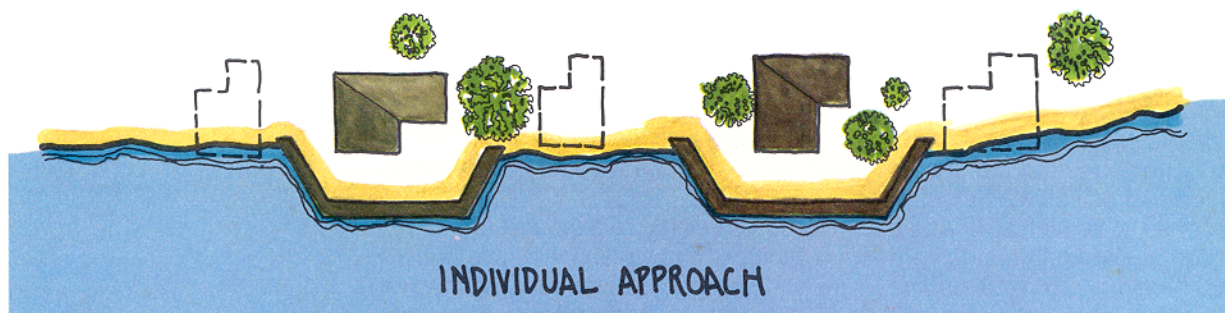
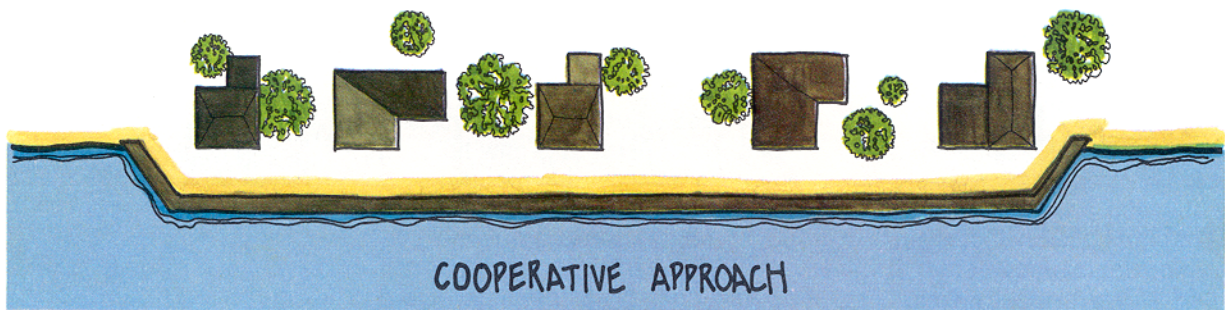


# Planning Considerations

If you are faced with erosion that threatens your use of the shore and perhaps also endangers a substantial investment in shorefront construction, you need to decide how much you are willing to do in order to save or improve your property. The "low cost" erosion control measures described in this brochure are not necessarily inexpensive, but they represent a range of choices likely to be within the resources of the individual property owner. These resources vary greatly, as do the values of shoreline properties and the severity of erosion threats. The ultimate decision rests with your own evaluation of the expected benefits from any erosion control measure and the investment you decide to make.

The first step in this evaluation is the identification of the specific nature of your problem. Do you have an eroding beach, marsh, or bluff? Is your primary concern the safety of buildings and structures, or the preservation of particular shore uses, such as swimming or boating? The preceding sections of this brochure gave you an idea of the suitability of various erosion protection measures for your particular problem and your intended uses of the waterfront. More information is available from sources listed in the next section.



In many cases, you will need to give some thought to the possible effects that erosion control measures on your property will have on the property of others. As discussed earlier, many of the measures that can be taken to protect your property may result in increased erosion of the neighboring shoreline. When several property owners share a waterfront, it often makes good economic sense to cooperate in building a single device to retard or arrest erosion, such as a filled or perched beach, breakwater, bulkhead, or revetment. A cooperative measure may well cost substantially less than the sum of the expenses of individual protection, and it has the added advantage of protecting against flank erosion. In some cases, it may be wise for entire communities to cooperate in erosion control. In other cases, it may be sufficient to modify designs in order to protect against damage to other properties that could be affected by your erosion control measures.

Cost and availability of materials are two important factors to be considered when planning erosion control. Other factors include the suitability of the material for the use you intend, the cost of labor and machinery that may be necessary for construction, access for equipment and crew at your site, and adaptations needed to adjust typical erosion control designs to special materials and local conditions. Apparent advantages, such as low cost or ease of construction, should not obscure the disadvantages and special requirements that may make these alternatives less attractive.

There are many low cost materials available. Among them are treated timber, marine concrete, used rubber tires, bags filled with lean concrete mix, gabions, Longard tubes, steel fuel barrels, and quarrystone or rubble. Each of these materials has its own advantages and disadvantages. For example, Longard tubes and other patented constructions must be provided by franchise dealers and often require special equipment for installation. Longard tubes are also vulnerable to vandalism and damage from waterborne debris in exposed locations. Rubber tires are almost universally available but need properly designed fasteners in order to be effective in most structures. Heavy rocks for breakwaters and revetments require construction equipment that may contribute to weakening of banks and destruction of vegetation when they are brought to your property. Professional help will usually ensure design and construction of erosion control devices or selection of vegetation to suit the particular requirements of your waterfront.

You should also be aware that federal and state permits are required prior to the construction of any work in, under, across, or on the banks of navigable waters of the United States. Local permits may also be required. Federal permits are issued by the Corps of Engineers, usually only after all other required permits have been obtained. Corps of Engineers district offices provide a pamphlet entitled **Permits for Work in Navigable Waters** that describes the procedures for applying for a federal permit. Information regarding the procedures for obtaining other permits should be obtained from the agencies in your area that have jurisdiction over water resources.