

PROJECT PRIORITIZATION

With numerous water management projects identified throughout the watershed, the Partners are faced with the task of prioritizing projects for implementation. Since the mission, goals and objectives of the Pajaro River Watershed IRWMP were developed to guide the evaluation of projects proposed for implementation under the IRWMP process, the Partners developed a project prioritization process. This process is based on a ranking of these goals and objectives and an assessment of how well projects meet the objectives for each of the goals (water supply, water quality, flood protection, and environmental protection and enhancement). Defining the priorities of the region creates a more objective prioritization process for proposed projects.

The goal of the project prioritization process will be to identify high, medium, and low priority projects for implementation within the watershed. The draft prioritization process developed to aid in project ranking is illustrated in Figure 1 below.

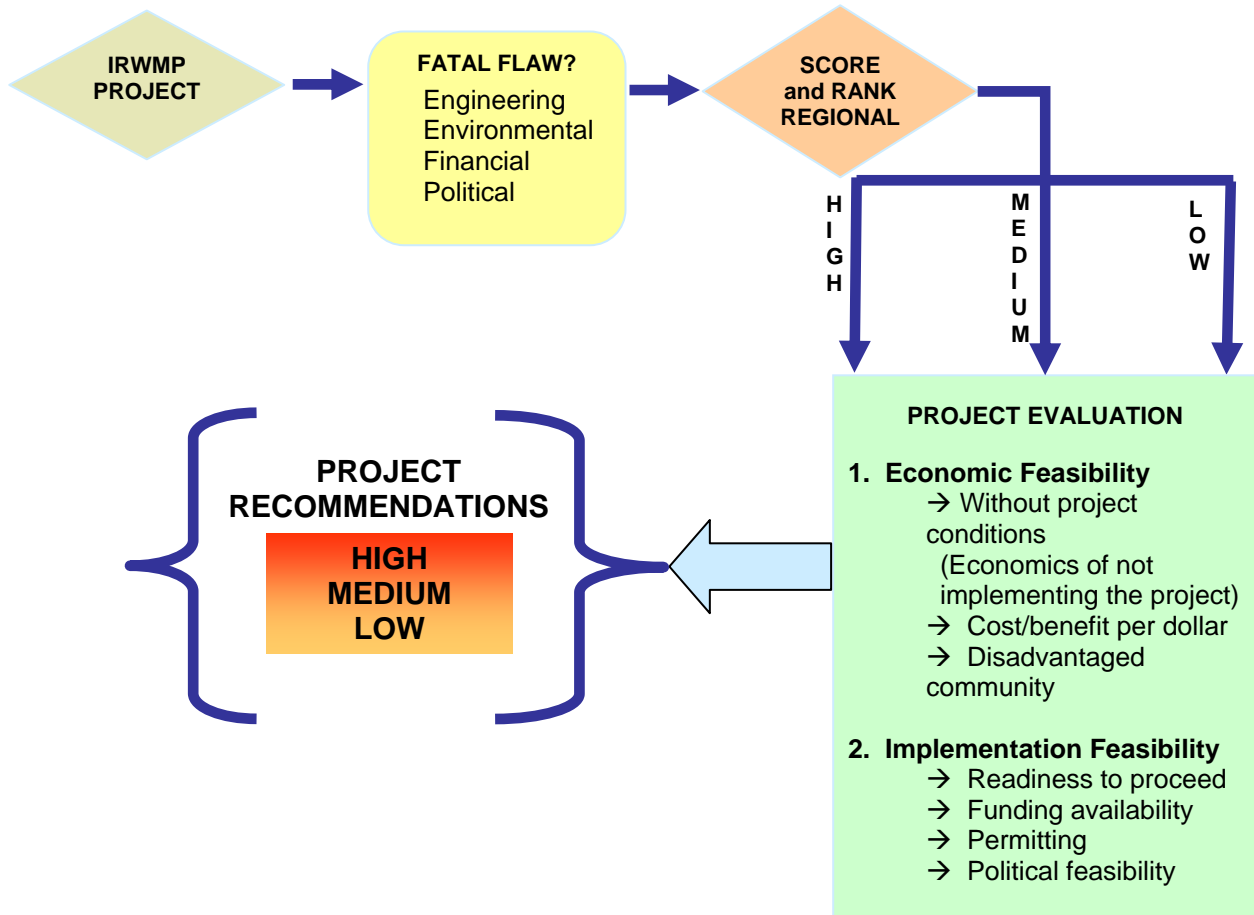


Figure 1. Draft Prioritization Process

In order to accomplish a ranking of high, medium, and low priority water management projects for eventual implementation, the Partners developed a mathematical process (discussed below

under “Sample Prioritization Methodology”) by which projects could be numerically ranked and prioritized based on their ability to meet the goals and objectives. The numerical ranking is based on the assumptions established in the following discussion.

Prioritization of Water Management Goals

The Partners came to agreement on the priorities of the region by first looking at the priorities for their respective service areas and then the watershed as a whole. This exercise allowed the agencies to identify those areas where they shared the strongest connections and to engage in discussions on how the regional priorities should be shaped.

The water supply goal was given the highest priority of the four goals because the primary purpose for which each of the agencies in the Collaborative was formed was to manage water supplies for their constituents. Furthermore, the initial integrated effort, which began this collaborative process in 2004, was borne out of regional water supply needs and challenges, and the desire of each agency to work with others to identify greater, regional solutions and partnering opportunities.

The second highest regional priority was determined to be water quality. It is second to the water supply goal since water quality issues directly affect the reliability and availability of water supplies. Additionally, addressing water quality issues is a significant focus of the statewide priorities,.

The third regional priority is flood protection. Various stakeholders have been working diligently within the Pajaro River watershed to develop flood protection projects. While not all three Partners have flood management responsibilities within their charter, all three participate in the Pajaro River Watershed Flood Prevention Authority (FPA), and the importance of developing and implementing flood protection strategies for the watershed is recognized by each of the Partners.

Lastly, the environmental protection and enhancement goal, which is ranked fourth, represents the Partners’ commitment to look for opportunities to incorporate environmental elements into other water management projects. It is recognized that often stand-alone environmental projects are difficult to implement; however, when multi-beneficial projects are involved, environmental protection and enhancement can often become a viable component of an integrated project.

Based on this prioritization of the four IRWMP goals, each goal and its associated objectives are assigned a weighted value. The values of each goal and their associated objectives are determined by the mathematical method called a convergent series that allows the total score possible to be equivalent to 100%. The proposed mathematical method for ranking project goals and objectives is described below.

Sample Prioritization Methodology

In order to provide an objective method of prioritizing projects based on the prioritized goals and objectives, the following method was established to assign weights to each of the goals and each of the objectives within a goal.

Weights were assigned to each of the goals on a percentage basis considering both the total number of goals and the rank that the Partners had assigned to each of the goals. A convergent series was employed that considers both the total number of elements and the position of the element. A different series could be employed provided that it takes into account both the number of elements (i.e. number of goals) and position (i.e. rank) of the elements. Additionally, the convergent series must produce a decreasing sequence of positive terms that converges to 1.

The convergent series that was employed in the sample prioritization is:

$$\frac{\frac{n}{i}}{\sum_{i=1}^n \left(\frac{n}{i}\right)}$$

Where: n = number of goals
i = rank of the goal

Sample Calculation:

There are 4 Pajaro River Watershed IRWMP goals, so n = 4.
The water supply goal is ranked number 1, so i = 1.

$$\frac{\frac{4}{1}}{\sum_{i=1}^4 \left(\frac{4}{i}\right)} = \frac{\frac{4}{1}}{\frac{4}{1} + \frac{4}{2} + \frac{4}{3} + \frac{4}{4}} = \frac{4}{4+2+1.33+1} = \frac{4}{8.33} = 0.48$$

∴ The water supply goal was assigned 48% of the total project score.

Weights were assigned to each of the objectives using the same methodology. The total number of objectives within a goal and the rank that the Partners had assigned to each of those objectives was considered. The same convergent series that was applied to the goals was applied to the objectives.

Sample Calculation:

There are 8 water supply objectives, so $n = 8$.

The “Meet 100% of M&I and agricultural demand in wet year to dry years including the first year of a drought” objective is ranked number 1, so $i = 1$.

$$\frac{\frac{8}{1}}{\sum_{i=1}^8 \left(\frac{8}{i}\right)} = \frac{\frac{8}{1}}{\frac{8}{1} + \frac{8}{2} + \frac{8}{3} + \frac{8}{4} + \frac{8}{5} + \frac{8}{6} + \frac{8}{7} + \frac{8}{8}} = \frac{8}{8+4+2.67+2++1.61.33+1.14+1} = \frac{8}{21.74} = 0.37$$

∴ The “Meet 100% of M&I and agricultural demand in wet year to dry years including the first year of a drought” objective was assigned 37% of the total water supply score, which is 48% of the total score. In other words, this objective was assigned 17.7% of the total score.

For simplicity the total possible score each project can receive was set at 100. Each project is compared against the list of objectives, and for each objective that a project can “check”, the project receives claims that objectives percentage of the total score. For example a project which can check the “Meet 100% of M&I and agricultural demand in wet year to dry years including the first year of a drought” objective receives 17.7 points (17.7% of 100) towards its score.