

# **COSTS AND USES OF COMMUNITY WELLS vs. SINGLE FAMILY WELLS**

*Presented:*  
*October 24, 2007*  
*Choteau, MT*  
*WPIC*

*Presented by:*  
*Eric Regensburger*  
*Department of Environmental Quality*  
*444-0916*  
*eregensburger@mt.gov*

# TOPICS

- **Deciding on the appropriate type of water system for a subdivision**
- **Where are community wells appropriate?**
- **Connecting to an existing public supply**
- **Comparison of costs: Community vs. single family (i.e. individual) wells**
- **Resource impacts of high flow wells vs. multiple small flow wells**

# DEFINITION

- **PUBLIC WATER SYSTEM**
  - Serves 25 or more people or 15 or more connections for 60 days or more per year.
  - Community (e.g. town)
  - Non-transient, non-community (e.g. school)
  - Transient, non-community (e.g. restaurant)
- **MULTI-USER WATER SYSTEM**
  - 3 through 14 living units or commercial structures, total population cannot exceed 24
- **Community = multi-user/public system (for purposes of this discussion)**

# WHAT IS THE APPROPRIATE WATER SYSTEM

- **For lots 1 acre and larger:**
  - Decision is up to the developer
  - Must meet DEQ rules and circulars
  - DEQ cannot dictate type of water system if rules are met
- **For lots over 20,000 sq. feet and under 1 acre:**
  - must have either community water or wastewater
- **For lots 20,000 sq. feet (approx 1/2 acre) or less:**
  - Must have both community water and wastewater

# WHERE ARE COMMUNITY WELLS APPROPRIATE?

- **Community wells can be used on just about any subdivision, but:**
  - **With larger lots, infrastructure becomes more expensive and complicated**
  - **Aquifer can be limiting factor (low yield wells)**
  - **Slow build-out of subdivision can result in water quality issues due to dead ends and stagnant water**
  - **Can developer afford up-front costs**

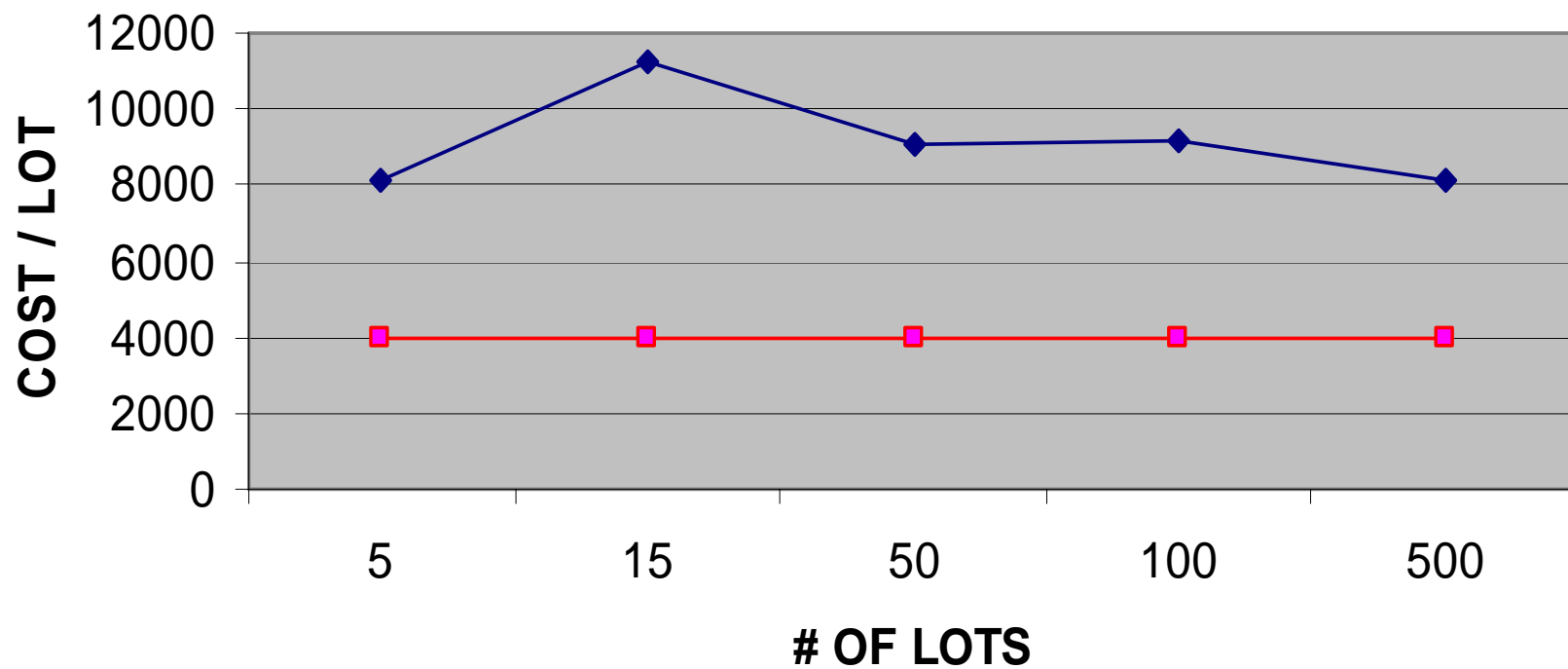
# CONNECTION TO AN EXISTING PUBLIC WATER SUPPLY

- **Rules require connection to existing public system within 500 feet of a proposed subdivision, unless:**
  - The cost to connect is  $>3x$  the cost as compared to an approvable on-site system;
  - Connection is limited by a physical obstruction;
  - Connection is limited by unobtainable easement; or
  - Public system wont allow connection
  - Doesn't apply to existing multi-user system
- **Cost to design and build water connection is initially borne by developer**
  - Up-front costs incorporated into lot prices

# COSTS OF COMMUNITY vs INDIVIDUAL WELLS

Well Depth (feet)	# LOTS	# Wells	MUTLI_FAMILY / PUBLIC WATER SYSTEM						# Wells	Drill + Pump (\$30/ft) <sup>4</sup>	Monitoring + Operator	Total	Cost / Lot (20 years)
			Drill + Pump (\$150/ft) <sup>1</sup>	Infrastructure <sup>2</sup>	Monitoring + Operator (year) <sup>3</sup>	Total	Total (20 years)	Cost / Lot (20 Years)					
50	5	1	\$7,500	\$33,000	\$0	\$40,500	\$40,500	\$8,100	5	\$20,000	\$0	\$20,000	\$4,000
50	15	2	\$15,000	\$84,000	\$3,500	\$102,500	\$169,000	\$11,267	15	\$60,000	\$0	\$60,000	\$4,000
50	50	3	\$22,500	\$362,500	\$3,500	\$388,500	\$455,000	\$9,100	50	\$200,000	\$0	\$200,000	\$4,000
50	100	4	\$30,000	\$815,000	\$3,500	\$848,500	\$915,000	\$9,150	100	\$400,000	\$0	\$400,000	\$4,000
50	500	6	\$45,000	\$3,925,000	\$3,500	\$3,973,500	\$4,040,000	\$8,080	500	\$2,000,000	\$0	\$2,000,000	\$4,000
150	5	1	\$22,500	\$33,000	\$0	\$55,500	\$55,500	\$11,100	5	\$40,000	\$0	\$40,000	\$8,000
150	15	2	\$45,000	\$84,000	\$3,500	\$132,500	\$199,000	\$13,267	15	\$120,000	\$0	\$120,000	\$8,000
150	50	3	\$67,500	\$362,500	\$3,500	\$433,500	\$500,000	\$10,000	50	\$400,000	\$0	\$400,000	\$8,000
150	100	4	\$90,000	\$815,000	\$3,500	\$908,500	\$975,000	\$9,750	100	\$800,000	\$0	\$800,000	\$8,000
150	500	6	\$135,000	\$3,925,000	\$3,500	\$4,063,500	\$4,130,000	\$8,260	500	\$4,000,000	\$0	\$4,000,000	\$8,000
500	5	1	\$75,000	\$33,000	\$0	\$108,000	\$108,000	\$21,600	5	\$102,500	\$0	\$102,500	\$20,500
500	15	2	\$150,000	\$84,000	\$3,500	\$237,500	\$304,000	\$20,267	15	\$307,500	\$0	\$307,500	\$20,500
500	50	3	\$225,000	\$362,500	\$3,500	\$591,000	\$657,500	\$13,150	50	\$1,025,000	\$0	\$1,025,000	\$20,500
500	100	4	\$300,000	\$815,000	\$3,500	\$1,118,500	\$1,185,000	\$11,850	100	\$2,050,000	\$0	\$2,050,000	\$20,500
500	500	6	\$450,000	\$3,925,000	\$3,500	\$4,378,500	\$4,445,000	\$8,890	500	\$10,250,000	\$0	\$10,250,000	\$20,500

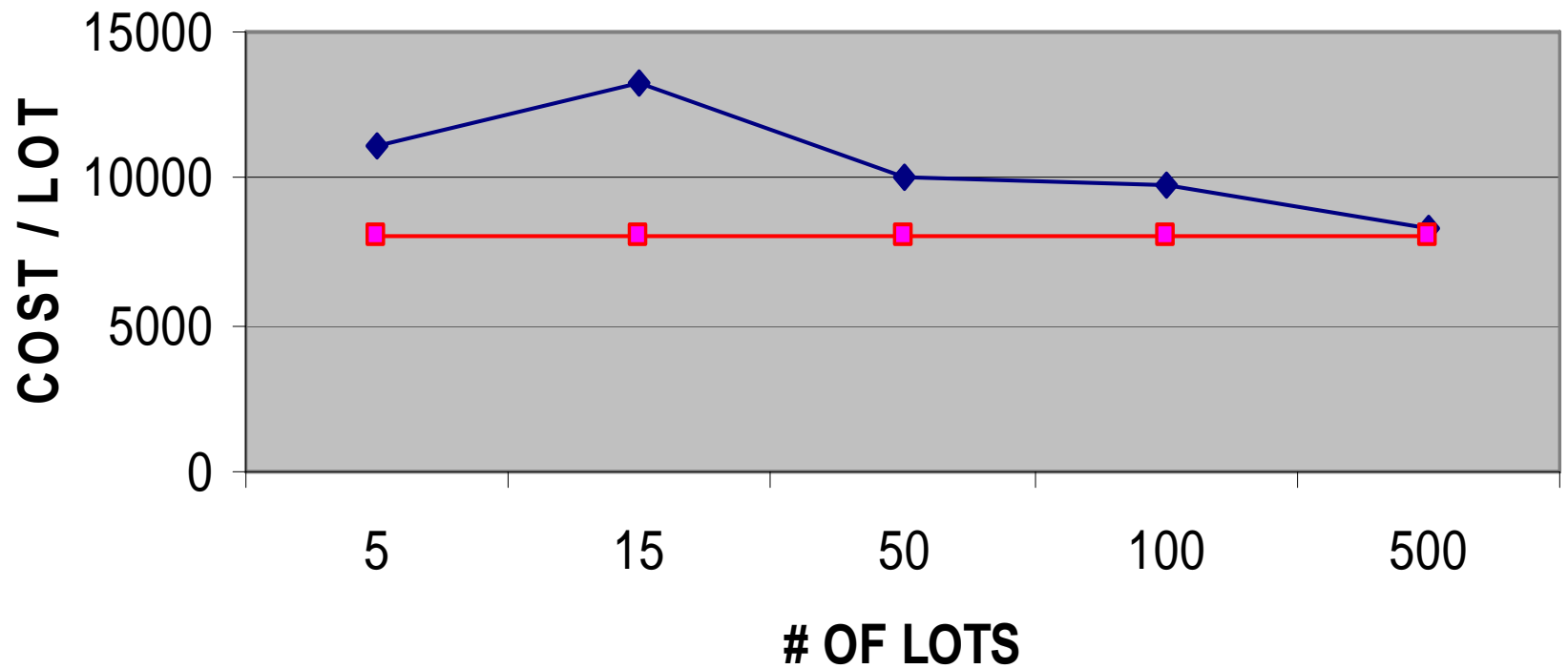
## COST PER LOT OVER 20 YEARS (50 ft deep well)



—◆— public wells —■— individual wells

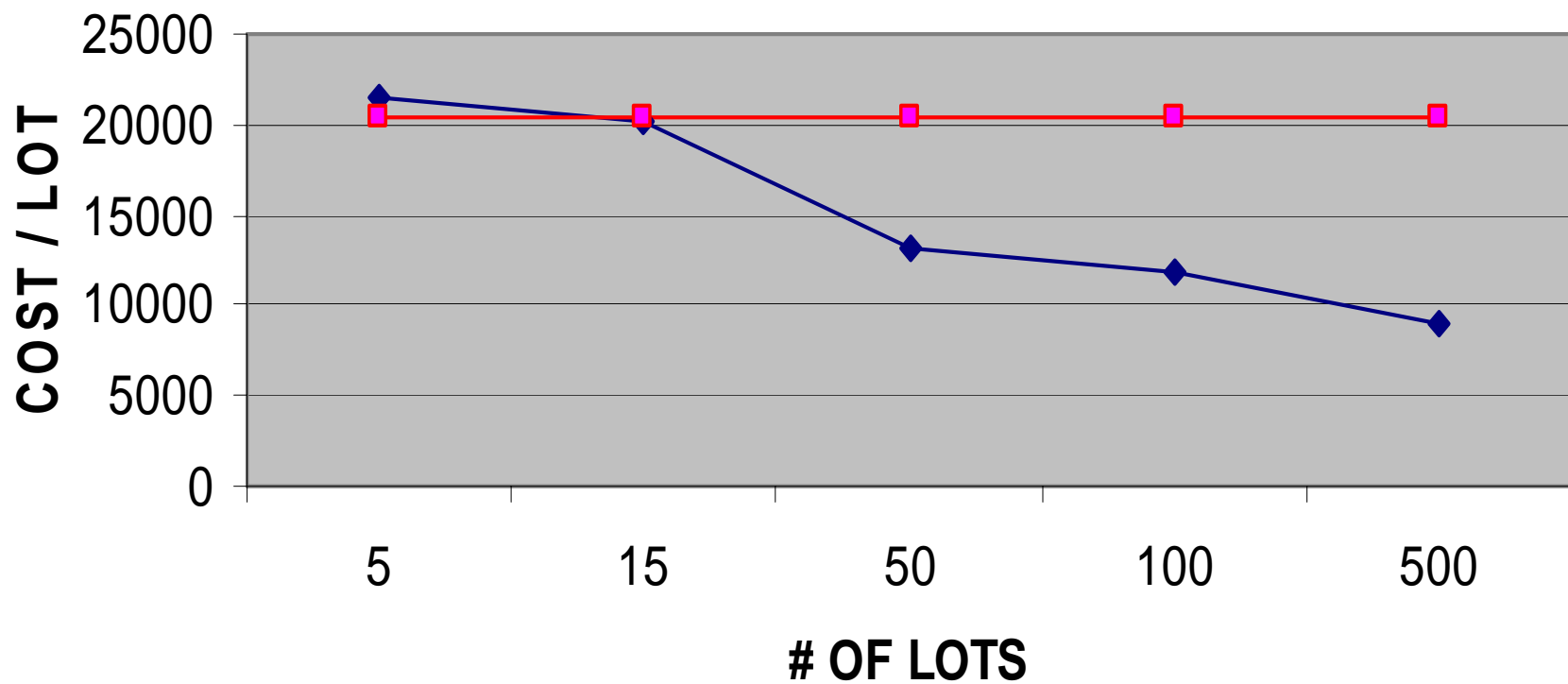


## COST PER LOT OVER 20 YEARS (150 ft deep well)



—◆— public wells —■— individual wells

## COST PER LOT OVER 20 YEARS (500 ft deep well)



—◆— public wells —■— individual wells

# **IMPACTS OF HIGH FLOW WELLS vs MULTIPLE LOW FLOW WELLS**

- Amount of water use per home in community system could be reduced due to per gallon cost of water
- Distribution/location of wells can effect impacts to nearby resources (e.g. surface water)
- Using community wells often means higher density than with individual wells