities such as Los Angeles that were built to accommodate transportation by private auto. Redesigning cities to bring diverse land uses in closer proximity to one another will allow a larger number of people to use less oil intensive transportation options.

The Task Force debated energy sources and various means to conserve energy in Oakland and concluded that an urban form that is compact and diverse in the “urban village” sense described here works best. This compact “mixed use” pattern, in the language of planners, fits best with public transit powered by electricity, rather than liquid fuels such as fossil fuels and generally, biofuels. Even private transportation with lower impact, such as electric cars, carts and scooters, is benefited by the switch to a more compact urban form surrounded by more open space. To support the overall pattern, we need vigorous commitment to and economic investment in renewable solar, wind, and geothermal renewable energy sources and in transit and bicycle transportation. Each neighborhood, major district center and the downtown can provide the full range of many or most of its needs for housing, employment, food, everyday services, basic education and local or regional transportation. Thus petroleum independence is proposed in a way that will build and strengthen local communities.

An Oakland with numerous urban villages will be a more resilient place as oil becomes more expensive and/or less abundant, and will help citizens endure the price shocks which could wreak havoc in communities with fewer transportation options.

The Oil Independent Oakland Task Force members agreed that there is no “silver bullet” to solve the problem of society’s oil dependence. There is, however, what we might call a **‘silver sequence’**. Urban design needs to follow a number of steps in a certain order to successfully produce a healthy environment that runs on a minimum of energy. First, the land uses have to be well thought out and established based on centers of development, not low density scattering. Then the architecture that rises from that land use pattern can be designed to conserve energy, and to relate well to other buildings and open spaces and linkages like streets and rails. Next, supportive technologies like solar and creek restoration materials and plants can be added. And even communications technologies can play a contributing role in energy conservation and community vitality by helping establish work places in the smaller centers as well as downtown center and thus decreasing commuting and increasing the diversity of activity in those centers.

Providing a variety of land uses in cities solves much of the problem by reducing oil demand dramatically. More compact development makes possible preservation or recovery of open spaces that can be utilized for recreation, urban food gardens, and sometimes habitat

restoration. Not insignificantly, the funds saved on automobile-serving infrastructure (e.g., repaving streets, maintaining public fleets, traffic/parking management and enforcement) can be better spent providing for the well-being of all residents and especially lower income people. An urban design that liberates us from dependence on cars and gasoline serves safety and national security goals as well.

The first step on the silver sequence is changing the land use policies in our cities to provide for the mixed use and concentration of activities that were discussed above. City government has the power to make these changes through General Plan amendments and Zoning Ordinance changes. Procedurally, this begins with developing the overarching policies that would define and support the urban village context; then, the City would produce Area Plans, providing the analysis for each potential “village”—how it could fit the vision; and finally, the new, specific “rules” needed to make the areas consistent with the urban village vision, which would require changes in the Zoning Ordinance—details like changing the required number of parking spaces or the uses allowed on a specific street.

The second step is to make the denser development more attractive by establishing design review standards. Steps three and four would be to fund the infrastructure and other costs necessary for implementation, and finally, set in motion amendments in the Transfer of Development Rights Ordinance that could eventually remove the least-desired structures to promote the long-term vision to make way for paths, parks, and other open spaces that will embellish or surround the centers.

Employment Implications of the Silver Sequence and Community-Oriented Development

The silver sequence obviously has major implications for employers and Oakland’s economy. Employers and industry representatives should be consulted and integrally involved in its planning and execution-- ideally the process would be collaborative rather than contentious, with a shared sense of the emergency we all face and must solve together. Economic localization and the collocation of live/work/shop centers have many positive implications for productivity and efficiency. Imagine eliminating 1-3 hour daily commute times for significant percentages of the workforce. Imagine large areas of prime real estate previously dedicated to the automobile (parking lots, roads and highways, etc.) becoming available for vibrant economic activity. Imagine stronger relationships among local and regional businesses who build mutually reinforcing networks as suppliers and purchasers. Imagine reversing some of the effects of economic globalization, bringing manufacturing and industrial activity back to local and regional economies.

Massive economic shifts are inevitable in the 21st century, and there will undoubtedly be big “winners” and “losers” when it comes to businesses and employers. The question is not whether we can avoid tectonic change. The question is whether we can guide such change wisely, partnering with the private sector in such a way that lessens the economic shocks, maximizes job quality, and provides stable transitions for employers and for workers.

Finally, it should not go unstated: The land use recommendations immediately following involve major changes in the built environment and infrastructure, which in turn imply a great deal of construction work (reforming roadways and building homes, offices, public transit systems, etc.). The contracts for the construction work can and should be guided by community standards that ensure job quality and safety, adequate wages, funding for job training, and other benefits for workers, their families and communities.

REDESIGNING THE CITY OF OAKLAND

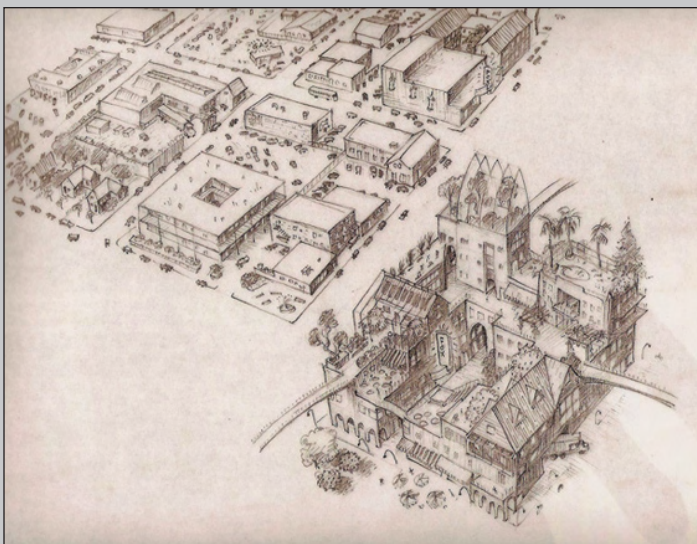
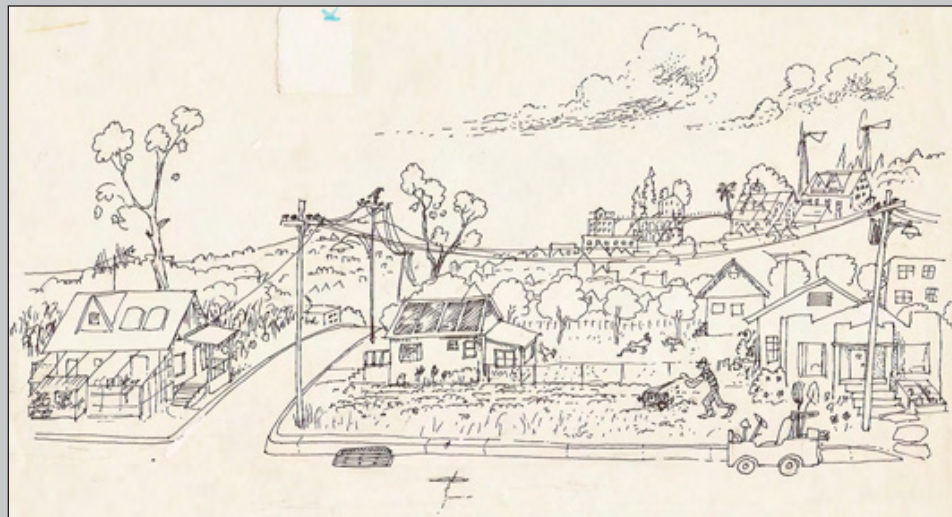
Removing Suburbia 1

Present condition in older low-density areas all over the United States



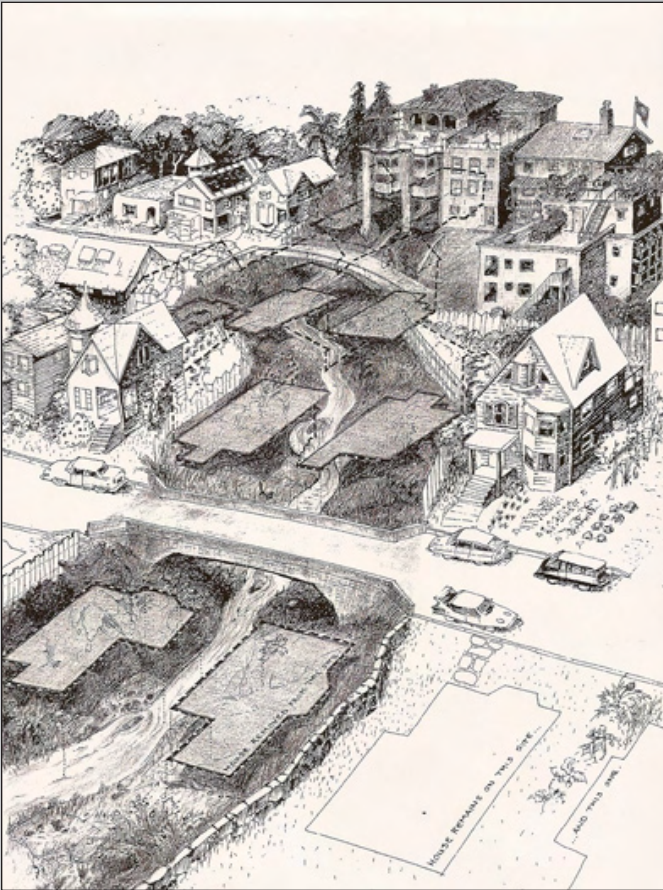
Removing Suburbia 2

Ten to thirty years later its people are preparing for world Peak Oil production and shifting urban layout to conserve energy, and with it, land and biodiversity, while reintroducing close-in food raising.



Five Blocks to One

Typical low density haphazard development, upper left, replaced by more compact much more pedestrian oriented and very diverse uses in the lower right. Everything in the upper left is provided for by building taller in the lower right, plus because of the space saved as well as energy saved, new options become available, as with all the rooftop uses and various activities in the sheltered area in the middle of the new block.



TDR Paying for a Shift in Densities toward Vitality Centers

The “pads” represent the footprint of buildings removed in willing seller deals and paid for by the developers of the apartments in the upper left. Transfer of Development Rights is a legal/real estate tool created by city or county ordinance to remove development rights and thereby preserve or restore open space (or historic buildings) by selling those rights to a developer to build more in areas that work well with transit – the “vitality centers” referred to in this report.

Small Town Center Creek Restoration

Typical neighborhood center celebrating a local creek of the sort common in Oakland, surrounded by modestly dense development of a variety of uses.



Implementing the Urban Villages concept

Step 1 Amend the 1998 Land Use and Transportation Element of the General Plan and the Zoning Ordinance

Urban planning and land development are primarily City functions guided by Oakland's General Plan. The General Plan amendment (specifically to the Land Use and Transportation Element (LUTE) of the General Plan) would contain the over-arching policies to bring the urban village concept to life for all of Oakland. The Task Force recommends that the LUTE be amended to improve coordination between land uses and transportation (focusing on alternatives to private autos) and also change the land use pattern to one that brings together a wide range of distinct yet compatible land uses so that daily live, work and shopping needs can be met in a close geographic area. The latter goal implies not only a high density and a high diversity of uses that creates a sense of community and place which we refer to as Urban Villages.

An important tool in this process is GIS mapping to help identify existing centers of vitality with *high density* and *high diversity* of land uses, as well as amenities or uses that could be missing. An initial analysis identifying these centers of vitality, based on GIS and site visits around Oakland, has been completed as a starting point by Ecocity Builders, Inc., an educational and research non-profit corporation. A sketchy but illustrative first generation map was prepared identifying and explaining the purposes for shifting development toward those centers (see map below).⁸ In many cases, the land use patterns may have actually been influenced by previous transit systems like the Key Route system of the first half of the 20th century (see *Appendix to read about the Key Route system*).



⁸ This project was conducted in 2005 by graduate students at the University of California at Berkeley in the Department of City and Regional Planning, under the direction of Kirstin Miller and Richard Register of Ecocity Builders. There is a detailed report by students Richard Smith, David Schechter and Jason A. Hayter.

In the Oakland Map provided, the bands of color indicate distances from centers and a general guide for further density, with higher density toward the centers (pink and reds) and highest priority for restoration of open space farther from the centers. This early stage map is a composite of the “eco-city” mapping that locates centers, the City of Oakland’s GIS maps and Google Earth, which gives a sense of landscape features and the bay. Creeks are based on Oakland and GIS maps.

After amendments are adopted, a more rigorous investigation of each center identified would be completed in the form of an Area Plan. The goal of the Area Plan would be to see how each area measures up to the new General Plan policies: where are the consistencies and inconsistencies with the new goals and mandates? This research also identifies what steps should be taken to implement the General Plan policies, whether those be rezoning, changing parking requirements, or something else. The Planning Code (through an update of the Zoning Ordinance) would provide the implementing details.

Two Concepts of Concentrated Development

Community Oriented Development (COD) focuses on development of an area in terms of a range of land uses, employment, and other opportunities provided within a close proximity, so that citizens can move about the “village” without dependence on private automobiles, and yet will have most of their daily needs met within this setting.

Transit Oriented Development⁹ (TOD) directs development towards transit hubs like BART stations. It is a moderate to higher-density development, located within an easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use.

The Appendix contains examples of zoning, planning code, and fee based changes to support the Urban Village Concept.

Step 2 Create a set of high density and mixed use design review standards

One of the most important factors in creating high density structures that are livable and appealing is the building design. Oakland has encountered significant community resistance in its initial efforts at placing high density development in existing neighborhoods. Part of the problem is that the City does not have a current set of design review standards for high density multi-family and mixed use development. By the City’s own admission, the existing multi-family design review standards are so outdated, they are not used.

However, the City has had recent success in creating a set of proactive design review standards for one and two family residences, which can be a template for a similar high density and mixed use design review manual. Oakland should encourage design that is aesthetically pleasing, vibrant, as well as practical. Design professionals should be sought out during the process of preparing design review standards.

9 California Statewide TOD Study – Technical Advisory Committee (September 2002)

The City should consider the following in establishing new design review standards:

- Large, blocky structures are a major source of neighborhood objection to increasing density
- Adopted standards are important to all parties to reduce disruption at the end of the planning process
- Transitions from high density to lower densities areas are important; this includes transitions on all sides of the development
- Incorporating solar power to create more renewable electric capacity on the grid, especially as electric cars and transit become more prevalent.

Step 3 Create a financial strategy for infrastructure and public improvements to support the Transportation Hierarchy and the Urban Village

A financial strategy is a key component of urban village development. The City should create clear plans, based on public input, that identify the infrastructure and other essential improvements to the urban villages concept (including those that support the Transportation Hierarchy), and how the funds will be acquired.

Most infrastructure improvements should be considered on a city-wide basis and could include standards for street furniture for pedestrian friendly streets, bike racks, electric car charging stations, and innovations such as street lights that dim at dawn and dusk, in addition to standard functions. Bicycle and Pedestrian Master Plans provide a source for infrastructure improvements that must be reviewed during strategy development. These should all be included in the City's Capital Improvement Plan (CIP) five-year budget so that as funding becomes available, urban village projects can benefit.

Since public funds are limited, a strategy that combines public and private investment should be part of the plan. A basic premise of private investment is to take advantage of land value premiums - the fact that the value of land may be increased by certain public projects or investment, and so it may make sense that those who benefit also share in the cost.¹⁰ At the same time public projects can attract private investment. Possible funding mechanisms include: Transit and Density Premiums; Development Disposition Agreements (DDA's) and Development Improvement Agreements; Redevelopment Agencies and Tax Increment Financing; and Infrastructure Impact Fees. *(Further details in the Appendix)*

Step 4 Revise the Transfer of Development Rights (TDR) Ordinance to establish additional Conservation and Open Space

The Task Force recommends that:

- The Planning Department should look comprehensively at areas that can be reverted back to open space, greenbelt, creeks and other natural amenities, as part of General Plan and/ or Area Plan updates, and Redevelopment Plan Development
- City Council modify the existing Oakland TDR ordinance to make the tool more effective and supportive of the Urban Village concept.
- Use TDR in conjunction with or in place of eminent domain in Redevelopment areas.

¹⁰ An appraiser concluded the recently inaugurated Seattle Streetcar would spur nearby development and increase property values in the district by \$68 million. Area property owners paid \$25.7 million – slightly more than half the total cost of the streetcar system.
<http://archives.seattletimes.nwsource.com/cgi-bin/texis.cgi/web/vortex/display?slug=slustreetcar12m&date=20051112&query=Landowners+hop+aboard+Lake+Union+Streetcar+line>

It is important to note that our recommendation is not simply to create high density throughout Oakland, but rather high density centers contrasting with surrounding areas that have open space. It is also important that high density areas also incorporate natural features like creeks, greenbelts, or shorelines, as public amenities so that high density urban areas may be enriched by natural features. This is an important quality of life issue.

2 Advance transportation alternatives to the car

Summary of Task Force Recommendations

- Implement the Pedestrian and Bicycle Master Plans
- Develop and Implement Public Transit Master Plan
- Set up processes and outreach to collaborate with regional transportation agencies such as MTC, BART, AC Transit, CALTRANS and neighboring cities to expand public transit.
- Encourage Transportation Sharing
- Promote Less Oil- Intensive Transportation

Transportation is one of the greatest barriers to achieving Oakland's goal to become oil independent. Strengthening public transport, which uses less land and creates less pollution than autos, is imperative for Oakland to become oil independent.

Along with improving our public transit system, we must expand the use of the two oil-free modes of transportation – walking and biking – that top the transportation hierarchy described above. With relatively few rainy days and mild temperatures,¹¹ Oakland is exceptionally well suited for year round walking and biking. While many Oakland residents own bicycles, most consider cycling recreation rather than transportation. Personal safety concerns and the lack of a comprehensive biking infrastructure are impediments to increasing cycling in Oakland. We must work to expand the bikeways in Oakland and integrate them into a comprehensive, intermodal public transit system while also promoting walking.

Employment Implications of Promoting Public Transit

Shifting to bicycles and public transit implies the emergence of new economic clusters¹² to support these two modes of transport. Large-scale bicycle use triggers development of supporting local industries -- manufacturing, repair, accessories, roadway and infrastructure development, etc. Large-scale deployment of public transit systems likewise triggers supporting local industries -- retail and restaurant near transit centers, construction and infrastructure work, etc. While the shift away from automobile reliance implies negative impacts for the automobile-related business cluster (retail, repair, fueling, etc), the shift toward alternative transit implies positive impacts for the emergence of whole new classes and clusters of local green economic activity and growth.

¹¹ Oakland averages 64 days per year with more than 0.01 inches of precipitation. Temperatures in January and July average 45 and 72 degrees, respectively.
<http://realestate.yahoo.com/California/Oakland/neighborhoods>

¹² A cluster is a geographic concentration of firms in related industries that do business with each other, from companies that supply the raw materials and support services, to those that sell finished products or services to the consumer inside or outside the region.

Implement the Pedestrian and Bicycle Master Plans

The Land Use and Transportation Element of the Oakland General Plan includes both Pedestrian and Bicycle Master Plans. We recommend that Oakland fully implement the recently updated Bicycle Master Plan and begin the update process for the Pedestrian Master Plan.

Oakland's first Bicycle Master Plan (BMP) was adopted in 1999, and the updated plan with substantive revisions was adopted in December 2007.¹³ The updated plan focuses on infrastructure improvements, such as additional bike lanes, signage, and parking. One of the goals is to address bicycle safety and access in the design and maintenance of all streets. The bike plan also calls for increased bike access to BART during commute hours at 12th and 19th Street stations, as well as increasing bike parking near BART stations. BART has a pending project to install electronic bike lockers at the Lake Merritt, MacArthur, Rockridge, and West Oakland stations.

By adopting the BMP, Oakland is obliged to consider bicycle transportation as a viable and necessary means of transportation and consequently, and to facilitate bicycle use through its decisions involving land use and the street and infrastructure improvements. It is crucial that all agencies within the City (particularly the Public Works Agency and the Community Economic Development Agency) contribute to implementing the Bicycle Master Plan. There is also a significant need for more education and enforcement, especially as the cycling population grows. (*Greater detail and recommendations are cited in the Appendix*)

Develop and implement Public Transit Master Plan

Just as the City of Oakland has Bicycle and Pedestrian Master Plans, Oakland also needs a citywide, long-range policy document for promoting public transit in Oakland over the next several decades. Such a plan would be included in the Land Use and Transportation Element (LUTE) as an amendment to the Oakland General Plan. We recommend that Council set a target completion date of December 2008 for a Public Transit Master Plan and to give staff a mandate to implement the plan over the next decade.

Improving public transit would support the City's efforts to become more environmentally, economically, and socially sustainable. A substantial increase in ridership would make Oakland much more resilient in the event of escalating oil prices and oil price shocks. The Public Transit Master Plan would identify aggressive and realistic goals for increasing public transit. This Master Plan should address route coverage, access, social equity, and safety. Oakland's Public Transit Master Plan should have the following objectives:

1. Infrastructure—Develop the physical infrastructure for a comprehensive transit network that improves access and use throughout Oakland, supports the urban village model, and connects Oakland to neighboring cities.
2. Outreach—Improve the use of transit through encouragement, education, and community outreach.
3. Coordination—Develop procedures to coordinate Oakland transit efforts with regional transit agencies, such as the Metropolitan Transportation Commission (MTC), AC Transit, Bay Area Rapid Transit (BART), and the California High Speed Rail Authority.

¹³ See City of Oakland's bicycle and pedestrian information at: <http://www.oaklandpw.com/page123.aspx>

A Public Transit Master Plan for Oakland should investigate and strongly consider the development of a citywide streetcar system, shuttles, and ways to make public transport in Oakland more attractive and more accessible for lower income residents.

Oakland should do a thorough investigation of options for creating a comprehensive, intermodal public transit infrastructure that provides sufficient options and access to citizens for commute, recreational, and utilitarian trips. The current BART-AC transit system, while useful, leaves significant gaps in coverage and timing. This work would begin with an evaluation of the current public transit infrastructure and identification of gaps or poorly served areas, consideration of projected demographic changes in the next several decades and the plans of regional transportation agencies as well as the Bicycle and Pedestrian Master Plans (see the section on Coordination below).

We strongly recommend that Oakland work with AC Transit, public transit entrepreneurs, and the public to investigate the development of a municipal streetcar system or if sufficient interest exists, an East Bay streetcar system. AC Transit's plans for dedicated Bus Rapid Transit (BRT) lanes could possibly be a first step towards streetcars. To the extent such a streetcar system for Oakland is electrified or could be electrified in the future with relative ease, it would make Oakland much less vulnerable to oil shortages and price shocks, and thereby more resilient. It is our understanding that AC Transit's current plans do not include a streetcar system in Oakland. AC transit did, however, consider an Oakland-Berkeley streetcar system in the early 1990s and whatever plans and materials that were developed may prove useful to this effort. In its investigation, Oakland should also evaluate whether the alignment of the former Key Route System that provided mass transit in Oakland, Berkeley, Emeryville, Piedmont, San Leandro, Richmond, Albany and El Cerrito from 1903 until 1958, (*See Appendix for a brief history of the Key Route System*) could guide feasible transit alignments to support the urban village transition.

Though the demise of the Key Route system is an unfortunate chapter in history, the good news is that the development of many of Oakland's neighborhoods was driven by the Key Route system, and the street alignment is in many cases the same as when the system functioned. Thus bringing a functional equivalent of the system back into use may be assisted by the existing land use patterns that grew up around the system.

The Public Transit Master Plan should consider options for Universal Transit Access (UTA) in Oakland, which would include programs to give free or discounted transit passes for city employees, as well as low income residents. Oakland should adopt a policy, such as the one adopted by Berkeley, to work with large employers, schools, and the development community to increase public transit ridership through a free "eco-pass" program. Berkeley's Policy T-3 of the Transportation Element of Berkeley's General Plan program (*see Appendix for details*) would include the following:

- free transit passes to city employees,
- required participation by new businesses with over 50 employees,
- consideration of a citywide transit pass for citizens to be funded by a tax

For any new transit, Oakland should also consider the possibility of a "zero-fare" system. Such a system could be funded by national, regional or local government through taxation or by commercial sponsorship instead of the collection box. While several mid-size European cities and many smaller towns around the world have converted their entire bus networks to zero-fare, free, short-range shuttles (such as Emeryville's Emery Go-Round) and inner-city loops are much more common. In addition to the ideas above, Oakland should consider zero-fare shuttles to improve transit coverage (and reduce parking needs).

Another way to encourage workers to use public transport is to offer incentives. City of Pleasanton employees receive \$2 per day if they take BART, Altamont Commuter Express, carpool, and bike or walk to and from work. The city also offers a public transit subsidy and prizes for people who use alternative forms of transportation.

Set up processes and outreach to collaborate with regional transportation agencies

The Task Force convened a Land Use and Transportation Charrette September 14, 2007. One of the major findings of the charrette was that regional transportation agencies and ABAG have not received much input from Oakland on transportation and related matters. Unfortunately, Oakland has not applied for funds that could have been designated for improving local transit. The City of Oakland should put serious effort into collaborating with regional transportation agencies such as MTC and neighboring cities to enhance and expand public transit. Berkeley and Alameda both have staff to do this type of coordination. Alameda has a transportation board composed of two representatives from AC transit and two city councilors. While Oakland need not form a board, Oakland should consider assigning such responsibility to staff as appropriate. There are a number of relevant initiatives in the East Bay that deserve close attention from the City, including AC Transit's Bus Rapid Transit (BRT) proposal, BART's transit village developments, MTC's 511.org program, and the California High Speed Rail Proposal. *(See Appendix for the agenda of the charrette and areas of collaboration identified in the charrette)*

The City could also act in an advocacy or coordination role with BART, AC Transit, CALTRANS or others regarding the State's Proposition 1 Bond, to encourage that funds be used for efficient transit rather than sprawl. The proposed "Fourth Bore" of the Caldecott tunnel is a particularly egregious example of dedicating large amounts of public money to projects that will encourage petroleum use rather than petroleum independence.

Encourage transportation sharing

- Continue expanding staff car sharing and car sharing overall. Use car share services in lieu of city vehicles.
- Support dynamic ride sharing with online, telephone, and mobile phone access
- Expand carpooling – incentives, adding online and telephone support infrastructure, organization and coordination.
- Bike sharing
- Encourage community/neighborhood car sharing

The City of Oakland should encourage sharing of cars, rides, and even bikes. Oakland is encouraging employees to use car sharing services. The city conducted a pilot program with City CarShare beginning in the fall of 2006 and is proceeding with a roll out of the program. Officials and staff managers should encourage more employees to use the program and consider following Berkeley's lead with respect to expanding the focus of the program beyond municipal operations.

The City of Berkeley's Measure G implementation program is considering a goal of Universal Car Sharing such that car share vehicles are accessible to citizens throughout the city with the possible exception of the Berkeley Hills.¹⁴ As a first step, they are working with car share companies (e.g., City CarShare, FlexCar, and ZipCar) to increase the number of car share vehicles in Berkeley. In exchange for putting car share vehicles in less heavily trafficked areas, the City of Berkeley is dedicating some parking spots normally reserved for

¹⁴ Climate Action Plan, The City of Berkeley, January 2008.

municipal vehicles, to car share vehicles in high traffic areas. That city is also encouraging city employees to use car share vehicles for city business and has accounts for this purpose with car share companies. The City of Vancouver has also encouraged car sharing by providing car-sharing vehicles with flexible parking passes that allow them to park in permit-only residential zones throughout the city.¹⁵

While Oakland goes through the longer term process of improving public transit and shifting development to urban villages, it should encourage and collaborate with efforts to increase car pooling and dynamic ride sharing in the region. Carpooling is the shared use of a car for commuting to work, often by people who each have a car but travel together to save costs and/or other socio-environmental benefits.

Oakland could help increase rates of carpooling by offering incentives for workers to carpool. In May 2006, MTC started a \$50,000 incentive program that gave new carpoolers as much as \$100 for gas or groceries. As noted above, the City of Pleasanton offers employees a \$2 per day bump in their paycheck if they carpool.

“Casual car pools” are informal car pools that form when drivers and passengers meet at designated locations. There are a number of East Bay pickup locations. Drivers drop passengers off in downtown San Francisco. Casual car pools are quick and convenient. They are quick because in the morning car pools are able to bypass the long delays at the Bay Bridge toll plaza. Casual car pools are convenient because no pre-arrangement or fixed schedule is necessary. Car pools also do not pay tolls on either the Bay Bridge or the Carquinez Bridge during commute hours. Casual car pool sites for rides to downtown San Francisco have been in existence in the East Bay for more than 20 years.¹⁶

It is anticipated such efforts may to some extent undermine public transit by making it less expensive to drive. We anticipate, however, the net benefit will be positive with respect to reduction of oil consumption, and the recommended improvements in public transit will have much greater impact on public transit usage than increased car pooling and ride sharing.

An even better option for City workers than carpooling, both from an oil reduction and health standpoint would be to increase the use of bicycles, both for commuting and short work-related trips. Once it finishes the implementation of the Bicycle Master Plan, Oakland should consider a City-wide bike sharing plan like the one implemented in Paris and currently being considered in Washington DC and San Francisco. To help people access and use bicycles, Oakland could use a bicycle rental business, perhaps one that serves the Bay Trail and the new improvements around Lake Merritt. As a step toward bike sharing, Oakland may be ready for a “bike pool,” parallel to the City’s car pool, that would encourage employees to use bicycles for city business (where practical).

As a longer-term goal, the City of Oakland should explore the feasibility of community or neighborhood car sharing. In such an arrangement, a neighborhood or building could share a single vehicle or small fleet of vehicles in lieu of private vehicle ownership. This would reduce the regular expenses associated with car ownership. This type of arrangement could be included in the development of new residences in order to discourage private vehicle ownership. San Francisco requires dedicated car share parking stalls for all new residential projects with 50 or more units. (*See Appendix for relevant San Francisco Planning Code*)

15 Vancouver Transportation Plan Progress Report, 2006 at: <http://www.city.vancouver.bc.ca/ctyclerk/cclerk/20060530/documents/rr1a.pdf>

16 More information is available at: <http://www.ridenow.org/carpool/>

Promote less oil-intensive transport

- Driver education on vehicle maintenance to improve vehicle efficiency
- Enforce existing traffic laws (e.g., speed limits)
- Enforce anti-idling laws
- City Electric Vehicle procurement and leasing
- Plug-in hybrid purchase and infrastructure development
- Promote alternative fuels and electrified personal transport
- Encourage telecommuting

While the City of Oakland does not have regulatory authority over the efficiency of vehicles, there are a number of steps that the City can take to promote less oil-intensive vehicle choices and use. These range from driver education to enforcement of existing laws to programs to encourage the purchase and use of clean vehicles and fuels. (See *Appendix regarding private consumer choices*)

Proper vehicle maintenance can have a significant effect on vehicle efficiency. Improper tire inflation increases a tire's rolling resistance and, therefore, reduces a vehicle's efficiency.¹⁷ Vehicle mileage can be reduced up to 0.4% for every 1 psi reduction in tire inflation (on all four tires). Keeping a vehicle's engine properly tuned and replacing air filters can provide even larger fuel economy benefits.¹⁸ A public education program can help to encourage vehicle owners to properly maintain a vehicle, as well as provide some guidance as to whether to keep an existing car or buy a new one, and if the later, what to buy. (See *the "Consumer Vehicle Choices" section of the Appendix*)

The City can also reduce transportation oil use by enforcing existing laws. These include speed limits and anti-idling regulations. Vehicle fuel economy declines rapidly at speeds over 60 miles per hour, therefore, a focus on enforcement of the speed limit on the City's major streets and highways could result in an improvement in fuel economy.¹⁹ Five to fifteen percent of a vehicle's CO₂ emissions, which correlate directly with fuel consumption, occur at idle.²⁰ The California Air Resources Board has anti-idling regulations for heavy duty diesel vehicles and for commercial vehicles near school yards.²¹ They also have a MOU with railroads that includes an idling-reduction agreement for locomotives.²²

Finally, the City can provide incentives and services to support greater use of electrified forms of transport. This includes vehicle choice in City vehicle procurement programs (see Chapter 4) as well as development of infrastructure to support electric vehicles. An effort by the City to develop vehicle charging sites, for example, will require integration into future development plans as well as coordination with Pacific Gas and Electric. The City could also provide incentives (such as preferred parking or financial) to citizens for electric vehicles and when they are commercially available, plug-in electric vehicles.

We also recommend that the City consider judicious support of increased use of alternative fuels. We would like to make a cautionary note regarding biofuels. It is crucial to evaluate biofuels in light of the conflicting evidence on the energy benefits of biofuels as well as

17 NAS, 2007, *Tire and Passenger Vehicle Fuel Economy: Informing Consumers, Improving Performance*, Washington DC: National Academy Press.

18 <http://www.fueleconomy.gov/feg/maintain.shtml>

19 <http://www.fueleconomy.gov/feg/driveHabits.shtml>

20 An, F., D. Friedman, and M. Ross. 2002. Near-Term Fuel Economy Potential for Light-Duty Trucks. Warrendale, PA: Society of Automotive Engineers, 2002-01-1900. June.

21 <http://www.arb.ca.gov/toxics/sbidling/sbidling.htm>

22 <http://www.arb.ca.gov/html/fslist.htm>

the increasing amount of information emerging on the use of food crops or their land base for fuel production. In addition, the environmental and ecological damage that can result from biofuel crop production poses significant concerns. The Transportation Sustainability Research Center at UC Berkeley is good resource to evaluate these issues and has provided a grading system.²³ Therefore, we encourage the City to only consider biofuels derived from reclaimed waste oil (i.e., biodiesel) rather than crops cultivated exclusively for fuel.

Travel to work accounts for roughly one third of travel trips in Oakland.²⁴ Encouraging telecommuting could reduce this share of transportation trips. Telecommuting is a work arrangement in which employees have flexibility in working location and hours such the daily commute is replaced by telecommunication links. According to the US Census Bureau's American Community Survey 2003, the average commute time of Oakland workers (not working at home) is 26 minutes, the 13th highest in the United States.²⁵ The same survey shows that 55% of Oaklanders drive alone to work – of the cities in California with populations greater than 150,000, only San Francisco and Berkeley had lower rates. To the extent that telecommuting replaced drive alone trips, telecommuting could substantially reduce “oil intensive” trips. Oakland should offer telecommuting to City employees a feasible and encourage large employers to follow suit.

23 A Low-Carbon Fuel Standard for California Part 2: Policy Analysis, UC Berkeley Transportation Sustainability Research Center, Paper UCB-ITS-TSRC-RR-2007-3, 2007.

24 <http://www.bayareacensus.ca.gov/cities/Oakland.htm>

25 <http://www.census.gov/acs/www/Products/Ranking/2003/R04T160.htm>



LEAD
THE WAY

CHAPTER 2

Regional and City Initiatives

SUMMARY OF TASK FORCE RECOMMENDATIONS

Create an Oil and Energy Team

Expand on public education campaigns

Prepare contingency plans

Create green collar jobs

Support local clean energy generation

Implement Community Choice Aggregation

Develop a comprehensive financing program

Move towards a model city fleet

Synopsis

This Chapter focuses on initiatives the City can undertake on its own that will facilitate implementation of the recommendations included in this report and on initiatives that go beyond the scope of the City. For the latter, the Task Force recommends that the City take a leadership role in supporting a number of programs that will lead to oil independence. This will require coordination with other cities and with regional and state agencies.

Create an Oil and Energy Team

Oakland needs to create an Oil and Energy Team whose mandate is to work with staff to get Oakland on the path for meeting the annual 3% oil consumption reduction over the next couple decades.

Just as Berkeley has dedicated staff for their Measure G Climate Protection program, Oakland needs at least a two to three-person team with a strong mandate to realistically have a chance to reach Oakland's goal of oil independence by 2020. Ideally, this team would be in or report to the Mayor's office. The team could be composed of dedicated staff, department heads or liaisons, and/or consultants. Funding could be made available through the Bay Area Air Quality Management District's Climate Protection Grants, and state and federal energy grants, or donations from organizations and private individuals interested in peak oil and oil independence.

The first order of business for the team would be to develop a 3–5 year strategic plan that lays out a strategy for meeting annual oil consumption targets, detailed descriptions of key initiatives, outreach and funding needs, and an implementation timeline. Ideally, the team would develop a "silver sequence" of initiatives that includes some that can start immediately and others that require additional time or funds. The team would oversee and to the extent appropriate manage Oakland's oil independence and carbon emissions reduction activities. Similar to Berkeley's Measure G staff, the Oakland team would explore various options for funding oil independence initiatives including grants, selling local carbon offsets, taxes and fees.

Perhaps one of the more important tasks of the team would be to establish an information system to monitor and model the City's oil and energy consumption. The system would be able to evaluate whether Oakland is meeting its oil consumption reduction targets.

Expand on public education campaigns

Oakland needs to embark on a comprehensive and effective public awareness, education, and outreach campaign for residents, businesses, large employers, and City staff that conveys a sense of urgency.

It is urgent that Oakland begin weaning itself from oil now. This endeavor will require the City of Oakland, its citizens, and organizations to change how they use energy. To meet its energy independence goals the City will need to develop an outreach and education campaign. This campaign should be managed by the Oil and Energy Team and include collaboration with all City agencies. (*Greater detail on the education campaign is in the Appendix*)

Prepare contingency plans

The Task Force found that the City should require contingency planning by new development, municipal and regional agencies, and large employers within the City. Oakland's municipal contingency plan should address a seven-day fuel outage as well as a slow creep in prices.

Oakland should prepare for fuel emergencies since it is very likely that the availability of fuel will become severely constrained. This will lead to increasing volatility of fuel prices. Since transportation fuels are so fundamental to Oakland's economic well being the City should be preparing contingency plans to ease the turmoil caused by either dramatic fuel price rises or by constrained fuel availability.

Given the tightening global market for petroleum based fuels several scenarios for a fuel emergency are quite plausible. One would be a continued climb in fuel prices to the point that economic activity is severely hampered. The other possibility is a relatively short outage that requires Oakland to operate on existing stocks of fuel. Such a shortage is entirely plausible from damage to the already stretched fuel supply system, whether human-caused (for example, a terrorist action at a key oil transportation facility) or natural (for example a large hurricane severely damaging the petroleum infrastructure in the Gulf of Mexico). Another plausible scenario would be some sort of economic dislocation that results in petroleum not being available at expected prices.

Among the top priorities should be securing fuel for such essential city services as policing and fire protection. If the emergency is longer term assuring fuel availability for other vital services (health, food supply, water supply, sanitation, education, etc) will become necessary. A reliable non-automobile based transportation system will be important as well. Securing reliable operation of these other vital systems will require coordination with other local cities and regional agencies.

Oakland has made preparations to respond to other emergencies such as earthquakes, hill fires, and pandemics. The strategies used for these preparations can be used as analogies to start making preparations for fuel shortage emergencies. The key idea is to have plans in place before an emergency occurs. This means preparing for actions that would not be done during normal times, but that will make dealing with a fuel emergency less traumatic. As well as preparing for action, clearly defined triggers should be identified ahead of time that would start these actions. These trigger points should be obvious events which clearly point to the need of action out of the normal. One that is easy to explain and may make sense is that rationing starts when the average price of a gallon of gasoline sold in Oakland exceeds the hourly minimum wage in Oakland, though this probably is too high to be considered a first level trigger. As part of these preparations, there should be a strategy to educate the public and raise awareness of at least the general outline of the plan of action.

We are obviously not presenting these ideas as complete or even the correct way to respond to fuel emergencies. Rather we are presenting the following ideas to encourage the City Council and Mayor to direct City staff to begin preparing the plans. Among the actions that may be appropriate are for the essential City services to create fuel stockpiles and to prepare plans for rationing of fuel to assure adequate supplies for vital systems.

Green collar jobs

Support policy decisions that encourage renewable energy development as a means to increase high quality jobs available to Oakland residents.

As compared to traditional fossil fuels, the renewable energy sector is relatively labor-intensive, requiring a larger number and wider variety of jobs in areas ranging from manufacturing, construction, and installation to ongoing operation and maintenance.

According to an analysis of 13 independent reports and studies of the clean energy industry by UC Berkeley's Renewable and Appropriate Energy Laboratory (RAEL), renewable energy technologies create more jobs per average megawatt (MW) of power generated, and per dollar invested in construction, manufacturing, and installation when compared to coal or natural gas. Over the course of a 10-year period the solar industry creates 5.65 jobs per million dollars in investment, the wind energy industry 5.7 jobs, and the coal industry only 3.96.²⁶ In the case of coal mining, wind and solar energy generate 40 percent more jobs per dollar invested.²⁷

Studies at the state level also confirm the comparative job creation advantages of renewable energy systems. A Union of Concerned Scientists analysis conducted for the state of Wisconsin found that an 800 MW mix of new renewables would create about 22,000 more job-years than would new natural gas and coal plants over a 30-year period.²⁸ A New York State Energy Office study concluded that wind energy would create 27% more jobs than coal and 66% more than a natural gas plant per kilowatt-hour generated.²⁹ In addition, a study by Economic Research Associates of energy efficiency and renewable energy as an economic development strategy in Colorado found an energy bill savings of \$1.2 billion for Colorado ratepayers by 2010 with a net gain of 8,400 jobs. The study also assessed nine other states and reached similar conclusions.³⁰

In 2001, the California Energy Commission's Public Interest Energy Research program sponsored a study from the Electric Power Research Institute (EPRI) that included job creation estimates from renewable energy development based on existing and planned projects in California. These include a construction employment rate ranging from 2.57 jobs/MW for wind to 7.14 jobs/MW for solar photovoltaic (PV) systems, and an operating employment rate ranging from 0.12 jobs/MW for PV to 2.28 jobs/MW for landfill digester gas.³¹

From a national perspective, several studies indicate that hundreds of thousands, if not millions of jobs could be created, depending on the aggressiveness of the public policy approach. The California-based think tank Redefining Progress estimates that clean

26 Daniel Kammen, Kamal Kapadia, and Matthias Fripp, "Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Create?" UC Berkeley: Renewable and Appropriate Energy Laboratory (RAEL), April 2004 (updated January 2006), 12, <http://rael.berkeley.edu/files/2004/Kammen-Renewable-Jobs-2004.pdf>

27 Virinder Singh, BBC Research and Consulting, and Jeffrey Fehrs, "The Work That Goes into Renewable Energy," Renewable Energy Policy Project, November 2001, 8.

28 Michael Brower, Michael Tennis, and Eric Denzler, *Powering the Midwest*, Union of Concerned Scientists, 1993, 107-108.

29 A.K. Sanghi, *Economic Impacts of Electricity Supply Options*, New York State Energy Office, July 1992.

30 Skip Laitner and Marshall Goldberg, *Energy Efficiency and Renewable Energy Technologies as an Economic Development Strategy*, April 1996, <http://solstice.crest.org/renewables/era/index.html>

31 Brad Heavner and Bernadette Del Chiaro, *Renewable Energy and Jobs*, Environment California Research and Policy Center, 2003, http://www.environmentcalifornia.org/uploads/OW/aa/OWaa2RaedlfHwQOWbxKd5w/Renewable_Energy_and_Jobs.pdf

energy can produce 652,000 U.S. jobs in 10 years, and 1.4 million by 2025, reducing unemployment rates by 14%.³² Its job-growth figures depends on a plan that would increase renewable energy generation in the US by 1% per year through 2025 as well as doubling federal research and development dollars to leverage private investment to boost energy efficiency programs and clean transportation projects. A recent study by the Union of Concerned Scientists³³ also agreed closely with the RAEL study³⁴ by concluding that if the United States adopted a 20% Renewable Portfolio Standard for its electrical utilities, over 185,000 jobs could be created by the year 2020.

If U.S. policymakers aggressively commit to programs that support the sustained development of renewable energy and energy efficiency programs, the news gets even better. According to research by the American Solar Energy Society (ASES) and Management Information Services, Inc. (MISI), aggressive development of the renewable energy and energy efficiency industries could generate up to \$4.5 trillion in revenue and create 40 million new jobs by the year 2030.³⁵

New green jobs: the outlook for 2030

Projected number of jobs in U.S. renewable energy and energy efficiency industries in 2030

	Base Case Scenario	Moderate Scenario	Advanced Scenario
Renewable energy	1,305,000	3,138,000	7,918,000
Energy efficiency	14,953,000	17,825,000	32,185,000
Total number of jobs	16,258,000	20,963,000	40,103,000

Source: Union of Concerned Scientists ⁴

The table above outlines three different scenarios for projected job creation in the renewable energy and energy efficiency sectors. The base case is essentially a “business as usual” scenario, which assumes no change in policy and no major renewable energy or efficiency initiatives over next 23 years. The moderate scenario assumes that various moderate, incremental (above the base case) federal and state initiatives are put in place during next two decades. The advanced scenario “pushes the envelope.” It indicates what is possible using current or impending technologies and includes what may be feasible both economically and technologically.

32 J. Andrew Hoerner and James Barrett, *Smarter, Cleaner, Stronger: Secure Jobs, A Clean Environment, and Less Foreign Oil*, Redefining Progress, September 2004, 2-4, http://www.rprogress.org/publications/2004/SmartCleanStrong_National.pdf

33 Union of Concerned Scientists, *Cashing In on Clean Energy*, 2007, http://www.ucsusa.org/clean_energy/clean_energy_policies/cashing-in.html

34 Kammen, Kapadia, and Fripp, 2.

35 Roger Bezdek, *Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century*, American Solar Energy Society (ASES) and Management Information Services, Inc. (MISI), 2007, iv, <http://ases.org/ASES-JobsReport-Final.pdf>

This growing body of evidence indicates that renewable energy technologies and investments in energy efficiency hold tremendous job creation potential. Clean energy development not only helps to mitigate the twin challenges of climate change and fossil fuels dependency, it holds great promise in addressing the pressing need for high-quality jobs with pathways to sustainable careers for Americans who have yet to benefit from the burgeoning green economy.

Support local clean energy generation

In order to develop local clean energy, Oakland should provide incentives for energy renovations and solar installations, formally adopt a renewable energy goal of 50% by 2017, and work with local outreach organizations to create community partnerships and educate the public on the benefits of renewable energy.

Renewable energy is the polar opposite to oil and natural gas dependence. Greater reliance on renewable energy will make for a more resilient Oakland by reducing vulnerability to oil and natural gas price shocks and shortages, while decreasing Oakland's contribution to climate change. A centerpiece of Oakland's Sustainability Program is the promotion of renewable energy with a particular emphasis on solar. At the direction of Council, Public Works Agency staff is analyzing the opportunities and risks associated with reaching 50% renewable energy in Oakland by 2017.³⁶ Providing that the business case is viable, we recommend that council formally adopt a renewable energy goal of 50% by 2017.

More specific data and information on local clean energy can be found in the Appendix.

Implement Community Choice Aggregation in Oakland

This Task Force recommends that Oakland fully commit to the co-development of a Joint Powers Agreement (JPA) with Berkeley and Emeryville to use Community Choice Aggregation (CCA) as a means to generate clean local power and green jobs in the East Bay Area. CCA is an opportunity for Oakland to take a leadership role and truly become a model city for local renewable energy and green jobs and oil independence. *(See Appendix for further discussion of the specific points of an Oakland-enabled JPA)*

The publicly available information regarding community choice aggregation is derived from a May 25, 2005 Base Case Feasibility Report developed by Navigant Consulting, Inc. for the Oakland City Council.³⁷ It found that by aggregating Oakland's electric load, the use of renewable energy in Oakland could increase to 50% by 2017, more than doubling the renewable energy content that PG&E would provide during the same time period. In the base case, Oakland's CCA program would contract energy from a diverse portfolio of resources designed to achieve the City's 50% renewable energy objective. This early feasibility analysis found that a mature CCA program could save Oakland \$12.5 million annually (or approximately 4% of total customer electricity costs), thereby reducing rates for Oakland ratepayers, or generating income for the City, or a combination of both.³⁸

During the California Energy Crisis of 2000-2001, communities tied to investor owned utilities like PG&E experienced rolling blackouts and steep price spikes. Communities

36 <http://www.oaklandpw.com/Page779.aspx#CCA>

37 Updated Pro Forma for the Formation of a Community Choice, Navigant Consulting Inc., April 2006.

38 Cost savings will be less in the first year and are expected to evolve towards the estimated values as the CCA ramps up its sourcing of renewable energy over the next decade. While the community may be hoping to receive the bulk of the savings, it may be prudent to place some or all of the savings in the first several years in a rainy day fund.

with public power like Alameda and Palo Alto did not experience extreme price spikes or blackouts. As a hedge against future electricity price shocks and disruptions, Oakland should encourage local solar production. In the wake of the crisis, the California legislature passed AB117 to enable communities to reclaim control of their energy systems and insulate themselves against future energy crises. Community Choice Aggregation, as defined by AB 117, permits any city, county or city and county to aggregate the electric loads of residents, businesses and municipal facilities to facilitate the purchase and sale of electrical energy. *(See Appendix for detailed explanation of Community Choice Aggregation)*

The City of San Francisco, Marin County, the San Joaquin Power Authority and a number of other jurisdictions in Edison and Sempra service territories are already moving ahead to implement their own CCA programs.

Employment Implications of Community Choice Aggregation

Proposals for an East Bay CCA currently include deriving a large percentage of power generation from wind farms in Southern California (in the Tehachapis). This Task Force urges any East Bay CCA implementation to support local job creation as much as possible by deriving the greatest possible share of power generation from local renewable energy sources, especially solar photovoltaics. Local solar would generally be more expensive than wind generation from the Tehachapis, so we cannot recommend eliminating the “Tehachapis” option altogether. However, we urge Oakland City Council to place a bias on local solar as much as possible.

Develop a comprehensive taxation program for all fossil fuel energy sources through a set of regional and municipal initiatives

An opportunity exists for Oakland to play a leadership role in developing a carbon tax that includes transport fuels. Carbon taxes are now getting attention as a policy mechanism for reducing CO2 emissions on the national, state, and local levels. In 2006, Boulder Colorado became the first municipality to impose a carbon tax with the 60% passage of the Climate Action Plan tax. San Francisco recently proposed a carbon tax. Neither cover transport fuels. *(Examples of some types of carbon tax programs are in the Appendix)*

Taxing fossil fuel use would lead to behavior changes; people and organizations use price signals to make decisions and develop daily routines. Higher gasoline prices reduce driving. Higher prices for fossil fuel generated electricity would decrease its use and increase the development of green energy. Since the proposed tax is regressive, there would need to be an affordability component. For fees associated with home gas/electricity use, the tax could exempt those with lifeline gas/electric service. For vehicle fees, revenues generated should go towards projects that improve public transit overall and with a focus on communities which have relatively poor alternatives to driving.

Oakland should put together a comprehensive taxation program for all fossil fuel energy sources through a set of regional and municipal initiatives. The taxes could be based on either CO2 emissions or energy content and would address the consumption of gasoline, oil, natural gas, and fossil fuel-fired electricity by residential, commercial, and industrial customers. On a municipal fossil fuel electricity and natural gas tax, Oakland should collaborate with PG&E and the Bay Area Air Quality Management District to get

the legislative authority to assess the tax. MTC and the Bay Area Air Quality Management District are likely to collaborate on getting legislative approval for a 10-cent climate impact fee on gasoline with the revenues hopefully funding a series of programs that help reduce transportation contributions to climate change.³⁹ Oakland should support this initiative.

In the event that this effort does not come to fruition, Oakland could work with the Transport and Land Use Coalition, the Metropolitan Transportation Commission, the Bay Area Air Quality Management District, the City of Berkeley, and other interested municipalities on a regional gas tax; a regional fee would be more effective than a local tax as people already drive out of their way for cheaper gas.

Move towards a model City fleet

- Reduce the size of the City fleet through partnerships with car sharing groups
- Increase biodiesel use in City diesel vehicles
- Require best in class purchases, with priority given to electric and plug-in hybrid electric vehicles as appropriate
- Reduce or eliminate City-subsidized vehicles and parking for city employees
- Serve as a test bed for the demonstration of testing of new vehicle technologies

One element of Oakland's transportation footprint that the City has direct control over is its own vehicle fleet. The City currently maintains a fleet of just over 1700 vehicles. Of these, 45% are cars, 20% are light trucks and vans, and 15% are heavy trucks and construction equipment. The City's fleet vehicles are driven approximately 8.8 million miles per year.⁴⁰

The City has launched a pilot program with City CarShare. The program has just over 30 employees currently enrolled and the City expects that this will increase as the size of the fleet is reduced through the removal of underutilized fleet vehicles.⁴¹ We encourage the City to explore options to expand this program further as discussed in item #3.

The City could reduce oil usage in its heavy trucks and construction equipment through increased use of biodiesel. Oakland anticipates using B5, some time in the future but has no solid plan because of costs associated with preparing vehicles and fueling sites. We encourage the City to utilize biodiesel from reclaimed waste oil for this use, as discussed. In addition, we encourage the City to give preference to using biodiesel that is locally produced. The city of Berkeley successfully completed a conversion of their diesel fleet vehicles to 100% biodiesel in 2003 but subsequently started using low sulfur diesel to mitigate problems identified in 2005.⁴² Berkeley is now using B20 (20% biodiesel) for its fleet and its recycling program is considering moving to a higher percentage of biodiesel in the future.⁴³ Oakland should consult with Berkeley staff to identify best practices and a target biodiesel percentage for the City diesel fleet.

When the City is purchasing new fleet vehicles, the City should employ a best in class fuel economy rule, where feasible. While plug-in hybrids are not yet here, they will be available in the next several years. There is significant variation in the fuel economies of vehicles available in each class. For example, the highway fuel economy rating for a midsize car

39 http://findarticles.com/p/articles/mi_qn4176/is_20071107/ai_n21086874

40 Data from memo from Public Works Agency to the Office of the City Administrator, "Report and Action on Fleet Usage, City CarShare Pilot Program, Commute options, Vehicle Locators Using Satellite Technology, and Fleet Replacement Needs, November 13, 2007.

41 Ibid

42 <http://www.ci.berkeley.ca.us/news/2003/06jun/061903biodieselconversion.html>

43 Conversation with the Executive Director of the Ecology Center, Martin Bourke, January 2008.

ranges from 33 miles per gallon down to 16 miles per gallon (excluding hybrids). The range for SUVs is from 28 miles per gallon down to 13 miles per gallon (excluding hybrids).⁴⁴ Using best in class purchasing rules could reduce fuel use significantly and save the City money.

The City provides subsidized parking and vehicles for a number of City employees. The City should examine the necessity of this perk and explore the feasibility of subsidizing transit usage by these employees where possible and making vehicles available either through the City's fleet or through a car share program.

In the longer term, the City of Oakland should be looking beyond efficient petroleum-based vehicles to vehicles that run on electricity and other alternative fuels. The City's fleet is an excellent opportunity to test new vehicle technologies in under real-world conditions. The City should seek opportunities with vehicle manufacturers to acquire and test demonstration vehicles. This could include electric vehicles and, even, hydrogen fuel cell vehicles. A number of manufacturers have worked with cities and private organizations to develop these partnerships. This type of arrangement can provide the City with an opportunity to identify long-term vehicle acquisition goals that will result in a more sustainable fleet.

44 Data from EPA at: <http://www.fueleconomy.gov>



BUY
SMART

CHAPTER 3

Food and Materials

SUMMARY OF TASK FORCE RECOMMENDATIONS

Develop a localization strategy that includes food, energy and vital goods

Maximize local production of food

Promote forms of agriculture that rely on fewer fossil-fuel inputs, by encouraging the school district, private schools, and government programs purchase local organic food

Change consumption patterns in order to use fewer plastics and chemicals

Purchase products without petroleum content, preferably those where food crops are not the petroleum substitute

Reduce consumption overall (buy goods with less packaging, encourage employees and citizens to carry reusable bags)

Explore alternatives for road paving materials

Synopsis

Since the close of World War II our global economic system has evolved into a highly amplified version of David Ricardo's model of specialization and comparative advantage, which mandates that a given economy should focus on producing what it does the best and trade for all other goods and services.⁴⁵ While liberalized trade has certainly expanded markets, helped weed out inefficient operations, and kept prices of many consumer goods low, it has come at a steep cost. The rusty shells of once prosperous manufacturing plants illustrate a loss of economic diversity, declining real wages and working conditions, increasing inequality, offshoring of environmental degradation and a concentration of financial capital and economic decision-making in global corporations whose wealth dwarfs the gross national product of entire countries. Moreover, the increased trade inherent in such a specialized global economy assumes low transportation costs – an assumption that leaves us highly vulnerable to the rising price of oil and while fueling increasingly dramatic climate change.⁴⁶

Over the past two decades, a burgeoning global movement of policy-makers, non-governmental organizations, businesses leaders, and concerned citizens has been advancing a new paradigm of economic development based on economic localization – restoring the capacity of communities to sustainably feed, clothe, house, and power themselves with the know-how, natural resources, and financial capital inherent to their own bioregions and the people who reside there. Economic localization holds great promise as a strategy for creating a wider range of local green jobs & institutions, stabilizing our economy from global shifts, increasing the diversity and quality of goods and services we consume, distributing economic benefits in a more equitable manner, and protecting our environment.⁴⁷

Economic localization is the process by which a region, county, city, or even neighborhood frees itself from an over-dependence on the global economy and invests in its own resources to produce a significant portion of the goods, services, food, and energy it consumes from its local endowment of financial, natural, and human capital. Economic localization is achieved in three dimensions: (a) localization of goods and services; (b) localization of economic decision-making, and (c) localization of the urban landscape.⁴⁸

Economic localization brings production of goods and services closer to their point of consumption, reducing the need to rely on long supply chains and distant markets so that communities and regions can, for the most part, provision themselves. While it is certainly not possible to produce every kind of good and service locally, economic localization seeks to restore an efficient balance between local production and imports that reduces local economic vulnerability and minimizes the negative social and environmental externalities of free trade.⁴⁹

The Task Force recommends the development of a comprehensive localization strategy that includes targets for food, energy, and vital goods. Such a strategy would include policies to use local materials, rebuild the capacity for local production, encourage locally owned

45 Ricardo, David, *Principles of Political Taxation and Economy*, reprinted in J.R. McCulloch, *The Works of David Ricardo* (London: Jon Murray, 1888), 77.

46 John Talberth, Aaron Lehmer, David Room, Brian Holland, Kirsten Schwind, Jennifer Bresee, and Connie Galambos, *Building a Resilient and Equitable Bay Area -Toward a Coordinated Strategy for Economic Localization*, May 2006.

47 Ibid.

48 Ibid.

49 Ibid.

businesses and cooperatives, educating the public on the importance of localization, and creating local markets for locally produced goods. A first step in the development of a localization strategy would be to do an inventory of Oakland's assets (e.g., vacant parcels, municipal rooftops) that could be used to forward localization.

The localization strategy would also apply to collaborations with other cities such as the Green Economic Corridor initiative with Berkeley, Emeryville, and Richmond. In this case, localization should be an explicit focus, especially in the creation of locally-owned businesses and cooperatives and procurement policies to favor local producers.

Employment Implications of Localization

As stated above, economic localization offers many potential benefits for high quality employment and business development. In particular, food localization implies a change in the economics of food production. Ideally, we can phase out low-margin, commoditized mass-scale production reliant on low wage migrant laborers and day laborers and phase in food production more reliant on locally accountable employers with higher quality jobs, higher quality food, and environmentally sustainable agricultural practices. Some investigation is called for regarding potential increases in the cost of food in order to protect low-income residents most vulnerable to increases in the basic cost of living.

Maximize local food production

Conventional industrial agriculture is entirely dependent on fossil fuels. Artificial ammonia-based nitrogenous fertilizers use natural gas and atmospheric nitrogen as raw materials. Much of the world's cropland has been so chemically exhausted, its topsoil so weathered and destroyed that, without these artificial fertilizers (or extensive work to rebuild the topsoil), and it cannot produce crops in the volume or at the pace that the world's population now requires. The use of farm machinery impelled by internal-combustion engines, which run on petroleum products, has freed up millions of acres of cropland from the need to grow feed for draft animals; those acres now grow food for the burgeoning human population. Without oil, farming may again require animal power, and traction animals will need to be fed. Farms always attract pests; however, the growing of monocrops, which is made economically necessary by mechanization, attracts huge numbers of insect pests. Oil provides the feedstock for making the cheap pesticides used to control these swarms of pests and to maintain crop yields. As a result of all of this, approximately ten calories of fossil fuel energy are currently needed to produce one calorie of food energy in conventional American agriculture.⁵⁰

With the global proliferation of the industrial-chemical agriculture system, the products of that system are now also traded globally, enabling regions to support human populations larger than local resources alone could support. Those systems of global distribution and trade also rely on oil. Within the US, the mean distance for food transport is now estimated at 1,546 miles, though this distance varies greatly depending on the food item—233 miles is the average for pumpkins, 2,095 miles for broccoli.⁵¹

50 Mario Giampietro and David Pimentel. Food, Land, Population and the U.S. Economy, Carrying Capacity Network, 11/21/1994

51 R. Pirog and A. Benjamin, 2003. Checking the Food Odometer: Comparing food miles for local versus conventional produce sales to Iowa institutions. Ames, Iowa: Leopold Center for Sustainable Agriculture. Available at: http://www.leopold.iastate.edu/pubinfo/papersspeeches/food_travel072103.pdf.

Oakland's situation is typical of that of modern cities: most food is imported from elsewhere, and most of that food is grown using prevailing fossil-fuel intensive methods. This implies a critical vulnerability for the people of Oakland. The Task Force therefore recommends:

- maximizing local production of food in order to reduce the vulnerability implied by a fossil fuel based food delivery system; and
- promoting forms of agriculture that rely on fewer fossil fuel inputs.

While efforts along these lines require support at the Federal and State levels, some local polices could be extremely helpful:

- Promote Farmers' Markets and CSAs (community-supported agriculture) in any way possible.
- Promote gardening, including community gardens, rooftop gardens, and school gardens
- Favor local and organic production over conventional food for school food programs and other purposes that are under the control or influence of the City government.

Oakland is already pursuing such efforts as a result of Resolution #79680 C.M.S., (December 2005), in which the City Council authorized the Mayor's Office of Sustainability to develop an Oakland food policy and to plan for thirty percent local area food production. As a consequence of that Resolution, UC Berkeley graduate students Serena Unger and Heather Wooten conducted the Oakland Food System Assessment.⁵² Since these efforts were initiated in response to concerns somewhat different from those motivating the work of this Task Force, further study is warranted to determine whether additional strategies are required to ensure food security for the citizens of Oakland in an increasingly oil-constrained world.

A recent study showed that Oakland's Eastlake neighborhood could produce enough leafy green and yellow vegetables on its rooftops to satisfy the recommended consumption for approximately 8,500 residents, which is more than that neighborhood's population.⁵³ In the study scenario, 18 rooftops would have hydroponic rooftop gardens and ten would have intensive vegetable rooftop gardens, providing approximately two acres of growing area and yielding approximately 273,373 pounds, or 124 metric tons, of vegetables annually. The higher-than-average yield would result from year-round growing methods as well as the higher relative productivity of hydroponics.

Reduce the amount of plastics and chemicals used by the City

About 5% of oil consumed in the US annually (about one million barrels per day) goes into the making of plastics and chemicals. While this is a small proportion of the total oil consumed, it is crucial to the American economy.

Petrochemicals are made by "cracking" oil, a process of breaking hydrocarbon molecules apart with intense heat and sometimes a chemical catalyst, and are the raw materials for an uncountable number of materials both frivolous and essential. Some of the more common petrochemical building blocks of our industrial world are ethylene, propylene, and butadiene.

52 Available at: <http://oaklandfoodsystem.pbwiki.com/>

53 Tapping the Potential of Urban Rooftops: Rooftop Resources Neighborhood Assessment, Bay Localize, Holmes Culley, Design, Community & Environment, October 31, 2007.

Further processing of just these three chemicals produces products as common, diverse, and important as disinfectants, solvents, antifreezes, coolants, lubricants, heat transfer fluids, and of course plastics.

One of the most important petrochemicals, ethylene, can polymerize into polyethylene, a plastic used to make everything from toys to food containers and furniture. Ethylene can also react with chlorine to produce ethylene chloride, which can then be used to produce vinyl chloride, or its polymerized form, polyvinyl chloride (commonly known as PVC or vinyl), another important plastic. PVC is used in everything from building construction materials to clothing to toys.

Clearly, future oil supply problems will affect the entire chain of industrial products that incorporate these chemicals. The citizens and economy of Oakland will obviously be impacted, and it is difficult to imagine a scenario in which that impact could be entirely eliminated absent policies and practices implemented globally and nationally. Nevertheless, there are things that Oakland could do to reduce its vulnerability to these economic consequences of oil depletion.

Needed policies and practices must focus on two strategies: (1) identifying alternative materials made from renewable sources to replace petrochemicals; and (2) devising strategies to reduce the amount of materials required and consumed.

Plastics and other products now composed of petrochemicals can be made from corn, hemp, and other crops. A few companies such as NatureWorks (a division of Cargill) and Dow Chemical are actively pursuing such alternatives.

From the standpoint of consumers, it would be a tragic mistake for the industry to postpone making the lengthy and costly transition to alternative feedstocks until forced to do so by rising oil prices and shortages. In that case, entire supply chains might be disrupted, causing costs for products of all kinds to rise precipitously. Instead, the shift must be proactive, encouraged through corporate and government policy. As one example: last year, WalMart announced its intention to use biorenewable materials for all of its packaging.⁵⁴ This will have an extremely large impact on the "alternative" packaging market, due to the sheer volume of goods sold through WalMart. Research into and development of alternative materials could provide Oakland with an opportunity for jobs growth.

The replacement of petrochemical-based materials with renewable alternatives is not without problems, however. To replace the entire stream of plastics and other oil-based materials in the US economy with crop-based materials would further strain an agricultural system already stressed by the increasing mandate to produce biofuels in addition to food. Moreover, many chemical processes that incorporate renewable feedstocks are energy-intensive, which means that the expansion of those processes would entail increased energy consumption.

Therefore the second strategy, finding ways to use less, will be of even greater importance in the long run. In the opinion of the Task Force, the banning of the use of plastic bags in Oakland represents a good first step in this direction.

54 <http://www.csmonitor.com/2006/0306/p13s02-sten.html>

Explore non-oil based alternatives for road paving materials

One of the two most important road-paving materials is asphalt (the other is cement, a natural gas dependent material), which is a low-grade component of petroleum. As higher grades of oil will likely tend to be used preferentially during the coming years, it is unlikely that asphalt prices will rise as high or as quickly as those for light-sweet crude. Nevertheless, prices for conventional road materials will escalate substantially, making road building and road repairs more problematic as time goes on.

The following are recent figures for oil-based materials usage for road building and repairs in Oakland, as supplied by the Public Works Agency.

Road repairs: how Oakland uses oil-based materials

Oil-based materials usage in tons for the City of Oakland, 2002–2007

	FY 02–03	FY 03–04	FY 04–05	FY 05–06	FY 06–07	Total
Asphalt concrete (AC) CIP overlays	30,098	17,165	42,377	10,205	14,032	113,877
AC for pothole crew	2,400	2,400	2,400	2,400	2,400	12,000
AC for base repair / speed bumps	5,000	5,000	5,000	5,000	5,000	25,000
Rubberized AC	24,869	17,388	12,850	0	0	55,107
Cold patch AC	112	90	90	135	158	5,858
Slurry seal	127	180	0	0	0	307
Parks, streetscape, and sewer	6,709	8,174	6,508	6,242	6,000	33,633
Total	69,315	50,397	69,225	23,982	27,590	240,509

Source: Public Works Agency

NOTE: In FY 04–05, the Public Works Agency began the Street Resurfacing ACTIA Project, which accounts for the higher AC Overlay quantities.

The Task Force recommends that the City of Oakland investigate alternative materials for these purposes. One promising possibility is a material made from clay mixed with alkaline chemicals, which is being used increasingly in Zambia and other African nations. According to one report, the new material, besides being environmentally friendly, is both cheaper and more durable than conventional asphalt.⁵⁵ If EBMUD goes down the path of gasification, the ash from the gasification process could be used for making asphalt.

55 <http://allafrica.com/stories/200706220926.html>



MOVE
WISELY

CHAPTER 4

The Port Of Oakland

SUMMARY OF TASK FORCE RECOMMENDATIONS

Prepare contingency plans for the Port

Develop a Green Port Plan that emphasizes oil independence as well as public health

Plan for cold ironing systems from the grid

Use electric vehicles at the airport

Support High-Speed Rail in California

Synopsis

Any discussion of oil independence for Oakland must discuss the Port. Long distance transportation has long been a centerpiece to Oakland's economy. This has been true since the completion of the Oakland Long Wharf became the western terminus of the transcontinental railroad in 1869. The Port of Oakland was originally established in 1927 as an independent department of the City of Oakland and functioned as a self-supporting company with no tax revenue. The idea at the time was to separate the Port from City government as much as possible in order to protect the Port's business and operations from corrupt City officials.

The Port is the fourth busiest container port in the United States and it is crucial to the economy of Oakland, Northern California and the western Central States.⁵⁶ In 2006 about 2000 vessels were unloaded and loaded at the Port. The Port directly provides 60,000 jobs locally and 700,000 in the region. The Port of Oakland supports billions of dollars in economic activity each year, and indirectly generates significant state and local tax revenues for the City of Oakland.⁵⁷ The Port of Oakland has eight marine terminals, (between 50 and 150 acres in size), twenty berths and two railroads that access the freight.

The Port of Oakland has also operated the Oakland Airport since 1927. It is the second largest airport in the Bay Area. The airport operates more than 200 flights a day and has an annual freight volume of 1.4 billion pounds.⁵⁸

The governing body of the Port of Oakland is the Port Commission, not the City Council. However, given the major importance of the Port of Oakland to the City's economy – and given the Port's major role in oil consumption and emissions in the Bay Area – the Task Force felt it was crucial to devote time to making some recommendations related to the Port (see the factors in the box below that affect decision-making at the Port). We urge the City Council to ask the Port Commission to act on these recommendations.

Key structural, political, and economic factors at the Port of Oakland

There are a number of factors that should be considered in determining how to support the Port's economic objectives while addressing the issues of oil independence. Key among them are:

- Competition with other ports is a major consideration for any economic decisions
- The Port's governance is highly independent from oversight by the Mayor and the City Council
- The Port acts mostly a landlord, not an actual operator of goods movement activities
- Controversy around the Port's fossil fuel consumption is largely centered on local/ regional air quality and public health impacts, not economic vulnerabilities or global climate change
- The Port of Oakland is in the midst of major growth and expansion
- A unique labor and community agreement exists to govern the Port's expansion

56 Oakland brings in 8% of California's cargo imports while Long Beach and Los Angeles bring in the majority at 89% (the remaining 3% come from other CA ports).

57 Meeting July 30, 2007. Port of Oakland Meeting at the Port of Oakland Offices.

58 <http://www.city-data.com/us-cities/The-West/Oakland-Economy.html>

The Port Working Group had the opportunity to attend meetings and a workshop with Port representatives. The Task Force vice-chair, additionally, made a presentation to the Port/ City Liaison meeting in November 2007.

Long distance transportation and passenger travel is vitally important to the Port of Oakland, and by extension to the City. This long distance transportation relies heavily on bunker oil for ships and jet fuel (kerosene-type fuel) for airplanes. Although the volume of freight and travel is still growing, restrictions in the availability and/or increases in the price of these petroleum based fuels will have a dampening impact.

Employment Implications of these Port Recommendations

The Port of Oakland and the related cluster of trade and logistics commerce is a major employer for Oakland and the region. There is an implicit contradiction here -- activity at the Port is largely based on a globalized economy that in turn relies on cheap energy and plentiful oil. As fuel becomes scarcer and more expensive, the impacts on the globalized economy are unpredictable. Needless to say, the outlook is not positive. One of our key recommendations is for the City and Port to conduct appropriate studies to better understand the likely impacts on our local economy, thus to investigate how to apply the Port toward appropriate and sustainable uses for trade and logistics.

Prepare contingency plans for the Port

The Port is a huge aspect of the City of Oakland's economy. Since the Port's maritime and aviation activities are so dependent on petroleum products, any significant change in fuel price or availability is likely to have a large impact on those activities.

The City should urge the Port to prepare contingency plans for changes in fuel price and availability. Fuel prices will be strongly influenced by the international petroleum market, and recent trends suggest that *dramatic changes will occur*. The Port should investigate the potential impacts of price increases and/ or reduced fuel supplies on shipping volume and airport activity. Literature on the elasticity of shipping volume and airline traffic relative to fuel prices should be reviewed and evaluated with respect to current and projected Port activities. If the analysis demonstrates that a sudden fuel price increase is likely to reduce Port activities substantially, the Port and its stakeholders should respond quickly by using a prepared contingency plan.

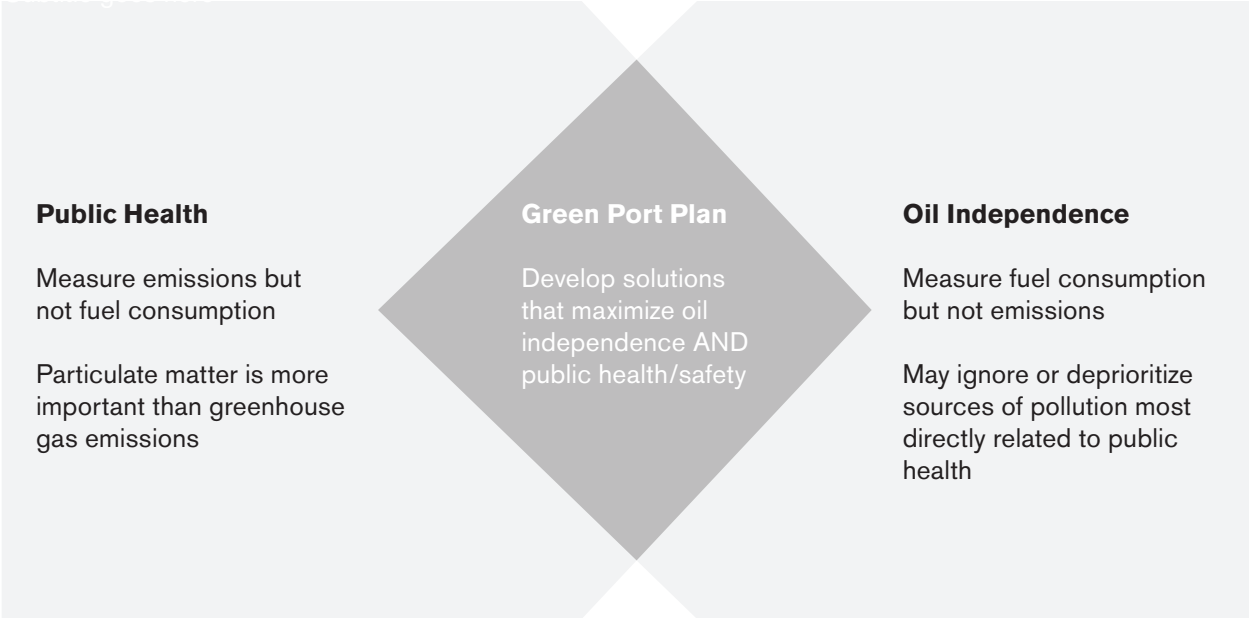
Since marine shipping and aviation operate as part of national and international transportation/ trade networks and sometimes under unique rules, much of this activity is beyond the influence of the City Council or the Port Commission, however, we do urge both entities to support policies (even at a national or international level, when possible) to reduce oil consumption in the goods movement sector and in aviation. This could take the form of increasing efficiency of transportation systems and reducing the amount of transportation needed.

Develop a Green Port Plan that emphasizes oil independence as well as public health

One of the Port’s current goals is to reduce pollution, including emissions of particulate matter. This is a critically important public health measure that should be accelerated and enforced to the highest degree possible for the sake of vulnerable residents in Oakland.

However, the Port must also develop, deploy, and enforce measures that are aimed at reducing petroleum dependence. There will be many synergistic and mutually reinforcing measures that can address both public health as well as petroleum dependence. The Port should avoid solutions that address only one or the other.

Come together: a Green Port Plan that does both



Key components of a Green Port Plan are listed in the Appendix.

Plan for cold ironing systems from the grid

Cold ironing is the practice of plugging into an electrical source while docked instead of burning diesel or other dirtier fuels. The South Coast Air Quality Management District (Southern California) estimates this practice can reduce pollution by two-thirds if the source of electricity is a coal-fired plant, and up to 100% if renewable sources are used.

The Port of Oakland is currently testing a cold ironing system that uses natural gas. This is a positive step forward. However, over the long term, the global markets for fuel face a “peak natural gas” problem very similar to the “peak oil” supply curves. The Task Force recommends planning for cold-ironing systems that tie into the City’s main electrical grid (relying on the grid to have a large and increasing mix of renewable energy sources).

Other major ports such as Los Angeles/Long Beach are implementing cold ironing,⁵⁹ so it is clear that the necessary technology exists, despite the lack of standardization amongst ships’ electrical systems in the global goods movement network. (*Further discussion of cold ironing is in the Appendix*)

Use electric vehicles at the airport

Through air quality mitigation projects of the Airport Development Program, the Airport is already engaged in activities that reduce petroleum use. Analogous to cold-ironing ships at the maritime port, the Airport provides preconditioned air and ground power to airplanes while they are at gates.

Additionally, there are many vehicles used at the Oakland International Airport that should be electrified, and could be electrified without major disruption to the existing systems and infrastructure. Aside from airplanes, there are small vehicles that move luggage, fuel, the planes themselves, and are used for other purposes, many of which use diesel or other fossil fuels. The Airport has adopted some measures to convert ground support equipment to electricity or alternative fuels. These measures should be encouraged and broadened. There should not be any vehicles, other than airplanes, that use fossil fuels.

Roadway traffic carrying passengers and employees to and from the airport could also be electrified. There are plans to replace the AirBART shuttle that runs between the Coliseum BART station and the Airport with an elevated automated transit system. All vehicles used for Airport operations should be changed over to create an electric fleet. Finally, the Port should provide incentives that will motivate companies that run vans and buses around the Airport (to parking lots, hotels, and off-site destinations) to purchase electric vehicles.

Support High-Speed Rail in California

Since 1996 California has had a High-Speed Rail Authority. It was created to build an electric high-speed train network connecting California’s major metropolitan areas.

An electrified High-Speed Rail system in California would be dramatically more sustainable than the many short haul passenger flights between Northern and Southern California, from an oil consumption and climate change perspective, and would be competitive in terms of price and convenience for travelers. The California High-Speed Rail Authority has estimated that between 35% and 56% of passengers would be diverted from air to rail travel in various

59 <http://www.sustainableshipping.com/news/2006/11/66248>

markets, depending on relative fares.⁶⁰ Moving some of these passengers to High-Speed Rail would significantly reduce airport congestion as well as oil usage. The Transport and Land Use Coalition projected that High-Speed Rail would reduce seven million tons per year of greenhouse gases in California by 2030.⁶¹ This could be as high as ten million tons if there is a larger switchover of passengers due to higher cost of air and auto travel.

One of the thirty stations for the projected high-speed rail network would be in Oakland. The City of Oakland and the Port should support the California High-Speed Rail Authority to assure that current intrastate air travel from the Oakland Airport is well served by the high-speed trains. It might be possible for the Port of Oakland to become an operator of the Oakland station of the California High-Speed Rail system.

While it is obviously not within the jurisdiction of the Oakland City Council to build High-Speed Rail for the state, every local and regional governmental body should support the funding and an expeditious completion of the project.

60 Prepared for the Regional Airport Planning Committee of the Metropolitan Transportation Commission, "Overview of Alternatives to New Runways as Analyzed in the 2000 Regional Airport System Plan (RASP)", September 2006, p.24:
http://apps.mtc.ca.gov/meeting_packet_documents/agenda_721/9.06_RAPC_RASP_Report.doc

61 http://www.transcoalition.org/c/sus_hsr/hsr_ghg.pdf

