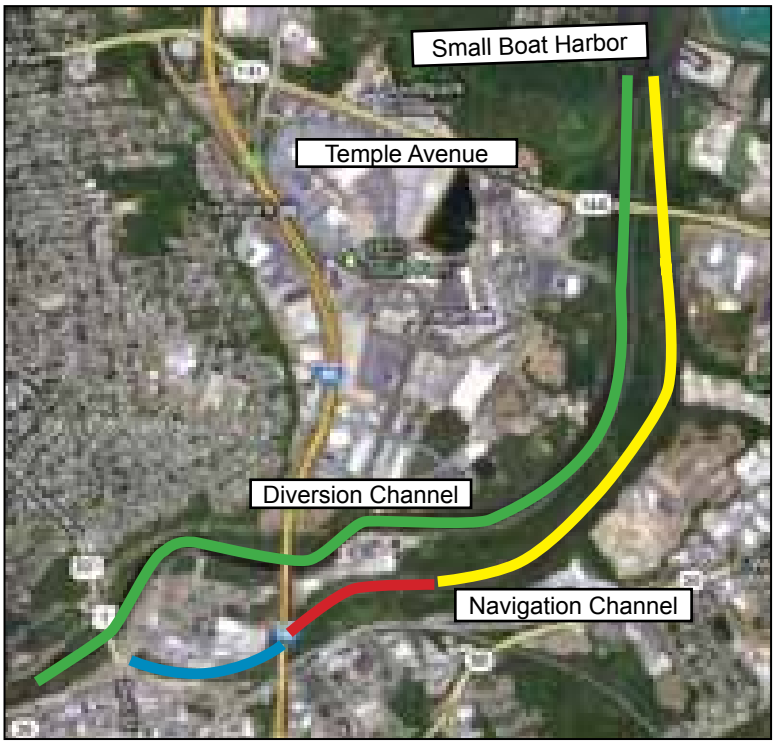
Rethinking the Petersburg Harbor

A great many people are familiar with *Operation Bootstrap Economic Development Plan*. Some have questioned my recommendation of transforming the former harbor into a scenic lake. This is understandable because for forty years everyone has believed that economic development was dependent on harbor development, which, in turn, is dependent on dredging.

The former harbor is by far the most prominent physical feature in the Old Towne area. It is the centerpiece because many things can surround it. It must be a truly beautiful waterfront surrounded by magnificent landscaping. Because of its great importance, the former harbor was extensively researched. This resulted in *The Appomattox River Development Plan,* which may be downloaded from Petersburg-Parks.com. This is a very highly condensed summary of it..

Proposed transformation of former harbor to a scenic lake.



Section of the original river bed that has not yet been dredged

I define the former harbor as that stretch of the Appomattox River that runs from the Martin Luther King Bridge to the Interstate 95 bridge. It is about 2,000 feet long and around 175 feet wide. The east third of it is totally filled in with sediment, resulting in it being solid ground. I refer to this area as the land bridge. It continues down river about a half mile. The water level is at sea level and is controlled by incoming tides and local rain storms.

The river has always silted up. In the 1870s, the U.S. Army Corps of Engineers concluded it was impossible to keep the harbor free of silt. It recommended a diversion channel, which was completed in 1909. This project included dredging the harbor. It was partially successful, as it prevented silt from flowing in from the west, but tides still carried it in from the east. The harbor had to be dredged again in 1937 and 1945. No attempt was made to dredge it again until 1990. Then a few dead fish resulted in the work on the harbor section being suspended to permit environmental studies. The dredging was completed from near the Temple Avenue bridge to Hopewell. Only around 2.5 miles remains to be dredged. The environmental study was published in October 2012 - 12 years later.

Navigation Channel:
Blue line - Lake Petersburg
Red line - rest of land bridge
Yellow line - additional stretch to be dredged

The Problems

There are numerous problems associated with the dredging. They are: (1) No federal funding can be expected in the foreseeable future. (2) The U.S. Army Corps of Engineers specifications call for a channel 10 feet and from 60 to 80 feet wide. That's 35% to 46% of the total 175 foot width. The city must dredge the rest of the harbor, which includes removing the bulk of the land bridge. That will be very expensive. (2) The harbor bottom is 10 feet below the original water surface. It is covered with a layer of creosote. It, in turn, is covered with many feet of silt which kept the creosote contained. The creosote presented no problem until the 1990 dredging removed the silt that covered it. This is the environmental problem. (3) The contaminated soil from the river bottom must be moved to a containment site which the city must provide. That's another expense. (4) Some of this section of the river is now regarded as wetlands which will be lost by dredging. Mitigation will be required. That can also be very expensive. (5) Dredging will not provide a scenic waterfront. The water is muddy, the water level is very low, The banks are covered with mud making them ugly. (6) Their is no circulation resulting in the water being covered with pond scum. (6) The result of dredging will be temporary because the harbor will silt up again from incoming tides. A floods will almost completely fill in the harbor with sediment. It is only a matter of time before the harbor will have to be dredged again.

The problems, costs and risks are enormous and we still don't get the scenic waterfront essential to development. I concluded that dredging was downright stupid and began seeking an alternate way of achieving a scenic waterfront.

The Solution

All of the problems are caused by the Appomattox River. They can be solved by isolating the harbor from the river and transforming it into a scenic lake. It's relatively easy to do. A trickle of water now enters the former harbor from a culvert running from the diversion channel. Close it to cut off the water supply. Build a dirt dam at the other end of the harbor to prevent tides from entering, bringing in dirty water. The lake can then be drained and bulldozers can level out the bottom and shape the shores When refilled with clean water, the water level can be raised to the banks.

A depth of around three feet is recommended because (1) the land bridge spoils can be used to raise the bottom and thus raise the water level. Other silt will be used to build a larger permanent dam. Thus all silt is economically disposed of on site. (2) It keeps the creosote contained, avoiding the environmental problems. (3) The lake remains a wetland thus eliminating the need for mitigation. (4) The lake can be used by Indian canoes, batteaus and other paddle driven boats. If a boat turns over, the occupants can stand up in the water and walk to shore. This greatly reduces the risk of anyone drowning.

An aeration system should be installed. These are pipes that run down the length of the lake with heads that somewhat resemble a wide and flat shower head. They point up. Air is pumped down the pipes and the heads release an abundance of small bubbles that rise to the surface. This displaces surface water that moves to the bottom where it brings rotten vegetation, bird and fish excrement and algae to the surface where is eliminated through exposure to sunlight. This environmentally friendly circulation system is used on lakes, ponds and historic canals throughout the United States. It results in very clean water. We'll actually be able to see into it. Aeration also fills the water with oxygen which provides a great environment for fish and aquatic plants. In fact, it's better than that provided by nature. Anyone who keeps pet fish is familiar with such systems.

The lake should be stocked with an abundance of fish. Different species require different aquatic plants. The Virginia Department of Game and Fisheries should be asked to recommend both. Although it can provide many recreational activities, the lake should also be a wildlife preserve. There are over 20 species of ducks native to Virginia. Other waterfowl include geese, swans, heron, ibis and even pelican. If introduced as chicks, they will make the lake their home. The nearby James River is one of our nation's largest American Bald Eagle preserves. They often fish on nearby Swift Creek. Our clean water and abundance of fish will make Lake Petersburg one of their favorite fishing grounds.

Operation Bootstrap calls for the areas surrounding the lake to be extensively landscaped. There should be such a wide variety of trees, shrubs and wildflowers that it will result in a beautiful botanical paradise. Wild turkeys and other native wildlife can wander around our lake. We may introduce a family of beaver as guests will be fascinated by these industrious little critters. Special care must be taken to protect our trees.

Having total control over the lake permits us to have some fun with it. Kids can attack Fort Henry from the Indian Village using its dugout canoes. The fort would fire blanks from its small cannon. Bursting fountains can simulate the cannon ball striking the water, drenching the kids. They'll love it. The area between Union Station and the lake will be Independence Park, commemorating our city's role in the American Revolution. It can host many special events. Fountains at the lake bottom can provide special visual effects that can add to the festive atmosphere. At night, the fountains can be lighted.

Floods will remain a risk. Flooding of a dredged harbor will be a catastrophe as everything will be filled in silt, as it was in the many past floods. It will take many years and enormous expense to restore everything. During this time, the developments surrounding the harbor would be useless. All of the money invested in them would be wasted. The dam will prevent the normal silting from tide and reduce the silting from a flood. The shallow lake can be quickly restored, By comparison, a flood would be an inconvenience.

It will take time to secure the necessary permits, but actual construction of the lake should not take more than a fewof months. All that it requires is bulldozers and dump trucks. *Operation Bootstrap* budgets $100,000 for it and that includes the aeration system. The best thing about this plan is that it can be done now. No more years and years of waiting for Uncle Sam and the dredging.

Dredging could still be beneficial. If it ever occurs, then the dredged channel should terminate at the dam. This keeps the benefits of a scenic lake in place and adds a deep water navigation channel that can be used for various activities. This also increases the chances of getting federal funding, because by reducing the area to be dredged, it lowers the cost. .