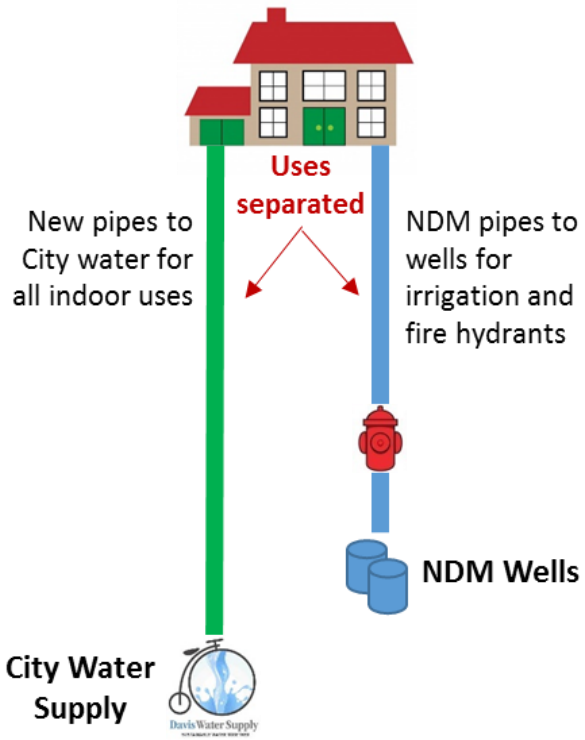
North Davis Meadows Water Project Options

Scenario 1

Current Plan per 2015 Survey

Dual-Use System with
Fire Protection from Existing Wells



Estimates/Parcel/Year

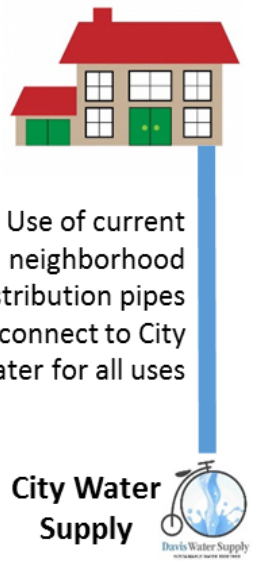
Project Cost:
¾": $5,684 year 1-4; $3,182 year 5-30
1": $6,139 year 1-4; $3,437 year 5-30

Operating Costs:
- Average indoor water charge $850
- Well operation charge $1,200
- Costs to repair and replace wells (see pg 3)
- Inspection fees $100/yr and $130/3 yrs

Scenario 2

Fire Chief Recommended

All Uses on City Water



Estimates/Parcel/Year

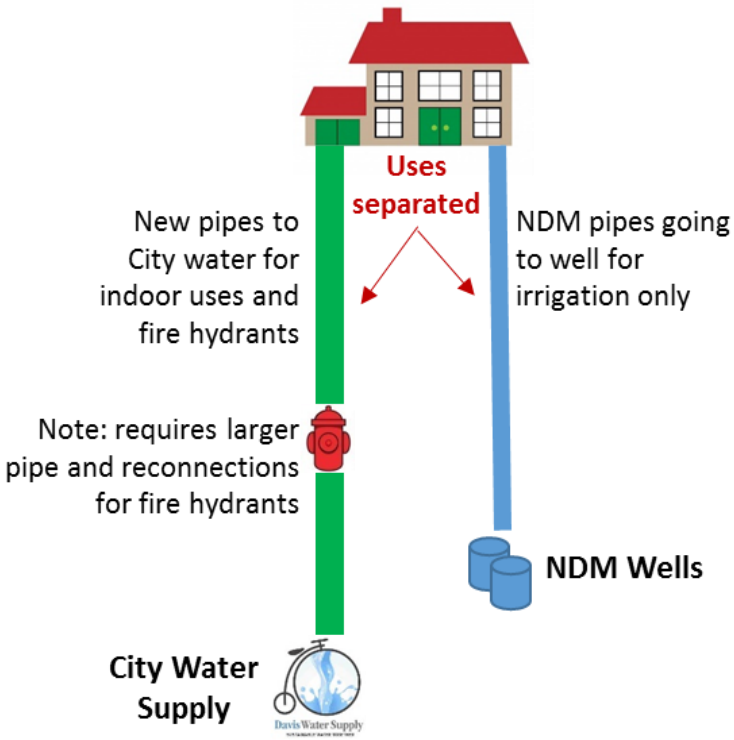
Project Cost:
$3,012 year 1-30

Operating Costs:
- Average charge for all water uses $3,650 (see pg 4 for more information)

Scenario 3

Minimum Fire Chief Recommended

Dual-Use System with
Fire Protection from City Water



Estimates/Parcel/Year

Project Cost:
$6,897 year 1-4; $3,861 year 5-30

Operating Costs:
- Average indoor water charge $850
- Well operation charge $1,200
- Cost to repair well(s) (see pg 3)
- Inspection fees $100/yr and $130/3 yrs

North Davis Meadows Water Service Scenarios Pros & Cons (Except for Scenario 1 (3/4" connection), all costs rough estimates; more info on pg 3)

	Scenario 1 (Current Plan per 2015 Survey)	**Scenario 2** (City & Fire Chief Recommended)	**Scenario 3** (Fire Chief Minimum Recommended)
Service	**Indoor on City Water/Irrigation & Fire on Wells**	**All uses on City of Davis**	**Indoor & Fire on City Water/Irrigation on Wells**
Project Cost	• $7.5 million (3/4" meter connection) • $8.1 million (1" meter connection)	• $7.1 million (1" meter connection)	• $9.1 million (1" meter connection)
△ for Costs	• Design, construction, new neighborhood distribution pipes for separate uses • 6 months of construction	• Ability to use some existing neighborhood distribution pipes for single use system • 4 months of construction	• Design, construction, new neighborhood distribution pipes for separate uses • Hydrant reconnections and increased pipe size for fire flow • 6 months of construction
Pros	• Likely least expensive near-term irrigation rate (see page 2 for detail on possible long-term well costs)	• Sufficient fire flow • Minimal neighborhood road rehabilitation • Most costs eligible for SRF loan • Simpler project, more competitive bids • Homeowners can control water bill • NDM no longer responsible for water infrastructure (i.e. plumbing in streets)	• Sufficient fire flow • Likely least expensive near-term irrigation rate (see page 2 for detail on possible long-term well costs) • No need for well redundancy
Cons	• Insufficient fire flow • Significant issues with wells and costs to fix and/or replace not eligible for low-cost loan • On-going costs to maintain wells • Annual costs of inspections • Home landscaping rehabilitation • Possible degradation of streets • $800k ineligible for SFR loan requiring higher upfront charges to repay County • Well costs ineligible for low-cost loan	• Increased irrigation costs with City rates • City rate increases over time • Cost to decommission and demolish wells (likely SRF loan eligible) • Cost to replace median landscaping	• Significant issues with wells and costs to fix not eligible for low-cost loan • On-going costs to maintain well(s) • Annual cost of inspections • Home landscaping rehabilitation • Possible degradation of streets • $800k ineligible for SFR loan requiring higher upfront payments to repay County • Well costs ineligible for low-cost loan
Estimated Annual Costs/Parcel ****Important:** Water usage can vary greatly home to home. See page 4 for more detail on estimated water usage in NDM and actual in neighboring communities.			
Debt Service	• ¾": $5,684 year 1-4; $3,182 year 5-30 • 1": $6,139 year 1-4; $3,437 year 5-30	• $3,012 year 1-30	• $6,897 year 1-4; $3,861 year 5-30
Operating	• Indoor water service (El Macero average $850) + well operation $1,200 • Costs to repair and replace wells (see pg 3) • Inspection fees $100/yr and $130/3 yrs	• Based on average El Macero use and lot size comparison, estimated NDM cost $3,650 (see pg 4 for use and rate information) • Minor costs to water common landscape areas	• Indoor water service (El Macero average $850) + well operation $1,200 • Cost to repair well(s) (see pg 3) • Inspection fees $100/yr and $130/3 yrs

Estimated Costs for North Davis Meadows Water Service Scenarios

	Scenario 1 (Current Plan per 2015 Survey)	Scenario 2 (City & Fire Recommended)	Scenario 3 (Min. Fire Recommended)
Water Service	**Indoor – City of Davis Irrigation/Fire – NDM Wells**	**All uses on City of Davis**	**Indoor/Fire – City of Davis Irrigation – NDM Wells**
Water Connection Project Costs			
Connection to City Water (includes design, connection fee, construction, project & construction management)	• $7.5 million (3/4" connection fee)* • $8.1 million (1" connection fee) ($800k ineligible for SRF loan)**	• $7.1 million (1" connection fee) (construction reduced by $1.1M + additional design $90k)	• $9.1 million (1" connection fee) (construction increased by $900k + addition design $90k) ($800k ineligible for SRF loan)**
One-Time Water Operating Costs (most costs in Scenario 1 & 3 ineligible for low-cost loan)			
Well Capital Improvements (Per City of Davis 2015 memo, significant improvements needed to NDM1 well; NDM2 well in better shape but may need work; unknown when/if both wells will need to be replaced; these costs ineligible for low-cost loan)	• $3.5-5.5 million for 2 new wells to accommodate fire (includes storage tanks, emergency generators and site work; based on West Yost estimates extrapolated from Wood Rodgers' 2010 system improvement & 2012 well replacement studies	• $20k/well to decommission • $50-100k/well to demo Notes: • Most costs likely reimbursable through the SRF loan • NDM1 parcel could possibly be sold to offset project costs	• $10,000-25,000 to assess existing wells for new operators • $? to address known current issues • If needed, $700k (1 new 1,000 gpm well for irrigation only)
Annual Debt Service, Water Service & Operating Costs (per parcel/year)			
Project Costs	• ¾": $5,684 year 1-4; $3,182 year 5-30 • 1": $6,139 year 1-4; $3,437 year 5-30	• $3,012 year 1-30	• $6,897 year 1-4; $3,861 year 5-30
City Water	• 2016 El Macero average indoor water use cost = $850 • $100 (back-flow inspection)	• Based on average El Macero use and lot size comparison, estimated NDM cost = $3,650 (see pg 4 for use and rate information)	• 2016 El Macero average indoor water use cost = $850 • $100 (back-flow inspection)
Well Water	• $1,200 (current well operating costs) • $130 (cross-connect inspection/every 3 years)	• $0	• $1,200 (current well operating costs) • $130 (cross-connect inspection/every 3 years)

* Reduced meter size and connection fee under discussion with City. If ¾" accepted, may require additional design, construction & permits to disconnect fire sprinklers = average $2,000/parcel.

** Project costs ineligible for SRF loan will have to be paid off within first 4 years (current estimate: $2,625/parcel/year on top of repayment of SRF loan).

Other Considerations

- Current condition of NDM streets likely to be exacerbated by construction in Scenarios 1 & 3.
- If existing landscape irrigation systems and/or fire sprinkler systems do not currently have proper backflow prevention in place, those devices will need to be installed/replaced/upgraded to properly protect private water systems as well as the public water system serving homes. Verification will be part of the inspection/building permit process.
- Fire insurance may be impacted (positively or negatively) depending on scenario chosen.

Water Project Considerations & Water Usage Data

Why connect to the City of Davis for Drinking Water? The NDM water supply comes from two groundwater wells which historically and currently experience nitrates above the maximum contaminant levels (MCL) as established in the California Code of Regulations. In 2009, the CSA was issued a Compliance Order for "failing to provide a reliable and adequate supply of pure, wholesome, healthful and potable water". An additional Compliance Order was issued in 2015 indicating both wells also exceeded the MCL for hexavalent chromium. While the MCL at the time is not in effect right now due to Court order, the State will be enacting a new MCL. Absent corrective action, these Compliance Orders will result in hefty fines. As a result, the Water Project was initiated to meet the domestic potable water demands for the NDM community via service from the City of Davis water system.

Why also connect to the City of Davis for Fire Flow? Per City of Davis Fire Chief Arbuthnott: Currently, the community of NDM must depend on a few key factors that must go right in order to effectively extinguish a fire. The first concern is the reliability of the existing well system as it pertains to fire flow. Water availability and reliability is vital for controlling fires. Absent sufficient flow, another variable factor is the dependence on a specific fire apparatus (Water Tender = 3,000 gallons) that requires staffing from another fire apparatus. Reliable and consistent fire flow is as significant as ensuring clean water for consumption. The North Davis Meadows community is aligned to firmly correct their existing water system. Adding a larger water supply-piped system reduces concerns for fire flow, providing for system reliability and maintenance for the entire community.

City Water Costs Then & Now: When this project was originally considered, estimated Davis water rates for 2018 were: Fixed = $49; Tier 2 = $3.30/ CCF (hundred cubic feet) and Tier 3 = $5.56/CCF. Most of NDM water usage would have fallen in Tier 3 had these rates been adopted. The adopted City rate for 2018 is: Fixed = $18.53; Usage = $4.61/CCF.

City Water Rates in the Future: The City of Davis is currently conducting the 2014 Water Cost of Service Update. The 2014 Cost of Service and Prop. 218 approval provide for up to a 14% increase effective January 1, 2018 and a 9% increase effective January 1, 2019. Any water rate adjustments made after January 1, 2019 will be subject to new Prop 218 proceedings, which will include North Davis Meadows if it becomes part of the City's water service area. The update currently under way will indicate potential future year increases, but will not provide certainty of necessary increases. A full Cost of Service Study will be completed in 2019.

NDM Water Usage: NDM water use data that was shared during the 9/13/17 Community Meeting shows exceptionally high use and includes such factors as common use areas, irrigation leaks and suspected metering inaccuracies. In reality, NDM water usage per homeowner is estimated to be much closer to that of the average El Macero homeowner for indoor use (est. cost $850/year). Based on an average lot size in NDM being about 2.25 times the average lot size in El Macero, the anticipated outdoor water use for NDM can also be estimated. The table below reflects this estimate for North Davis Meadows.

Water usage is the one cost that can be controlled by each homeowner

Note: Davis, Willowbank and El Macero water usage based on actual 2016 aggregate data. All costs below are calculated with 2016 usage data utilizing 2018 rates.

	Davis 2016 avg. water usage & bill	**Willowbank** 2016 avg. water usage & bill	**El Macero** 2016 avg. water usage & bill	**North Davis Meadows** Estimated based on El Macero averages adjusted for lot size
Indoor Use (Nov 2015-Feb 2016)	5.9 CCF	6.9 CCF	11.2 CCF	11.2 CCF
Summer Use (Jun-Aug 2016)	15.5 CCF	42.7 CCF	48.8 CCF	96 CCF
Annual Use (2016)	121.0 CCF	269.0 CCF	331.0 CCF	745 CCF
Annual Water Bill (calculated with 2018 rates)	$704 ($557 consumption)	$1,462 ($1,240 consumption)	$1,748 ($1,525 consumption)	$3,650 ($3,430 consumption)