The Standard Model (SM) as a description of matter in the universe contains many unexplained features. One way to search for physics beyond the SM is accomplished by testing the unitarity of the Cabibbo-Kobayashi-Maskawa matrix. Such a unitarity test requires a precise and accurate determination of the $V_{ud}$ matrix element, which is currently achieved via the precise determination of the $ft$-value of electroweak decays. While superallowed pure Fermi transitions currently allow for the most precise determination of $V_{ud}$, there is currently a growing interest in obtaining that matrix element from superallowed mixed transitions to test the accuracy of $V_{ud}$ and the calculation of the isospin symmetry breaking correction. In the past year a research program aimed at solidifying the determination of $V_{ud}$ from mirror transitions was initiated using radioactive ion beams from the Twin Solenoid (TwinSol) separator at Notre Dame. The first part of the program is centered on precision lifetime measurements and the second part aims at measuring the Fermi to Gamow-Teller mixing ratio $\rho$. Recent half-life measurements and our plan for building an ion trapping system to measure $\rho$ in many mirror decays for the first time will be presented.