UTILITIES DEPARTMENT
Water Resources

Red Gap Ranch History

WATER MANAGEMENT

The City of Flagstaff has historically relied upon surface water from the Inner Basin within the San Francisco Peaks and Upper Lake Mary for its water supply dating back to the 1890s. In response to drought conditions in the 1950s that impacted these surface water supplies, the City began drilling water wells in the vicinity of Woody Mountain to tap into deep underground regional aquifers. Additionally, the City began drilling water wells in the vicinity of Lake Mary in the 1960s to expand its access to local groundwater supplies. In order to bring all of these water resources to the citizens of Flagstaff, three pipelines have been constructed over the past 100 years that range in length from 5 miles, 6 miles and 12 miles.

The City has been keeping meticulous hydrologic records since 1949 which show that groundwater levels in some water supply wells have been steadily decreasing over the past decade. These declines can be either attributed to impacts from the recent drought or possibly from over-drafting the local groundwater basins. Over-drafting is a common phenomena in the desert portions of our State and occurs when more groundwater is withdrawn from an aquifer than what is naturally recharged from snow melt or stream flow infiltration. These groundwater level declines have occurred during the same time the City has taken a leadership role by implementing significant water conservation programs that have resulted in a decrease in water use by 40% measured in gallons per capita per day (GPCD).

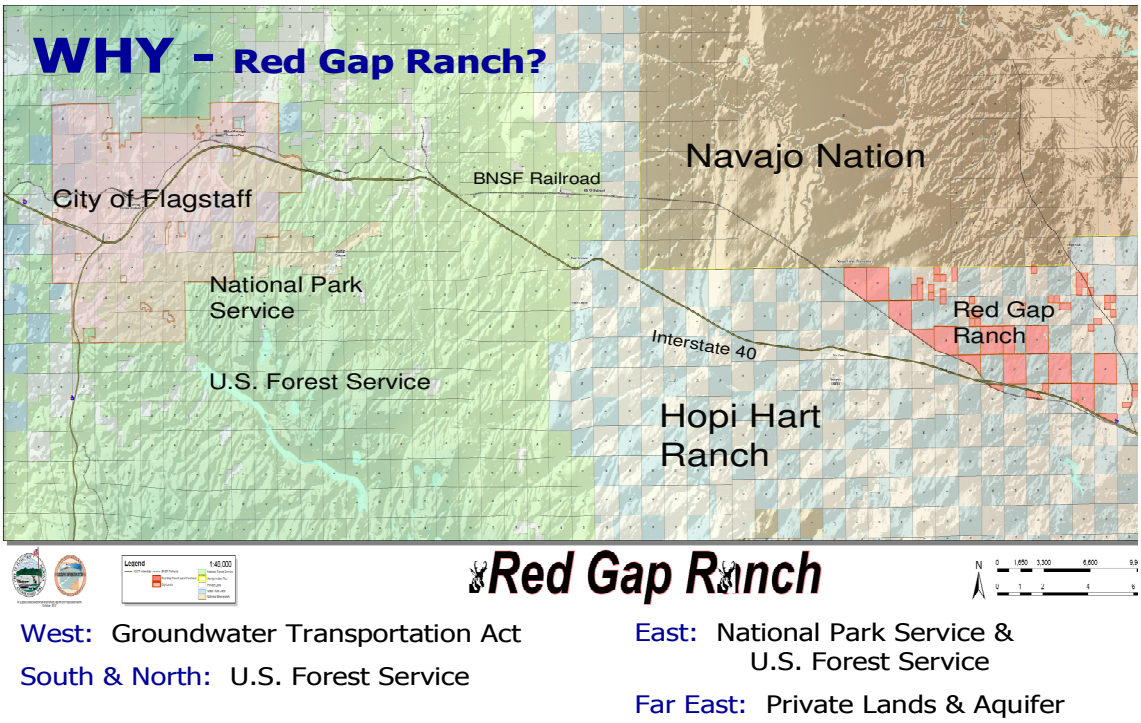
When considering the hydrologic reality of past couple of decades, the City recognizes the importance of understanding the water supplies it relies upon and their reliability for both citizens that are here today and ones to come in the future. Therefore, in 2009 this city is undertaking two hydrologic studies to evaluate its local water supplies (both groundwater and surface water) and future water supplies to determine their sustainability and reliability over the next 100-years.

CITIZENS BOND ELECTION

The citizens of Flagstaff recognized the need to diversifiy the communitiy's water resource portfolio and in 2004 approved a $15 million Bond Election in order to

acquire and/or develop property or water rights. This new water supply should provide system redundancy and protection from the impacts from drought for residents both here today and into the future. Based upon this guidance from the public and City Council, the City purchased Red Gap Ranch in 2005. The Ranch is located 40 miles east of Flagstaff north of Interstate 40 (see map). The Pipeline Alignment Feasibility Study is the next logical step in moving forward with the voters intention from 2004 to acquire and develop new water supplies.

FIGURE 1 – Location of Red Gap Ranch



The City purchased Red Gap Ranch based upon two primary factors; a willing seller of land at the reasonable price and sufficient groundwater resources to sustain the City's long-term water needs. Prior to the purchase, the City evaluated many options which can be summarized by thinking of the points of a compass. Land west of the City limits was off-limits due to the Groundwater Transportation Act of 1991 that prevents the movement of groundwater from one basin to another. Lands north and south of the City limits where off-limits due extensive public lands owned by the U.S. Forest Service including portions designated as protected wilderness. This left the City to look eastward beyond Walnut Canyon National Monument, the Navajo Nation and the Hopi Tribe's Hart Ranch. The City began discussions with both the owners of Red Gap Ranch located to the north and Bar T Bar Ranch located to the south of Interstate 40. The City ultimately arrived at a purchase price with the owners of Red Gap Ranch of $7.9 million in 2005 that included two large water supply wells.

PIPELINE ALIGNMENT FEASIBILITY STUDY

Project Goals: The City hired JACOBS Engineering (and their sub-consultants) in July 2008 to conduct a Pipeline Alignment Feasibility Study to identify an alignment for a water delivery transmission pipeline from Red Gap Ranch to the City of Flagstaff that will achieve the following goals:

A. the least project COST
B. the least ENVIRONMENTAL IMPACTS
C. the least IMPACTS TO THE COMMUNITY
D. least RISK to completing the project

This 18 month long effort is currently underway and is divided into three Phases that in-total will develop a conceptual design of the pipeline and pumping stations, identify the right-of-way that needs to be purchased, identify the environmental concerns and issues (e.g., cultural, biological and archeological) and develop an estimated cost to final design, construct and operate the pipeline.

Phase I: the purpose of this portion of the project is to analyze preliminary pipeline alignment alternatives and pump station locations; identify pipeline sizing; and to quantitatively analyze and identify the most optimum pipeline alignment to achieve the four project goals mentioned earlier by evaluating geotechnical information, known archeological and cultural resources, and land ownership. Two public Open House meetings have been held at City Hall in order to get feedback and input from the community at large. For more information on the Phase 1 Open House meetings, refer to the Public Involvement portion of this website. This Phase is expected to be completed in February 2009.

Phase 2: the purpose of this portion of the project will be to conduct a detailed analysis of the preferred alignment identified in Phase 1 to arrive at a pipeline conceptual design and facility locations. Specifically, the objectives of this phase will be to select pipeline and pump station materials; determine pipeline, forebay and pump station sizing; identify environmental, geotechnical and drainage issues in more detail; identify water treatment requirements; and identify electrical needs to operate the pipeline and pump stations. Up to two more Open House meetings are anticipated in this phase to engage and obtain feedback from the community at large. For more information on these upcoming public meetings, please contact the City (via the email on this website) to ensure you are on the notification mailing list. This Phase of the project will begin in February 2009 and is projected to be completed by January 2010.

Phase 3: the purpose of this portion of the project will be to summarize all of the information into a single coherent final feasibility and conceptual design report. This report will be presented to the Water Commission and City Council for their

input and direction. Lastly, this phase will have additional public meetings to engage and obtain their feedback on the final report.

Sunset at Red Gap Ranch

Headquarters

View of San Francisco Peaks from Red Gap Ranch