From the Corps April 2012 report: Assessment of Conceptual Nonstructural Alternative Levee Setbacks along the Missouri River (Lower L-575 / Upper L-550 and Lower L-550)"

https://protectthemissouri.files.wordpress.com/2010/10/conceptual_levee_setbacks_final_report-2.pdf

Page 14:

> "The Missouri River Agricultural Levees, Sioux City, Iowa to St. Louis were authorized by the Flood Control Act, approved 22 December 1944. The project consisted of earth-filled levees with two-feet of freeboard above the design flood. Minimum width of the leveed river was set by the Flood Control Act at 3,000 feet from Sioux City to the mouth of the Kansas River. In addition, a 1,000 foot setback of the levee from the established bank line was typically recommended. .... While much of the system does maintain these minimum floodway widths numerous locations along the river exist with widths less than the 3,000 feet minimum, especially at bridge constrictions where widths commonly vary from 1,200 feet to 1,600 feet, and reach as low as 1,090 feet."

Page 30:

> " The implementation of levee setbacks at historic damage areas may provide flood risk reduction benefits. Benefits would be achieved through lowering flood stages, decreasing erosive velocities, providing more reliability and resiliency to the system, and reducing costs associated with ongoing O&M and R,R&R. In addition, with a setback levee alignment there is greater opportunity for natural habitat creation."
>
> " By locating levees close to the river, conveyance is cut off from the river resulting in increased velocity, leading to increased hydraulic loading and erosion of the levee. The increased hydraulic loading and erosion compounds the natural geotechnical concerns due to soil types and required levee heights. This series of factors leads to decreased levee safety and increased flood risk."
>
> " Levee setbacks provide an opportunity to rebuild levees to a location that allows the floodwaters room for conveyance. This approach addresses risk, not just by protecting against high stages, but also reducing the stage-flow relationship. .... Additionally, by locating levee setbacks where they can have a hydraulic benefit to adjacent systems and/or critical facilities flood risk is benefited to multiple levee systems."

Page 32:

> " This could be accomplished through implementation of a floodway concept, (Figure 3-5) involving setback levees to provide floodway capacity as envisioned in the original Pick-Sloan Plan (Rasmussen 1993). This Plan called for a floodway from Sioux City to the mouth of the Missouri ranging in width from 3,000 to 5,000 feet."

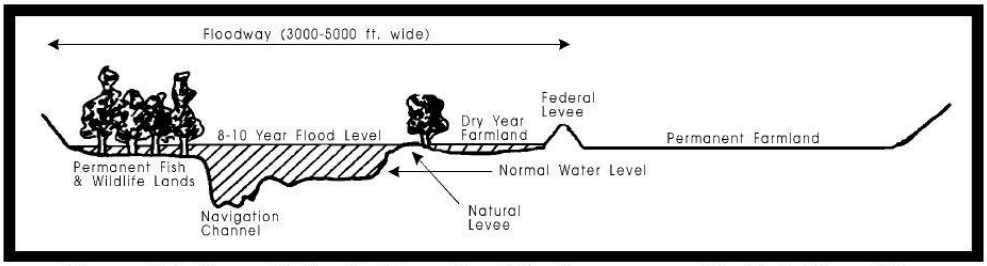

Figure 3-5: Levee Setback Alternative Floodway concept in Pick-Sloan Plan (Rasmussen 1993)