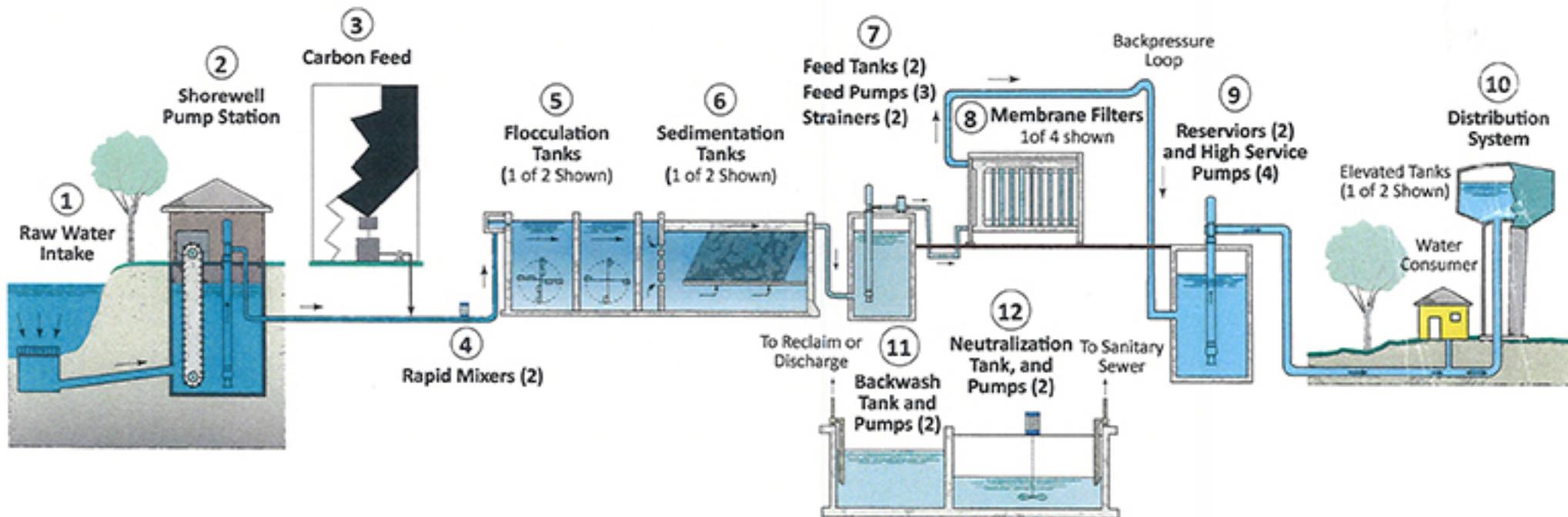


## Marinette Water Utility Water System



1. Raw water is drawn through intake cribs in Green Bay.
2. The shorewell pump station houses a screen and four pumps which transfer the raw water to the water treatment plant. Small amounts of sodium permanganate can be added to the intake cribs to keep mussels from clogging the intakes.
3. Powdered activated carbon can be added to the raw water main to remove undesirable taste and odor from the water.
4. In-line rapid mixers at the treatment plant quickly and uniformly mix treatment chemicals into the raw water. These include polyaluminum chloride and sodium hypochlorite (chlorine).
5. The flocculation tanks provide gentle mixing to increase the size of the destabilized particles in the water. The particles stick together and form larger particles called floc.
6. Floc removal takes place in the sedimentation tanks on inclined plate settlers. The plates increase the efficiency of treatment allowing for smaller tank size.
7. Feed pumps transfer the water from the feed tanks through inline strainers and membrane filters to the storage reservoirs. The strainers are equipped with 500 micron screens which are used to protect the membrane filters.

8. Membrane filters are used to remove solid particles remaining in the water after sedimentation. Small amounts of fluoride for dental protection and sodium hypochlorite (chlorine) for disinfection are added to the filtered water.
9. Treated water is stored in a two chambered reservoir tank. The reservoirs are equipped with high service pumps that transfer water to the distribution system. The reservoirs provide contact time for disinfection and also provide storage to help manage water production needs.
10. In the distribution system, the elevated storage tanks provide stable system pressure for customer use and storage for fire protection and other emergencies.
11. The filter backwash water is collected in the backwash tank. It is possible for the plant to reclaim the backwash water by sending it to the head of the plant to be retreated.
12. Water used for cleaning the membrane filters is discharged to the neutralization tank for pH adjustment followed by discharge to the sanitary sewer.