NORTH DAVIS MEADOWS
WATER PROJECT: RECOMMENDATION, UPDATE, OPTIONS AND SURVEY

Survey is on the last page

JUNE 2015

I. NDM ADVISORY COMMITTEE WATER RECOMMENDATION.

At our County Service Area meeting on May 27th all four Advisory Committee members voted to recommend the Dual Use Consolidation Project, to connect with the City of Davis for our domestic water supply and to use of our existing wells for irrigation.

The committee came up with this recommendation based on information presented at the numerous public meetings and neighbor input that we have had on this issue for the last seven years. We need to resolve our water problem.

Neighbors are being asked for their input regarding which option they prefer. A Survey is attached. This Survey will be used to determine which project will be pursued. Based on the results of this Survey, we will be submitting an application for low interest loan financing to the State Water Resources Control Board by August 1st. After the necessary staff, technical and engineering work on the preferred project, we will proceed to a Prop 218 election. The Prop 218 election will provide an opportunity for each household to vote on the project. An application for low interest financing from the State Water Resources Control Board must be submitted by August 1st.

Why did the Advisory Committee unanimously recommend the Dual Use Consolidation Project?

- The Consolidation Project is a guaranteed, long term solution.
    - While the consolidation is more expensive initially, it offers long term security and reliability, which we believe to be worth the price difference. In the end, the deep well project could become the more expensive option.
- Currently low interest loans are available from the state for water projects.
    - There is a very high probability of obtaining a state low interest loan for a consolidation project.
- Currently there is a very favorable climate within the city to allow us to connect their water supply. This could change in the future.
- The City of Davis is far more able to efficiently and effectively deal with providing a safe and reliable domestic water source than North Davis Meadows volunteers and one county staff member, who has multiple other responsibilities.
- We will only be receiving City of Davis water for domestic purposes. We estimate that the cost for a family of four will be $41 monthly rising to $68 monthly in 2019. We will supply our own irrigation water.
- Consolidation with Davis will be a one time infrastructure cost for domestic water. All wells have a limited life expectancy and will need to be replaced. While we may need to replace irrigation wells, standards are lower, making them cheaper to replace.
- Sewer charges will be reduced when exact water supply quantities are known.

Why does the Advisory Committee not support drilling new wells?

We see too many potential problems with relying solely on groundwater from two new deep wells:

- Ground water continues to be problematic, as evidenced by recent exceedances of hexavalent chromium, aluminum and iron in our existing wells.
- State water quality standards will continue to grow stricter.
- Using two deep wells makes us vulnerable to changes in water quality. If problems developed, we would then need to continue to pay for the wells and pay for a new solution to new problems.
- The cost of any needed equipment for treatment at the well head as well as the necessary operation and maintenance costs, would be extremely expensive. These costs would be spread over our small number of homes. Such costs would need to be paid indefinitely.
- While the two deep wells option includes drilling monitoring wells to determine if water quality is initially acceptable, water quality as well as regulatory requirements can change over time. Additionally, drilling monitoring wells would cost approximately $250,000, which would have to be voted upon and financed if we were to do it as a stand alone project.
- The deep well in the area (belonging to UCD) that is most similar to our proposed deep well project has exceeded the MCL for hexavalent chromium. The City of Davis' deep well that is closest to us is approaching the hexavalent chromium MCL
- The committee feels that it is prudent for NDM to avoid the possibility of having to pay for expensive treatment on top of the cost of new wells.

Additional Information in response to comments at the May CSA meeting

Additional Contaminants:

May 2015 testing of our existing wells showed continued MCL levels above State standards for hexavalent chromium **and** now exceedance of the MCLs for aluminum and iron. This is in addition to our nitrate problem.

Treatment Costs:

The cost of well head treatment came up again at our recent meeting. A previous estimate for nitrate only treatment showed the cost for the equipment alone to be $750,000 to $1,000,000 per well. In addition, there are significant operations and maintenance costs such a brine disposal, electricity, service contract and county administration. Each additional contaminant may have to be treated differently with additional expense. A previous estimate of ongoing O & M costs for nitrate treatment alone were estimated to be $194,00 annually (approximately $2,000 per home annually).

A recent discussion with a treatment company suggested that treatment equipment alone for hexavalent chromium could cost approximately $800,000 for one well, in addition to significant O & M costs. The cost of electricity for the treatment and the cost of brine disposal are particularly pricey.

II. NORTH DAVIS MEADOWS WATER OPTIONS SUMMARY
updated June 2015

Our neighborhood is now the subject of two Compliance Orders as our water supply does not meet state standards for either nitrate or hexavalent chromium.The California Department of Public Heath issued a Compliance Order to our neighborhood in December of 2009, requiring a long term solution to the nitrate contamination in our wells. On April 6, 2015, Yolo County issued a Compliance Order due to excess hexavalent chromium also requiring correction to our water supply system.

Background:

We have explored various alternatives and combinations for a number of years now. In 2010 and in 2011 we conducted neighborhood surveys for a preferred alternative, listing consolidation with the City of Davis for all water, rehabilitation of existing wells, and two new well drilling options: 1) two large deep wells and 2) two small wells for domestic water and replumbing the neighborhood for irrigation. At that time, the overwhelming preference was for drilling two new deep wells.

We were ready to go to a Proposition 218 election in the Spring of 2013, to drill two new deep wells to deal with our excessive nitrate. That two deep well project was sidelined in March of 2013, when a consolidation project with the City of Davis was proposed by a representative from the California Department of Public Health. The new consolidation project includes Davis water for domestic use and use of existing NDM wells and infrastructure for irrigation water. Very favorable terms for the proposed consolidation project were discussed for our neighborhood. This new dual use project was the subject of an NDM community meeting in August of 2013. However, in October 2014, the City was able to obtain alternative financing for its new water supply project without needing to consolidate with us.

New discussions with the City of Davis indicate a willingness for the City to provide domestic water supply to our neighborhood. We have identified the appropriate connection charge, which is significantly lower than previously discussed. At our CSA Advisory Committee meeting on May 27, 2015, the water project options were discussed.

Current and Future Steps

We need to move forward to develop a solution to our increasing water quality problem. As discussed in Part I above, based on the results of the Survey, the CSA will submit an application by August 1, 2015 for a low interest loan for a water supply project.

Grants/Low Interest Loan Application

State grant and low interest loan funds (currently approximately 2%) are available for water supply projects. North Davis Meadows does not quality for grant money, due to the fact that income levels in our neighborhood are above $70,000. **However**, we can be considered for a low interest loan. This could save us thousands of dollars in interest versus conventional financing. In 2012, our two deep well project was denied grant funding and put on a list for loan funding. A consolidation project is favored by the state, and receives higher priority than a well project for receiving funding.

Updating our application for the well project or submitting a new application for the dual project consolidation to the state will cost our CSA about $10,000 in staff charges

Prop 218
Following the application for state funding, we will proceed with the necessary staff, technical and engineering work on the preferred project to proceed to a Prop 218 election. The Prop 218 election will also provide an opportunity for each household to vote on the project.

Options
The pros and cons of drilling wells (the two deep wells, and the two small wells) and dual use consolidation with the City are summarized below.

(The technical documents referenced are available on the North Davis Meadows Yolo County web site for additional information:
http://www.yolocounty.org/community-services/planning-public-works/county-service-area/north-davis-meadows)

***The following are estimated costs only. They are probably most useful to compare relative prices between the options. Much more detailed engineering and bids will be needed to determine actual costs.

Costs for individual homes for a new water project would be on the annual property tax bill.

Option 1 Drilling New Wells.

1A: Install Two Deep Wells – up to 900 feet in depth

Capital Cost Estimate- as of 10/22/14 by Wood Rogers Engineering

Two Wells and Infrastructure Improvements:	$2,097,300
25% Contingency:	$ 524,325
Incidental Expenses with contingency:	$ 880,688
Total Opinion of Costs:	**$3,502,313**
Metering:	**$ 380,000*:**
Total with metering	**$3,882,313**

***IF low interest loan is available (2% interest, 20 years):*

Approximate annual cost per home: $ 2,500 for 20 years

***IF low interest loan is not awarded, conventional financing (est.5% loan, 30 years) will add an additional financing costs of $291,250,*

Total with Metering and Financing Costs $4,173,563
Approximate annual cost per home $ 2,858 for 30 years

Project 1A: Install two wells up to 900 feet in depth. Wells to be sealed to 600 feet. Proposed use of any aquifers between 600 and 900 feet that meet standards. Each well will be capable of supporting peak demand (411 gpm)

New wells would be constructed of better quality materials than existing wells.

Yearly operating costs would be somewhat higher than existing costs (approximately $1,200 annually per home) due to increased electrical costs for pumping water from greater depths and the need to properly budget for pumps/motors.

Pros:

- North Davis Meadows maintains control over its water supply.
- Aside from some updating of costs and applying for a low interest loan,this project is close to being ready for a Proposition 218 election.
- Cost for water may be more predictable than with consolidation, unless problems arise with the water or the wells.
- Monitoring wells will be drilled prior to the drilling of the actual wells to determine water quality in the aquifers found.
- May be the least costly solution, if a low interest loan from the state is approved. We were previously denied grant funding and put low on a list for receiving low interest financing.
- 16 inch diameter wells will allow for lining in the future, if needed.

Cons:

- The quantity and quality of the groundwater is not guaranteed. State requirements can change over time. (For example, Wildwings in Woodland built two deep wells that met state standards. Then the allowed arsenic level was cut in half a couple of years later and one of the wells exceeded the maximum contaminant level.)
- The state prefers to fund projects that include consolidation with an existing municipal supply. Our application for low interest financing of a well project will receive a lower priority for funding than if we choose a project that includes consolidation.
- If the water does not meet standards in the future, we will be right back to where we are now. We would need to either treat the water, or look for an alternative water supply. Treatment is extremely expensive and would be an **additional** cost for the neighborhood. Treatment is not only expensive to install, but has very high operations and maintenance costs..
    - If the water does not meet standards in the future, we would continue to have to pay for the 2 deep wells, in addition to new costs of any treatment or an alternative supply.
- NDM does not have a “water department.” The City services our wells but the county must be involved when issues arise. Staff availability can be problematic.
- Hexavalent chromium is an ongoing groundwater concern. One of the five deep wells in Davis is above the hexavalent chromium standard. Two of the six UCD wells have been above the standard. One was rehabbed and now has an MCL of 9.5 ppb
- Manganese could be a future groundwater problem. One of the City’s deep wells is being treated for manganese and another is being monitored. Levels of manganese appear to be

slowly increasing in the monitored well and one other well, according to the city's engineer. UCD has not had an issue with manganese in its deep wells. Davis' engineer reported that some city deep wells have no detectable concentrations of manganese while others have high concentrations. This is also true of the intermediate wells.

- Capacity could be an issue. One of the City's deep wells (its oldest) has lost capacity over time. Attempts to improve its capacity have failed.
- Sewer charges paid to the city of Davis will be based on individually metered water, which will include any irrigation water used during the winter.

Option 1B: Drill Two Small Deep Wells for Domestic Use/ Use Existing Wells for Irrigation

Capital Cost Estimate: This option was reviewed in 2011 and is now estimated to cost approximately $650,000 more than the two deep wells option due to the need to replumb the neighborhood.

Total with metering $4,823,563

***IF low interest loan is available (2% interest, 20 years):*
Approximate annual cost per home: $ 3,105 for 20 years

***IF low interest loan is not awarded, conventional financing (est.5% loan, 30 years) additional financing costs of approximately $315,000,*

Total with Metering and Financing Costs $5,138,563
Approximate annual cost per home $ 3,518 for 30 years.

Project 1B:
This option would utilize the existing two wells for irrigation and two new small (8 inch diameter) deep wells would be utilized for domestic supply The reason for considering this option is that it would allow the small domestic wells to be "treatment ready" if issues with water quality arise in the future. It is extremely expensive to treatment both domestic and irrigation water.

Pros and Cons are similar to those of the two deep wells, with these additons:

Pros:

- This option allows for treatment, if needed, for domestic water only.
- Sewage rates will be based on domestic water use only, which should allow for significant savings.

Cons:

- It will cost money to determine the true cost of this option. This option would require replumbing the neighborhood for connection of the two different water well sources.
- This option has the cost of new deep wells and dual plumbing with no guarantee of long term water quality.
- This option received minimal support in our 2011 Survey

- Due to the size of the wells, lining the wells in the future probably would not be an option. Lining can be used as a well repair, if a leak in the casing causes a problem with water quality.
- Operation and maintenance costs would be higher, as four wells would be used.
- This option is not ready to go to a Proposition 218 election.

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Option 2: Dual Use Consolidation with Davis for Domestic Water/Use Existing System for Irrigation.

Capital Cost Estimate: Provided by West Yost 5/30/13 updated 5/20/15 by Bob Clarke (City of Davis Engineer) in consultation with West Yost.

*Costs associated with providing water to NDM, **not including the cost associated with the home to street connection:**	$2,800,591
*20% Planning contingency	$ 560,120
*10 % Construction contingency	$ 336,074*
Other: Engineering, legal, environmental, admin,CM	$ 739,357
Total Opinion of Costs:	**$4,348,000**

This option includes metering.

Connection Fee for City of Davis (@$8970) **$ 852,150**
Note: The connection fee is based on the Davis Municipal Code for a ¾ inch connection. All new connections to the Davis water system are charged this amount.

Home to Street Connection:(estimate not provided by West Yost) **$ 250,000**

Estimated Total: **$5,650,150**

***IF low interest loan is available (2% interest, 20 years):*
Approximate annual cost per home: $ 3,637 for 20 years

Project 2:
Cost of Water: Under this option, our existing NDM wells would supply irrigation water. City of Davis water would be used for domestic supply. The EPA estimates that an individual uses approximately 70 gallons of water per day, excluding water used outside. Based on this amount and Davis water rates, we estimate that the cost for a family of four would be $41 monthly rising to $68 monthly in 2019. For a family of two the monthly water cost would be $25 rising to $41 by 2019. There would be an annual backflow preventer inspection that would cost $50-$150 each. The CSA costs to supply irrigation water to the neighborhood would be reduced from the existing cost of providing domestic and irrigation water.

Pros

- This option provides a permanent solution to NDM's domestic water problem.
- Resolution of our drinking water problem is guaranteed now and in the future. NDM would not have to rely on the residents of 95 homes to solve future water quality issues.
- It is likely that we would receive low interest rate financing
- Communities that have city water and sewer are viewed more favorably in the real estate market.
- NDM would no longer be responsible for repairs to domestic water pipes (in streets).
- Sewer rates would be based on domestic water use only, which would allow for significant saving. If the City of Davis bills us directly, we would save on County Administrative costs.

Cons

- This option will take additional time to determine all costs and be ready for a Prop 218 election.
- This option may be more expensive in the short run.
- We will need to apply to receive low interest financing from the state.
- NDM residents will have to pay city set rates for domestic water.
- NDM will be responsible for maintaining our existing two wells for irrigation. Wells may need replacing at some point in the future.

SURVEY ON THE NEXT PAGE

NORTH DAVIS MEADOWS WATER SURVEY- June 2015

Please indicate your preference for Option #1 or Option #2.
DEADLINE JUNE 26, 2015.

Mail to:

Yolo County Planning and Public Works
Attn: Regina Espinoza
292 West Beamer Street
Woodland, CA 95695

OR complete survey online at : http://www.yolocounty.org/community-services/county-service-areas/north-davis-meadows/north-davis-meadows-water-survey-june-2015

One survey per house

Address:_____

1. **DEEP WELLS OPTION**

Support: _____**(indicate "yes" or "no")**

If you wrote "yes" for a well option, please check which well option you are interested in pursuing:

A. Two large (16 inch) deep wells)_____

B. Two small (8 inch) deep wells for domestic water/ replumb neighborhood for irrigation water and supply irrigation water with existing wells_____

2. **DUAL PLUMBING CONSOLIDATION OPTION (connect to the City of Davis for domestic use water and use existing wells for irrigation).**

*This option received the unanimous recommendation of the NDM Advisory Committee.

Support: _____ **(indicate "yes" or "no")**

Comments: