



# CITY OF SAUSALITO

## DISASTER PREPAREDNESS – EMERGENCY OPERATIONS PROGRAM

*“Preparing and Protecting our Community”*

### Emergency Transportation

If you have ever been stuck in rush-hour traffic you understand the need for alternative transportation during a disaster or an emergency. During working or commute hours, the traffic speed in a City such as San Francisco, or surrounding locations such as Marin County, can be anything from a slow crawl to a complete stop. This congestion is already a major problem, and a disaster will make this exponentially worse.

#### Bicycles

If you do not own a bicycle you may strongly consider getting one in order to help get around during emergencies. Outside of walking, bicycles are the most reliable way of moving around during a crisis. During and after a major disaster, streets may be closed to civilian motor vehicle traffic in order to make room for emergency vehicles. Public transportation systems will be switched to limited service or temporarily halted. This may cause side streets to get clogged with heavy traffic.

A good bicycle will allow you to get around the traffic and a bicycle can also be carried over roadblocks or fallen debris. It is also possible to haul gear and supplies with the right accessories. You can even purchase a small electric or gasoline bicycle motor to help reduce your peddling.

#### Disaster Riding

Riding a bicycle during a disaster is much different than riding recreationally and much more dangerous. Speeding fire engines, police vehicles, ambulances, and other emergency vehicles increases your risk and elevates your need for vigilance. Confusion and panic will drive crowds of people with their children, animals, and their life’s possessions into the streets causing congestion and unforeseen hazards. Debris from buildings may litter the streets and smoke from fires can impair vision and restrict your breathing.

Bicycling in disaster or emergency conditions is difficult and perilous but the following tips will help minimize your risks:

- **Puncture-Resistant (or airless) Tires-** Use these on your bicycle because a flat tire during or after a disaster can possibly cost you your life. Puncture-resistant tires are usually lined with DuPont Kevlar, the material bulletproof vests are made from, which makes the tires extremely resilient. Airless tires use polyurethane foam or a urethane elastomeric material. The use of these tires will ensure your bicycle is ready when you need it and are the best way to avoid having to change tires on a busy city street.
- **Strong Rims-** Strong rims are essential because a bent rim can restrict or even prevent your bicycle from operating. Also rims are very difficult to repair and you do not want to



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try to repair one during an emergency. During a disaster you may be riding over rugged terrain and/or carrying extra gear so you will need a bicycle rim that can handle the extra right and rough terrain.

- **Get Ready-** Riding a bicycle during an emergency requires stamina, so it makes sense to ride beforehand. Bicycling is an excellent way to integrate your fitness plan with ordinary activities.

### Bicycle Motors

A bicycle motor will reduce your workload. Bicycles equipped with electric or gas motors are the best and most reliable form of urban emergency transportation.

Electric motors require less maintenance than gasoline and when you use rechargeable batteries and a photovoltaic trickle charger you will never need to worry about finding gasoline.

The electric motor can be easily charged wherever you can find power, or, if you can afford it, you can buy a portable photovoltaic battery charger that would make your bike into a solar powered vehicle.

Pay close attention to the type of battery your chose to use. Lithium-ion polymer batteries are more expensive than lead-acid and nickel-metal hydride types but they are more powerful. One small ten-pound lithium ion power pack is remarkably the equivalent of a large car battery.

Gasoline motors are temperamental and require maintenance to keep running at peak levels but they provide more torque than most electric motors. If you are hauling heavy gear, bike motors take a lot of strain off your body, especially if you are going uphill.

All in all, bicycles equipped with electric or gas motors are the best and most reliable form of emergency transportation.

### Mopeds

Mopeds are a gas fed cross between a motorcycle, scooter, and bicycle. This is another great form of motorized emergency transportation. The best type of moped for emergency transportation will have pedals which will allow for the option of riding them like a bicycle if the motor breaks down. Some mopeds get up to 150 miles per gallon of gas. This is a very important asset because having a 150 mile range is more than enough to take you out of the danger area in nearly all disasters.

### Bike Bags and Racks

Bike bags and racks will help you carry your gear, and a trailer hitch will let you add anything you can tow. If you are strong and fit, you can move quite a bit of emergency gear this way.



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### Alternatives to Bicycles

There are a few other excellent forms of emergency transportation to consider.

- **Electric and gas-powered scooters** are a great alternative to bikes. Scooters are easier to ride than motorcycles; anyone who can ride a bike can learn to ride a scooter very quickly. Scooters are also very good for those people that are not strong enough to pedal around a disaster. The scooters major limitations are that they need gas or a place to charge their batteries, are unable to carry heavy loads, and usually can not travel more than 20 miles at a time.
- **Emergency boats-** If you live near a large body of water you might want to plan for emergency evacuation by a small boat or raft. Some durable inflatable rafts, kayaks, and sport boats can be stored in a medium sized closet. Large boats must be stored in locations that will be accessible in times of emergency yet are secure enough to ensure that the boats will not be stolen. If your boat needs batteries and motor to operate this may add an addition 270-300 pounds to the vessel. A 50hp motor should be able to move a family of four and all their gear at about 5 MPH for up to 30 miles in calm water. Heavy duty 12-volt, deep cycle, sealed lead acid gel batteries rated for at least 95 ampere-hours are best for this type of electric boat.

### Emergency Rural Transportation

You might also want to invest in a camping trailer to sleep inside, or a tailgate tent if you have a vehicle with the means to tow them. Inside the trailer or the tailgate should be an Emergency Kit built around the size and needs of your family along with a spare tire, jack, flares, tools, and small critical replacement parts of the trailer/tailgate. You should also keep an emergency supply of gas or diesel fuel in a large fuel tank that that must be buried in a gravel bed on your property along with a hand-powered pump to get the fuel.