



Tennessee Duck River Development Agency

Needs Assessment–Water Demands

INTRODUCTION

The needs assessment addresses the availability of water supply and provides an estimate of public water use (or demand). The difference between supply and demand equals the surplus or deficit:

$$\text{PROJECTED SURPLUS OR DEFICIT} = \text{AVAILABLE SUPPLY} - \text{ESTIMATED WATER DEMANDS}$$

In developing water demand projections, previous studies by the United States Geological Survey (USGS) and Tennessee Valley Authority (TVA) were reviewed. The O'Brien & Gere team also reviewed population projections by the University of Tennessee Center for Business and Economic Research (CBER), which is viewed as an authoritative, independent source for demographic information. The demand projections use CBER data to estimate future water use, assuming that the current mix of domestic, commercial and industrial water usage continues. The potential impacts of water conservation, improved water efficiency, and drought-based restrictions will be addressed in the Alternatives Evaluation.

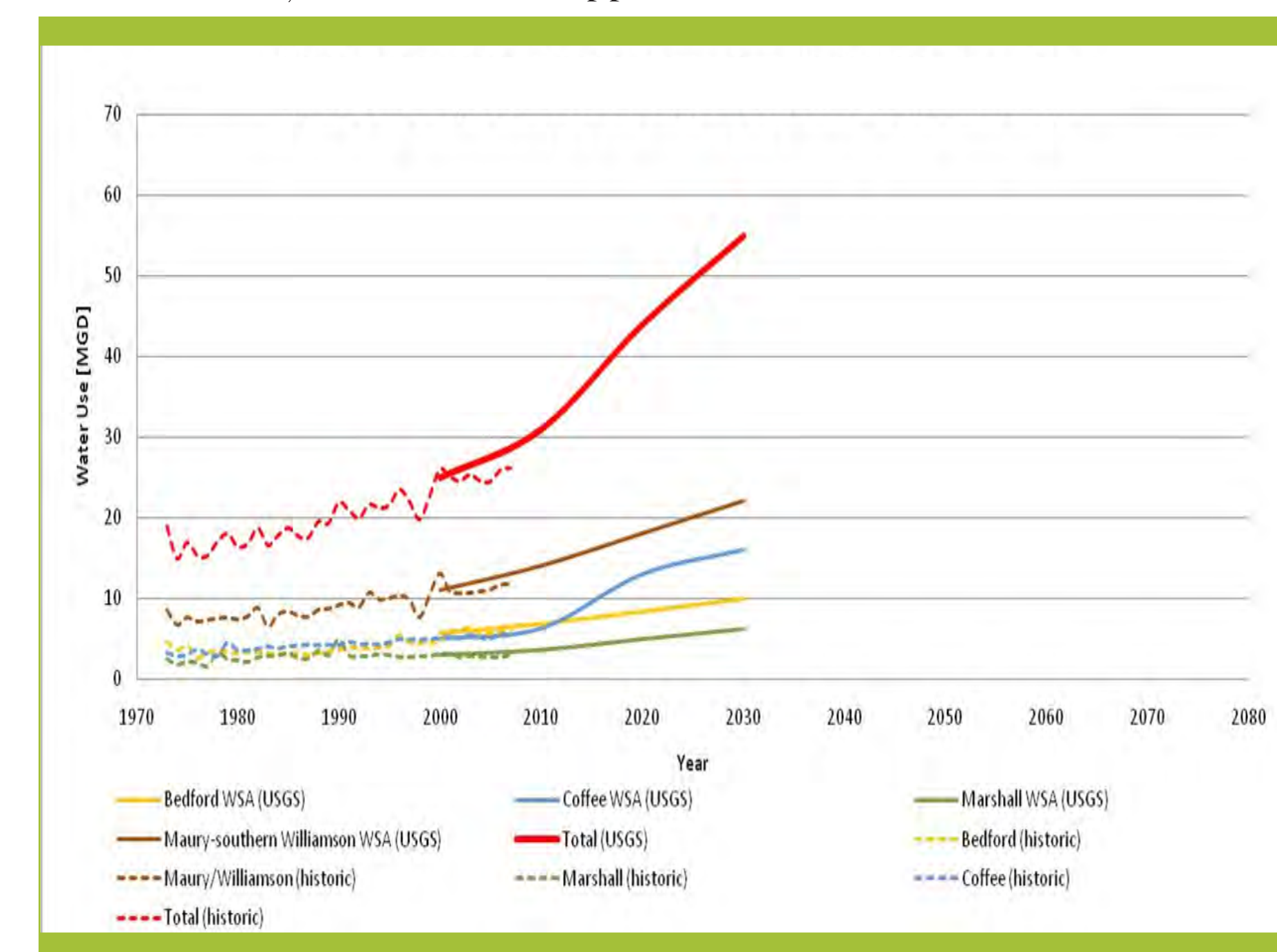


KEY SOURCES OF INFORMATION

- United States Geological Survey
- Tennessee Valley Authority
- University of Tennessee Center for Business and Economic Research
- Tennessee Department of Economic and Community Development
- Tennessee Department of Environment and Conservation (TDEC)

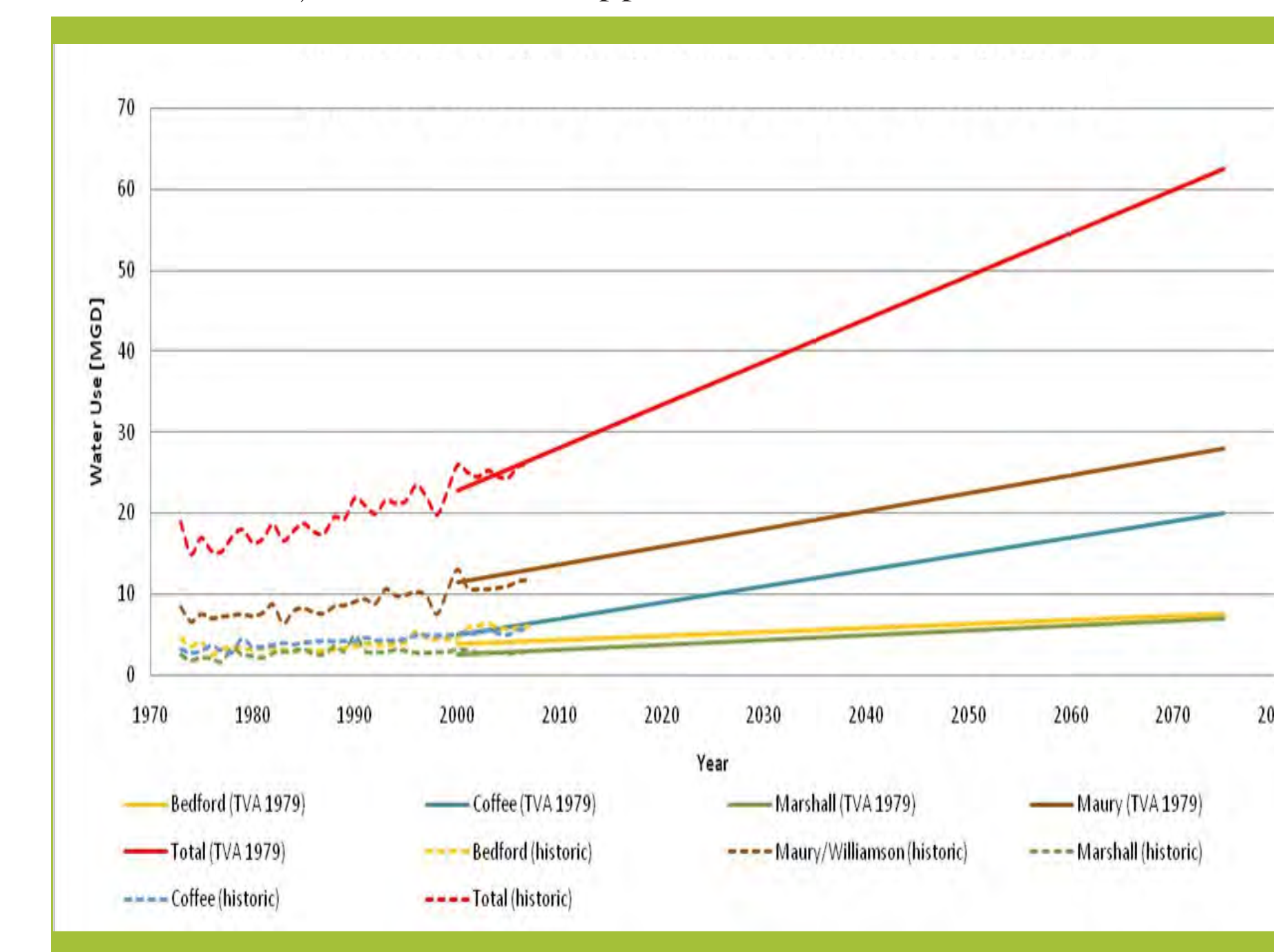
FUTURE WATER DEMANDS (USGS, 2008)

Water Use Projections for the Upper Duck River Watershed Area



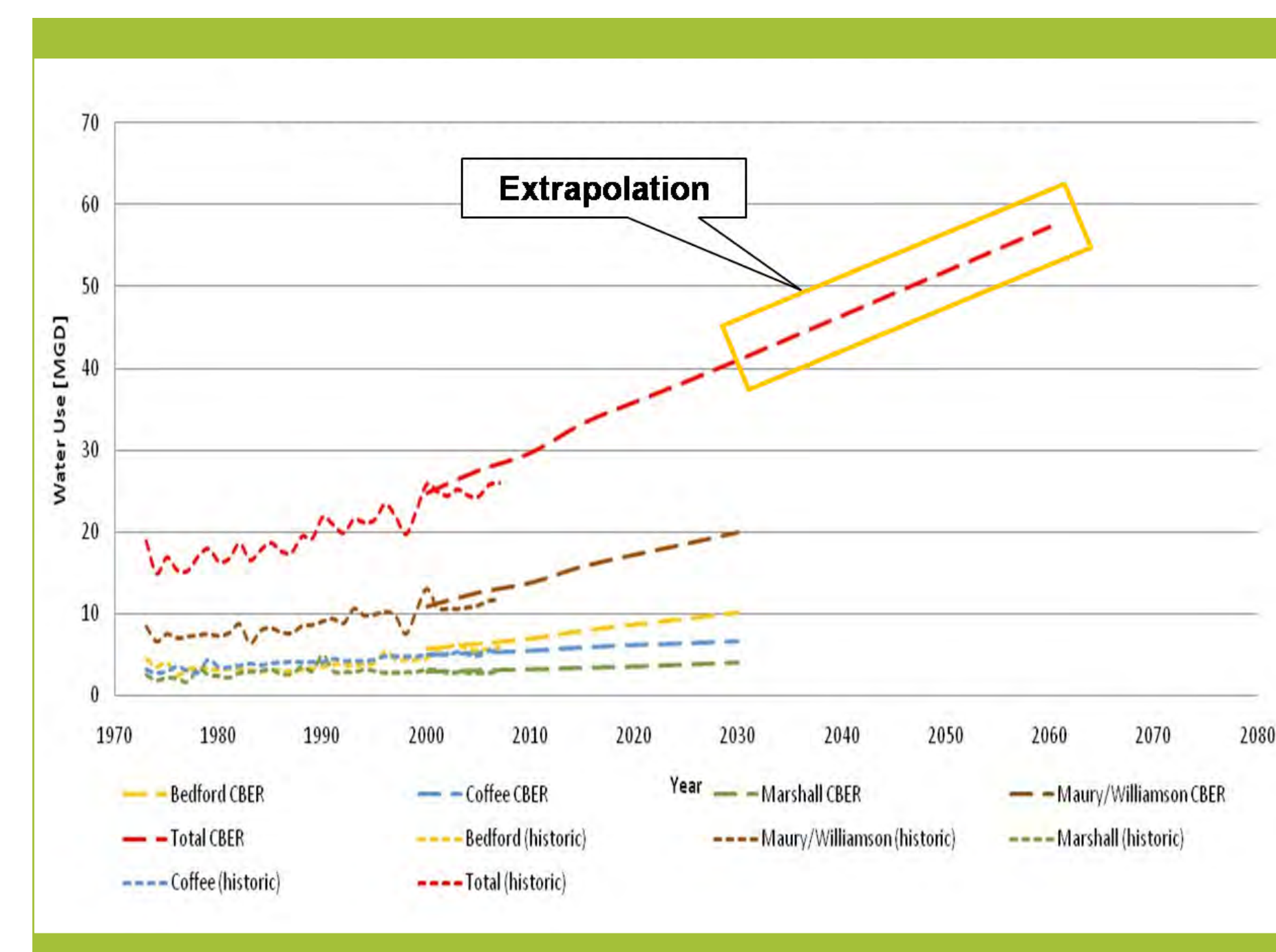
FUTURE WATER DEMANDS (TVA, 1979)

Water Use Projections for the Upper Duck River Watershed Area



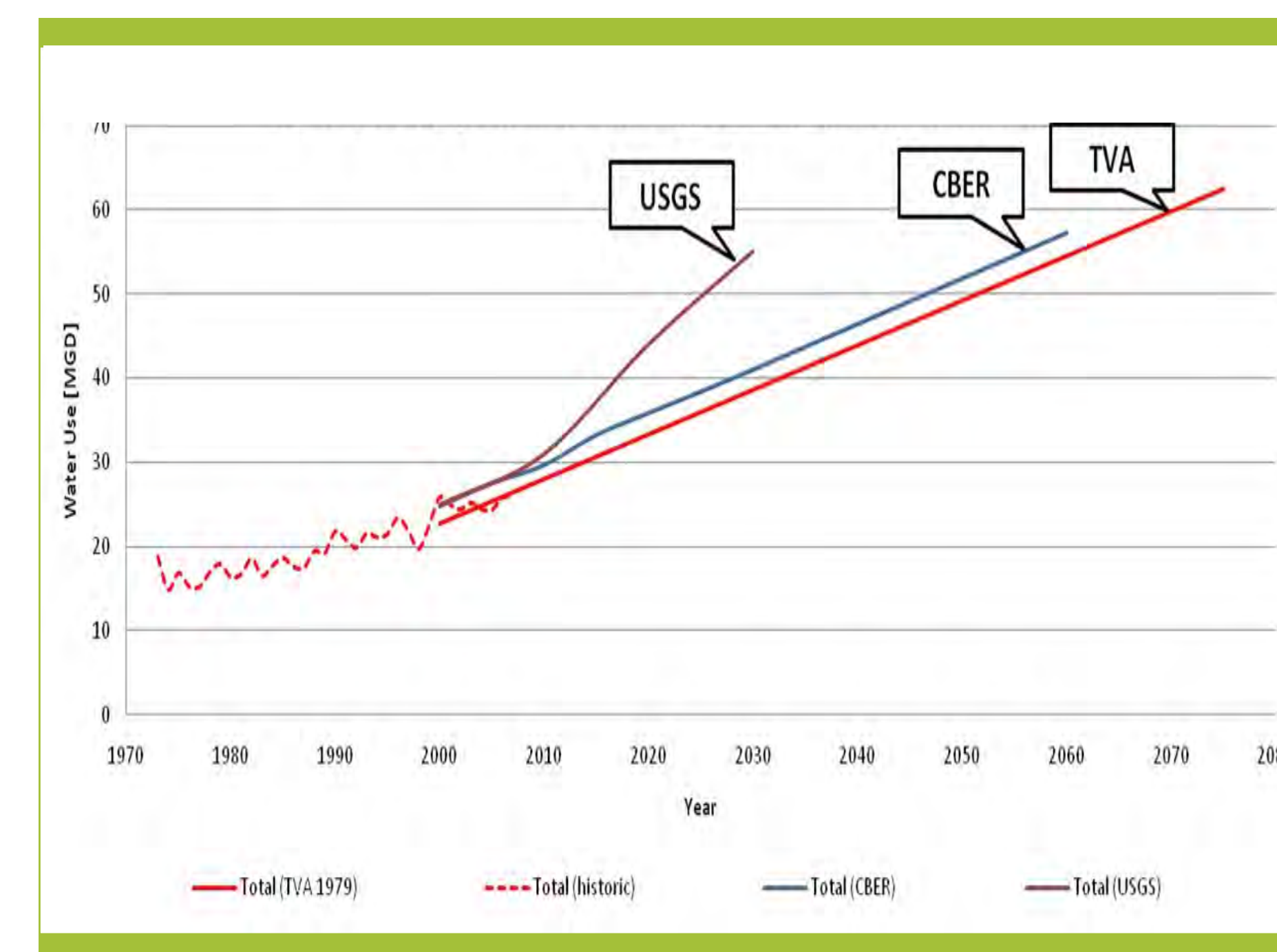
FUTURE WATER DEMANDS (CBER, 2009)

Water Use Projections for the Upper Duck River Watershed Area



SUMMARY OF FUTURE WATER DEMANDS

Water Use Projections for the Upper Duck River Watershed Area

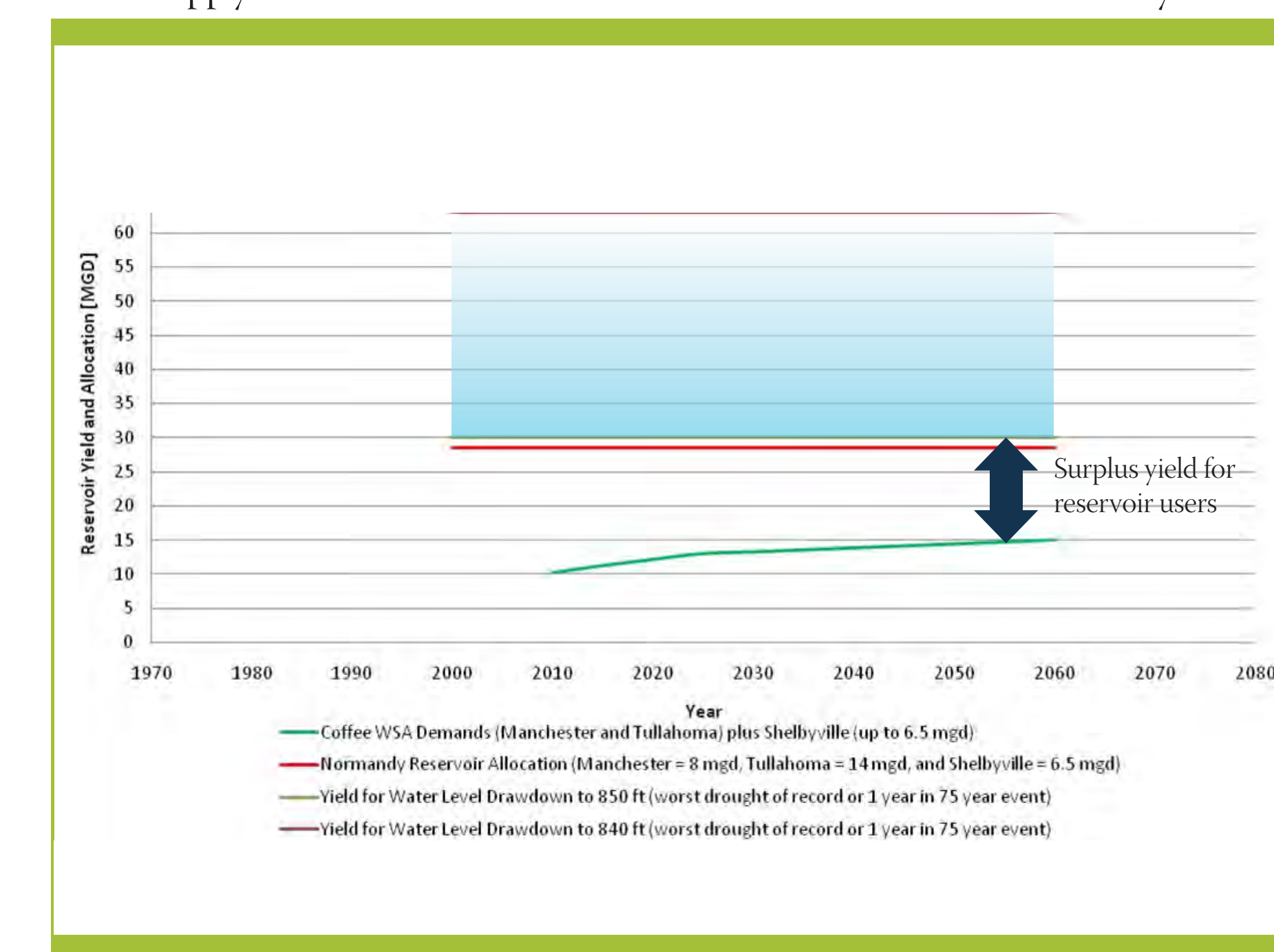


PROJECTION OF FUTURE DEMANDS

- Used CBER populations for 2010 to 2030
- Used Tennessee Duck River Development Agency (DRA) data (\$0.05/1000 gallons) for billed water for 1973 to 2008
- Adjusted DRA data to include water losses as defined by USGS (2008)
- Calculated average usage per resident inclusive of domestic, commercial, industrial, and water losses
- Applied average usage per resident to projected population through 2030 and extrapolated through 2060

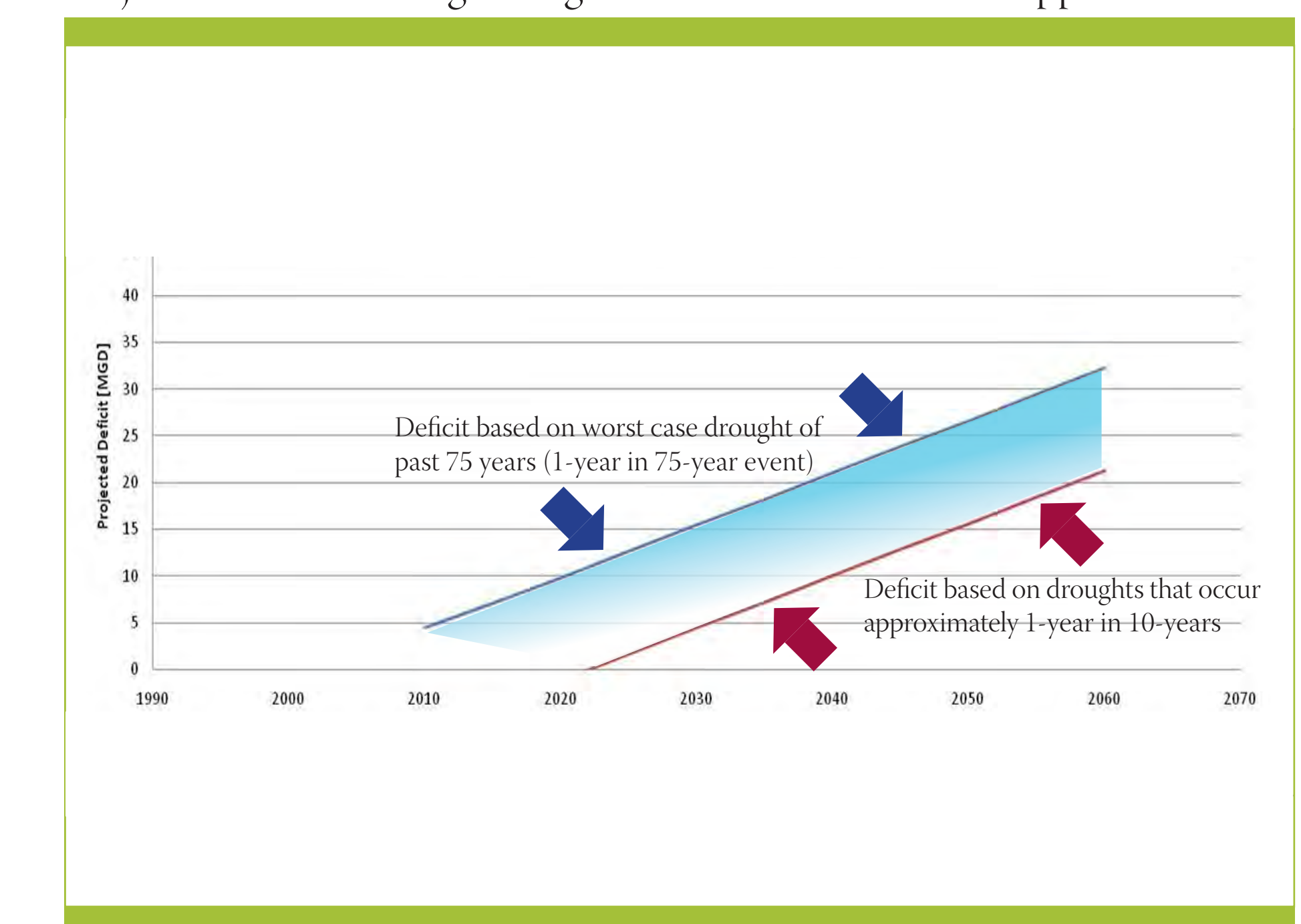
NEEDS ASSESSMENT FOR NORMANDY RESERVOIR SUPPLY (NO ACTION ALTERNATIVE)

Water Supply and Demand for Manchester and Tullahoma from Normandy Reservoir



NEEDS ASSESSMENT FOR DUCK RIVER SUPPLY (NO ACTION ALTERNATIVE)

Projected Deficit during Drought for Duck River Water Suppliers



NO ACTION ALTERNATIVE