Waterford was founded about 1733 by Amos Janney, a Quaker from Bucks County, Pennsylvania. Other Quakers followed him there. Mills were built along Catoctin Creek. The village grew until it was the second largest town in Loudoun County (this was before the Civil War). Many buildings still in use in the village were built before 1840.

Known as Janney's Mill until the 1780s, the early commercial center then became the village of Waterford.

Today, visitors experience many of the same views as residents in the 19th century. Waterford preserves the ambiance and many of the structures that characterized it during its heyday as a flour milling town in the 19th century.

The village is a Loudoun County Historic and Cultural Conservation Site, on the Virginia Historic Landmarks Register, on the National Register of Historic Places, and in 1970, the entire village, with the farmland surrounding it, was designated a National Historic Landmark District, one of only three such landmarks in the United States.