Creating a Land and Water Resources Narrative

Supporting information for Section III.B of 1W1P Plan Content Requirements (version 2.0)

This document provides additional considerations for what types of information to include in your plan's Land and Water Resources Narrative, where to find the information, and how to effectively use it.

The narrative, at least in draft format, should be completed before - and used to inform - the process of identifying and prioritizing resources and issues. The narrative should help explain why issues exist in the watershed, and ultimately provides the justification for the actions identified in the plan.

The Importance of Telling the Watershed Story

The Land and Water Resources Narrative is a critical component of the plan and the planning process because it sets the context for the other plan elements. The narrative should paint a clear picture of watershed characteristics. To keep the Land and Water Resource Narrative sufficiently concise, consider highlighting only the most pertinent maps in this section, and including any other maps in the Plan Appendix.

Every watershed has a story – its long geological history and its location determine the native soils, vegetation, and natural abundance and quality of lakes, streams, and groundwater. Historical and recent land use changes and hydrologic alterations determine the watershed's current characteristics, while social and economic factors can give clues about the watershed's future. It's also important to acknowledge the watershed's context within the broader basin because actions in upstream watersheds affect downstream neighbors.

Effectively "telling" the watershed story will establish a common understanding among planning participants, help planning groups identify and prioritize issues, and support the plan's strategies and actions.

Content Considerations and Sources

There are multiple reports, plans, and studies that already contain most, if not all, of the pieces of information you include in your narrative, but they may not be organized by your planning boundary. The plan must contain sufficient land and water resource information to inform the planning process. Specifically, the plan must include a general description of the available land and water resource information, and where to find that information. The Plan Appendix should include a list of, and links to, data sources and references.

Some types of information are critical to supporting priorities and actions of the plan and may need to be described more thoroughly. For example, a description of trend analysis results may need in-depth coverage to support a priority issue in the plan, but the data used in the analysis does not need to be included (it can be referenced). If gaps in information are identified through the plan development process, consider implementation action(s) to fill the gap rather than delaying planning in order to generate new data.

Physical Characteristics

Table 1 (page 3) lists information types and sources to consider for each required element of the Land and Water Resources Narrative. Some items on this list may not be available or applicable in your watershed, and there may be additional items important to your watershed that are not included. This is simply meant to stimulate ideas on what items to include in the narrative. The information sources below are good starting points to gather information on your watershed's physical characteristics.

Existing local water plans

- Minnesota Nutrient Planning Portal
- WRAPS reports (MPCA)
- GRAPS reports (MDH)
- DNR Watershed Health Assessment Framework Context reports
- Minnesota Forest Resources Council Landscape Stewardship Plans
- NRCS Rapid Watershed Assessments
- Minnesota Geospatial Commons

Socioeconomic Characteristics

Knowing about the people that live and work in the watershed is crucial to the success of your planning effort. This is a critical, but often overlooked, body of information - it can help you begin to think about the values and motivations of the people in your watershed. **Table 2** (page 4) lists characteristics that you may want to consider, and the list below gives some ideas about where to start gathering information.

- US Census American Fact Finder
- MN State Demographic Center
- USDA Economic Research Service

Getting to a Quality Plan

At the end of this process, you should have a **detailed description of the watershed and its story**, giving the reader a clear picture of the characteristics that make the watershed unique. This description should also explain why the issues and actions identified in the plan are relevant and necessary. More detailed narrative information will allow you to be more accurate as you prioritize and target implementation.

The watershed story should explain the watershed's context – the geology, climate, and position in the basin. The main focus should be the major land uses, the people who are responsible for managing the land use, and the economy as a result. This information should appear in the appendix at a minimum, and could also be included in the executive summary and plan introduction sections. Include maps that support the story.

Table 1. Information types and sources to consider for plan content requirements for the Land and Water Resources Narrative.

Plan Content Requirements	Potential Information to Include	Potential Sources
Topography, Soils, General Geology	**Topography:** LiDAR Elevations, Slope; **Soils**: Soil Texture (percent sand, silt, and clay), Crop Productivity Index, Forest Productivity, Hydric Rating, Wind Erodibility; **General Geology:** Bedrock, Surficial Geology, Karst Features, Mineral Deposits, Ecological Classifications	MN Geospatial Commons, NRCS Web Soil Survey, Unites States Geological Survey, MN Geological Survey
Precipitation	Normal Annual Precipitation and Temperature, Precipitation and Temperature Trends, Runoff Rates	MN Climatology Office, National Weather Service, NOAA Atlas 14, Modeling (HSPF)
Surface water resources, including streams, lakes, wetlands, public waters and public ditches	Streams (perennial, seasonal), Lakes, Wetlands (current, historical), Public Waters, Public Ditches, Altered Watercourses, Hydrologic Position Index	MN Geospatial Commons, MN Department of Natural Resources, Drainage Authorities
Groundwater resources, including groundwater and surface water connections if known	Groundwater Vulnerability, Springs, Recharge Areas, Depth to Water Table, Well Locations and Depths, Nitrate Levels, Aquifer Properties and Boundaries, Aquifer Water Level Trends, Direction of Groundwater Flow, Water Chemistry	County Geologic Atlas, Regional Hydrogeologic Assessment, MN Geospatial Commons, MN Department of Agriculture Township Testing Program, MN Geological Survey, MN Department of Natural Resources, MN Department of Health
Water quality and quantity, including trends of key locations and 100-year flood levels and discharges, regulated pollutant sources and permitted wastewater discharges	**Water Quality**: Impairments, Stressors, Trend Information, Regulated Pollutant Sources, Wastewater Treatment Plants; **Water Quantity**: 100-year Floodplain, Known Damages	Watershed Restoration and Protection Strategies (and associated reports), MN Pollution Control Agency, MN Department of Natural Resources, Federal Emergency Management Agency
Stormwater systems, drainage systems and control structures	Stormwater Systems, Drainage Systems, Dams, Impoundments, Drain Tile Systems	MN Department of Natural Resources, Watershed Districts, Counties, US Army Corps of Engineers, Cities
Water-based recreation areas	Parks, Public Accesses, State Water Trails, Public Beaches, Fishing Piers, Wildlife Management Areas, Waterfowl Production Areas	MN Geospatial Commons, MN Department of Natural Resources, US Fish and Wildlife Service, Cities, Counties
Fish and wildlife habitat, rare and endangered species	Conservation Lands (public conservation lands, easements, etc.), Native Prairie, Important Wild Rice Areas, Tullibee Lakes, Designated Trout Streams, Rare and Endangered Species	MN Geospatial Commons, MN Department of Natural Resources, US Fish and Wildlife Service
Existing land uses and proposed development	Land Cover (present and pre-settlement), Crop Data (types, average yields, irrigated/non-irrigated), Feedlots (type, animal units), Road Network, Impervious Surfaces, Landfills (active, closed), Subsurface Sewage Treatment Systems, Proposed Development	MN Geospatial Commons, USDA Ag Census, MN Department of Natural Resources, MN Pollution Control Agency, MN Department of Agriculture, Counties, Cities

Table 2. Socioeconomic information that can be useful in the Land and Water Resources Narrative.

		Source(s)
People	**Population**	Population size, U.S. Census Bureau, Population Estimates Program. Point-in-time estimate, as of July 1st
	Age distribution	Sex by age, 2011-2015 American Community Survey 5-year estimates
	Educational attainment	Educational Attainment: population 25 years and older (U.S. Census Bureau)
	Employment by industry	Industry by occupation for civilian employed population 16 years and over, 2011-2015 American Community Survey 5-year estimates
	Income	Per capita income, 2011-2015. U.S. Census Bureau, American Community Survey
Economy	**County economic base**	U.S. Department of Agriculture, Economic Research Service, County Typology Codes, using data from the Bureau of Economic Analysis and the U.S. Census Bureau
	Land ownership	Minnesota Geospatial Information Office, County recorders, assessor's, or land surveyor's offices. Some Minnesota counties provide their parcel data sets online.