# Long Term Solution for North Davis Meadows Water System

1. City of Davis Connection
   - The CSA decided to pursue a well option in November 2010 following a neighborhood survey that demonstrated little support for this option.
   - The cost of this project was estimated to be **$4,480,500** (cost subject to negotiations with the city of Davis).
   - In addition to connection costs, the water rate structure would be based on that of the city of Davis water usage charges upon connection.
   - Based on September 1, 2010 rates and historical average monthly NDM water consumption per household, the water bill for a NDM customer would be $518 bi-monthly ($3,108 annually). City of Davis rates are projected to triple in the next five year (reported in the Davis Enterprise). Current annual water cost is approximately $1,200.
   - A connection to the City of Davis would not guarantee receipt of river water, as Davis will continue to rely on a combination of river water and wells, once it builds its new river water system.
2. One new well plus rehabilitation of one existing well Approximate Cost **$855,850**
   - Maximum day requirement is 411gpm per source.
   - In addition to this, there is a state fire flow requirement of 875 gallons per minute for 120 minutes.
   - Larry Ernst, engineer consultant from Wood Rogers, said that a he would recommend lining a well to fix it. This reduces the capacity of the well.
   - **Larry Ernst is not certain that the water capacity requirement can be met with the rehabilitation of one well.**
   - **If the water capacity requirement is not met, then a water storage tank would be required to compensate for the lower that target output. The size of the tank needed would be dependent on the reduced output. The size of the tank could be so large that it may not be cost effective. Larry said that adding a tank to meet the water capacity requirement is "possible" but not "feasible." He mentioned the possibility of needing a tank with a capacity of a million gallons or more.**
   - There is no guarantee that the nitrate issue would be resolved.
   - Larry Ernst said that a fixed well would have a life span of approximately 10-15 years, due to the fact that the well would not be able to be cleaned as well.
   - The hexavalent chromium level in existing wells is 21ppb (tested in 2000). Proposed Public Health Goal is .02ppb. A maximum level of contaminant has not been set.
   - Larry Ernst said that one possible way to meet water capacity requirement would be to have neighbors drill irrigation wells. He estimated the cost of an individual irrigation well at five or six thousand dollars, up to ten thousand dollars. However, the California Department of Public Health would need to allow this as a valid solution permitted

under the compliance order. Regina reported that there is no guarantee that Environmental Health and CDPH will agree to a new capacity number that would allow for smaller wells to be drilled. The state capacity requirement is still going to be based on total need and is at this point not a theoretical capacity number without irrigation considered for the future.

3. One new well plus rehabilitation of both existing wells **Approximate cost $920,000**
    - Larry believes that to meet our water capacity requirement we would have to add a steel storage tank to meet the state fire flow requirement. In order to compensate for not meeting this target a tank up to 100,000 gallons in size, might be needed. A 100,000 gallon tank would cost approximately **$200,000.**
    - Issues regarding rehabilitating wells are noted above.
4. Two new wells (same site) **Cost Analysis from grant, excluding destruction of old wells $1,584,00**
    - Cost of destroying both existing wells would be an additional $45,000.
    - Larry has proposed drilling a test hole to 900 feet and using the aquifers above this that demonstrate the best water quality.
    - Nitrates are not a problem in the lower aquifers, however, there is no guarantee that water quality standards will be met upon completion or in the future.
    - New wells have a life span of 50 years according to industry standards (the City of Davis average is 30 years).
    - New wells will be built with better materials than existing wells.
    - Hexavalent chromium levels are significantly lower in the lower aquifers.
5. Individual Wells for Drinking Water and Irrigation
    - If everyone were to drill individual wells, this could mean that NDM would no longer a community water system according the state, which then means that the CSA would no longer be used for the purposes of providing water. NDM could still have a CSA for sewer, etc., but would not need one for water. From the County's view, there is no specific regulation of individual wells by any entity other than making sure that each well meets EH requirements when drilled.
    - According to EH this option may not be feasible in NDM, because some of the NDM parcels would not be able to meet standards for drilling their own wells (meeting set-back requirements from sewer pipe, septic etc.)

Bonding- Assuming a 7% bond rate, the potential bond costs would be about 1% of the cost per house, per year, for thirty years. This simplified formula allows for comparing the total cost of projects. For example a $1,500,000 project would cost roughly $1,500 per year. A $1,000,000 project would cost $1,000 per year, a difference of $500 per year.