

The Impact of Community Water Systems for Bitterroot Valley Housing Developments

A Research Brief

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Introduction

This research brief examines the impacts of requiring community wells in new subdivisions developed in the Bitterroot Valley. These impacts were estimated using interviews with subject matter experts, data from actual developments, and a regulatory impact model developed by the MSU Billings Center for Applied Economic Research on behalf of the Montana Association of Realtors.

Impacts

If new subdivisions in the Bitterroot Valley are required to develop community water systems, significant additional up-front costs will be shifted to the developer. With individual wells or cisterns, the developer can spread out the water development expenses over the course of filling the development and fully recover these costs when each home is sold. If these developments must instead use community wells, the developer must pay for the well costs of every proposed home in the development before the first home has sold.

Table 1 Costs of Community Water vs. Individual Wells

	Number of Homes Built	Community Well	Individual Wells
Year 1	6	\$124,942	\$ 36,951
Year 2	7	\$ 43,506	\$ 44,834
Year 3	8	\$ 43,867	\$ 46,627
Total Cost		\$ 212,315	\$ 128,412
Average Cost per Home		\$10,615.74	\$6,420.61

Table 1 compares the estimated well costs for a hypothetical 20-unit Bitterroot Valley development of modest single-family homes. Homes on this development are 1,600 square foot, three-bedroom, and two-bath units with attached garages on one-acre lots. The average sale price of these homes is estimated at \$153,277ⁱ. Both well and community well costs are based upon the detailed cost breakdown of an actual developmentⁱⁱ.

This example assumes that the development is filled over 28 months (three summers building and selling six, seven, and seven houses respectively) and that the cost of capital for borrowing to build the community well is 4% per year.

In this example, the developer must spend an additional \$91,000 at the time of construction of the first six homes and will not fully recover these costs until the last home is sold. This additional up-front spending is amortized over the three years at a 4% cost of capital.

For the home buyer in this hypothetical development, the community well represents \$4,195 in additional purchase costs above the individual well option (\$10,615.74 - \$6,420.61). With an average price of \$153,277, this represents a 2.7% increase in housing priceⁱⁱⁱ.

For a 30-year fixed mortgage at 4% interest, with 20% down and standard closing costs, it would require an income of \$32,000 per year (and an excellent credit score) to qualify for a mortgage to pay for the baseline home. For the same home with a community well, the purchaser would need either an additional \$750 per year in income or \$4,190 in additional down payment to qualify for the same home. Using the incomes of Butte-Silver Bow as representative of those of the Bitterroot Valley, 59% of households currently have sufficient incomes to afford the baseline home, and this number would decline to 58% of households for the more-expensive community well option^{iv}.

Additional Impacts

There are several additional potential impacts which may represent costs to the home builder or buyer. These include the following:

- If buyers view a community well system is seen as less reliable than individual wells, this perception of added risk may impact home values and prices.
- Centralized water requires some sort of cooperative agreement and fees to cover well maintenance and repair. These costs may also add to home costs and reduce home values relative to individual wells.
- In 2012, the gross profit margin for US home builders was 15% (and net profit margins were 0.5%)^v. For this example that would be \$23,000 per home built and sold. Given this, the added up-front costs of the community well system costs the builder his gross profits for the first four homes built and sold that first year, representing two-thirds of his gross profits for the year.
- The added up-front costs of community water systems point towards both smaller (and unregulated) and larger developments. Our hypothetical example of a 20-unit development showed incremental costs of \$4,195 compared to individual wells. For a smaller development, this difference would be even larger. On the other hand, developments of approximately 33 units would have roughly equal per-unit well costs, and larger developments would show community water to be cheaper than individual wells. (Given current market forecasts, it remains to be seen if the area could absorb that large of a new development).

Summary

Adopting community water systems for new subdivisions will likely change the types and sizes of future Bitterroot Valley housing developments as builders react to the additional burden of up-front costs. For smaller developments, potential buyers will face higher home prices. For all developments, the relative risks of a centralized water source may be greater than the individual risks of individual water wells.

ⁱ This estimate is based upon a model using 2011-2012 actual sale prices for homes sold through the Bitterroot Valley Multiple Listing Service. One builder interviewed believes this number is \$25,000 too low, which is possible given the realities of modeling home prices when few new homes are available in the data used to create the estimate.

ⁱⁱ Bitterroot Land Co. Wildflower Dev. 2005 costs inflated to 2012 price levels and adjusted to reflect a 20-unit development.

ⁱⁱⁱ This assumes that the full cost is passed along to the home buyer.

^{iv} This difference, a loss of 1% of the potential market given the community well option, also holds if actual new home prices were \$175,000.

^v National Association of Homebuilders website.