

**Texas A & M University and U.S. Bureau of Reclamation
Hydrologic Modeling Inventory
Model Description Form**

June 1999

Name of Model: IWR-MAIN, Water Demand Management Suite

Model Type:

Model Objective(s): Forecasting desegregate municipal and industrial water demand and estimating impact of demand management measures

Agency and Office: Mr. Bill Davis, Planning and Management Consultants, Ltd., P.O. Box 1316, Carbondale IL 62901

Technical Contact and Address: Mr. Bill Davis 618-549-2832, billd@pmcl.com

Model Structure or Mathematical Basis: The IWR-MAIN Forecast Manager provides sectorally, spatially, and seasonally desegregate water use forecasts. Water use sectors are user defined and typically include residential, commercial, industrial, and public/unaccounted for water users. Water use forecasts are generated for each sector with user defined models. The IWR-MAIN Conservation Manager estimates sector water use from the end-use model which then permits the analysis of conservation savings over time. Benefit-cost analysis of conservation programs may be calculated.

Model Parameters: Forecasting model parameters are user-defined. Conservation model parameters include mechanical efficiency, saturation, intensity of use, and presence of end uses. Most conservation parameters have default values that may be modified for local conditions.

Spatial Scale Employed in the Model: User-defined, e.g, county, service area, pressure zone, etc.

Temporal Scale Employed in the Model: User-defined, any years from 1950 to 2100.

Input Data Requirements: Inputs include base year and projected units for each water use sector (e.g., housing, employment). Base year and future values of any variables specified for sector forecasting models must also be input. These will vary depending upon the user-defined models. Description of active conservation implementation conditions. Utility and conservation program costs for benefit cost analysis.

Computer Requirements: Windows95, Windows98, or WindowsNT 4.0 or higher

Model Output: Reports and graphs may be generated in numerous formats (e.g., annual or monthly forecasts; total, per day, or per unit use; in gallons, K gallons, M-gallons, hundred cubic feet, or acre-feet; with and without conservation). Outputs may be generated and printed in report or graph format, or exported to HTML,xls, or txt formats.

Parameter Estimation / Model Calibration: The Forecast Manager and Conservation Manager each have autocalibration features.

Model Testing and Verification:

Model Sensitivity: The Forecast Manager includes options for conducting sensitivity analysis on the estimated water demand forecast.

Model Reliability: The Forecast Manager includes options for calculating statistical uncertainty bounds for the estimated water demand forecast.

Model Application / Case Studies: See www.pmcl.com for more information.

Documentation: IWR-MAIN Water Demand Management Suite User's Manual is provided with the software.

Other Comments: Training is available.

Strengths: The IWR-MAIN System may be used for system planning and conservation evaluation.

Weaknesses: Significant socioeconomic data inputs may be required to properly reflect water use characteristics of a study area.