## 1. Purpose of Agenda Item

The purpose of this agenda item is to present staff's recommendation for the City's next-generation water AMI system and to explain why staff selected the Hydro Specialties / Badger Meter BEACON cellular solution over the Sensus fixed-network alternative offered through Mountainland Supply.

## 2. Background and Procurement Summary

Ivins City issued its Water Advanced Metering Infrastructure (AMI) System Implementation RFP in August 2025 and extended the submittal deadline by addendum to September 12, 2025. Staff reviewed all submittals, pricing information, technical responses, implementation plans, customer portal offerings, integration pathways, warranty terms, and follow-up discussion notes. The City's principal objectives were to improve reading reliability, accelerate leak awareness, reduce manual workload, preserve useful assets where practical, support Pelorus billing workflows, and deploy a solution that remains manageable for staff over the long term.

After review, staff concluded that two finalists could satisfy the City's core AMI goals. The recommendation therefore turns on best fit for Ivins City, not whether one proposal was acceptable and the other was not. Staff's conclusion is that the Hydro / BEACON architecture presents the stronger long-term fit for the City's size, staffing model, implementation goals, and desire to avoid communications infrastructure and ownership.

## 3. Finalist Options Considered

| Option | Summary | Key Takeaway |
|---|---|---|
| **Hydro Specialties / Badger Meter** | Cloud-based cellular ORION endpoints with BEACON software and EyeOnWater customer engagement. No City-owned AMI towers, collectors, or repeaters are required. Existing Badger assets can be retrofitted where useful life remains. | Simpler architecture with stronger phased-deployment flexibility and a more turnkey customer-facing platform. |
| **Mountainland Supply / Sensus** | Private RF fixed network using Sensus FlexNet base-station infrastructure, third party analytics software, and optional customer-portal pathway. Strong local distributor support and true on-demand reads are notable strengths. | Capable solution, but more infrastructure-dependent and more layered in terms of network obligations and software structure. |

## 4. Why Staff Recommends the Hydro / BEACON Cellular Solution

### A. Infrastructure-free deployment reduces City risk and complexity

The Hydro proposal relies on an infrastructure-free cellular network model. No City-owned AMI tower(s), collector, repeater, base station, or antenna network is required to achieve coverage. This is a major advantage for Ivins City because it removes a category of capital infrastructure, licensing coordination, electrical/backhaul dependencies, and long-term maintenance obligations and possible expansions from the AMI project.

### B. The Hydro proposal makes better use of Ivins City's existing meter inventory

Hydro documented that a large share of the City's existing Badger assets still retain useful life and can be converted to AMI by replacing endpoints and/or registers instead of replacing every meter immediately. That flexibility gives the City the ability to deploy surgically, preserve value in existing assets, and direct capital dollars first to the oldest or highest-priority locations. Staff viewed this as a practical, budget-conscious path to systemwide modernization.

### C. Phased implementation is faster and more flexible

Because cellular deployment is not dependent on network infrastructure buildout, staff can phase installation in any area of the City from day one. Hydro also offered a proof-of-concept and pilot path that could be deployed within weeks, and its implementation approach allows the City to move at a pace matched to budget and manpower. This aligns well with Ivins City's preference to manage transition deliberately rather than be tied to construction sequencing for communications infrastructure.

### D. BEACON and EyeOnWater provide a stronger turnkey customer experience

Hydro's BEACON platform includes integrated utility analytics, alerts, dashboards, map views, leak monitoring, data exports, and the EyeOnWater web/mobile customer experience. In staff's view, this is one of the clearest strengths of the recommended solution. EyeOnWater gives customers timely visibility into their usage, supports leak notifications, and can be branded to the City with bill-pay redirection and utility notices. That improves transparency, supports conservation goals, and should reduce customer frustration related to high-bill surprises.  Although the customer integration app for Sensus might a few more bells and whistles, it's a third part application that may be subject to price increases.

### E. The cost model is easier to understand and easier to scale

Hydro's proposal avoids tower/base-station capital cost and packages ongoing system service as a straightforward endpoint subscription model. The pricing schedule lists a $0.90 per endpoint per month fee that includes the ongoing SaaS and NaaS solution, with an estimated full-deployment monthly cost of approximately $3,900. Staff favors this structure because it is predictable, scalable, and directly tied to active endpoints rather than to City-owned network hardware that may later require replacement or special support.

### F. The solution is proven regionally and supports future utility use cases

Hydro and Badger identified a substantial Utah and Idaho cellular install base, including large deployments in southern Utah for St. George City. The BEACON / ORION ecosystem also provides a pathway toward future distribution monitoring, pressure analytics, and additional smart-water tools without first requiring the City to become the owner/operator of a separate RF network.

## 5. Side-by-Side Decision Factors

| Decision Factor | Hydro / BEACON Cellular | Mountainland / Sensus Fixed Network | Staff View |
|---|---|---|---|
| **Network model** | Uses existing cellular coverage; no City-owned AMI data-collection infrastructure required. Verizon primarily. | Requires a fixed-network base station, backhaul, antenna, and related infrastructure. Likely located on light pole in Unity Village. | **Hydro advantage** |
| **Deployment speed** | Can be deployed immediately and begin in any area. | Deployment tied more directly to fixed-network setup and activation. | **Hydro advantage** |
| **Existing asset reuse** | Strong retrofit path for existing Badger meters/registers with useful life remaining. | Can also coexist with existing assets, but still requires fixed-network architecture. | **Hydro advantage** |
| **Reads / data interval** | 15-minute interval data with scheduled uploads 4 times per weekday and 1 time per day weekends. No on-demand reads, latency of hours. | 1-hour interval data pulled 5-6 times per day plus true on-demand reads in under five minutes. | **Sensus advantage** |
| **Customer engagement** | Integrated EyeOnWater portal and mobile app included in the solution ecosystem. | Portal capability appears to rely on additional VertexOne scope/pricing discussions. | **Hydro advantage** |
| **Billing / integration** | Standard billing workflow can begin manually, with optional Pelorus automation and APIs. | Automated SFTP-style billing file workflow is more mature out of the box. | **Mixed; acceptable either way** |
| **Annual obligations** | Subscription model tied to active endpoints and bundled ongoing SaaS/NaaS service. | Separate annual software/service layers and base-station warranty structure in pricing. | **Hydro advantage** |
| **City operational burden** | Keeps City focused on water utility operations. | Adds communications-network responsibilities and dependencies. | **Hydro advantage** |
| **Data Storage** | Meters hold 42 days locally, cloud storage for 3+ years. Export data. | System holds data 3+ years. Export data. | **Mixed; acceptable either way** |
| **Meter measurements** | ±1.5% accuracy and ±3% at extended low flow. Minimum tests at 0.05 gpm. Normal 0.1-25 gpm. | ±1.5% accuracy and ±3% at extended low flow. Minimum tests at 0.03 gpm. Normal 0.18 to 25 gpm. | **Mixed; acceptable either way** |
| **Warranty, longevity, battery** | 10-year full, additional 10-year prorated. | 15-year full, additional 5-year prorated. | **Sensus advantage** |
| **Customer portal / alarms and alerts** | App and/or web-app that gives the customer ability to set alarms and other alerts on their own. Included by default. | Third party app or web-app that gives the customer ability to set alarms and other alerts on their own. Additional fee. | **Hydro advantage** |
| **Training and support** | “As much as needed over 2-3 days”, Badger online training, Bader Academy, TeamViewer Support | Two 5-hour sessions, ongoing support through distributor and + Sensus | **Mixed; acceptable either way** |
| **Key selling points** | Minimal infrastructure; fast / phased deployment; cellular reliability; modern cloud software included; strong local support, St. George currently implementing this system. | On-demand reads; non-cellular resiliency; can read meters if fixed network or cellular goes down; strong local support; Washington City has a fixed network system. | **Hydro advantage** |

## 6. Why the Sensus Fixed-Network Option Was Not Recommended

Staff views the Mountainland / Sensus proposal as a capable and professionally supported alternative. Sensus presented real strengths, particularly local distributor support, a robust fixed-network RF architecture, and true on-demand reads. However, the following issues drove staff away from the fixed-network option as the best fit for Ivins City:

- The Sensus model requires fixed-network infrastructure, including a base-station installation, backhaul device, antenna, and related site/electrical coordination.
- The Sensus pricing proposal identifies an FCC spectrum license agreement requirement for infrastructure purchases and notes that the customer must provide sufficient electrical connection near the base-station location.
- The fixed-base pricing proposal totals $1,817,454.32 and also identifies annual software/service costs subject to yearly escalation, with pricing honored for one year only due to tariff uncertainty.
- The customer-facing portal path appears less turnkey in the submitted materials because VertexOne scope and pricing would require additional discussion and selection of functionality tiers.
- Although on-demand reads are a meaningful advantage, staff determined that the 4 scheduled reads per day from the Hydro solution are operationally sufficient when weighed against the larger architectural and lifecycle benefits of the cellular system.

## 7. Fiscal and Operational Considerations

Both proposals are unit-price based, and final contract values will depend on confirmed meter quantities, retrofit decisions, and implementation phasing. Staff therefore recommends that final quantities be validated before contract execution. These costs do no represent any savings from retrofitting existing meters.  Staff may present additional alternatives for retrofitting, but this compares apples to apples the best to show all meters and endpoints being replaced.

| Cost Category | Hydro / BEACON | Mountainland / Sensus |
|---|---|---|
| • Initial Implementation / Integration | • $20k | • $23k |
| • 3rd Party Customer Portal Integration | • N.A. | • $60k |
| • ¾” Meter w/ Register | • $142.81 ea / $602k | • $151.41 ea / $757k |
| • Endpoint (cellular or radio) | • $145.88 ea / $618k | • $162.39 ea / $702k |
| • Lid Replacement | • $41.00 ea / $177k | • N.A. |
| • Installation | • $55.00 ea / $232k | • $50 ea / $214k |
| • Base Station Radio Tower | • N.A. | • $93k |
| • **TOTAL** | • **$1.65m** | • **$1.85m** |
| • Annual Services | • $47k | • $34k |

Operationally, staff believes Hydro also presents the lower transition risk. The City can preserve useful assets, phase cellular deployment geographically, and continue a controlled migration without first depending on RF-network buildout. Staff considers this a major implementation advantage for a growing city with competing operational demands.

## 8. Implementation Considerations if Approved

- Confirm final deployment strategy: retrofit where practical and replace only where age, condition, or operational need justify full meter replacement.
- Initiate pilot / proof-of-concept deployment and validate connectivity, billing workflow, and field installation practices.
- Coordinate Pelorus data exchange and determine whether the City wants to begin with the standard workflow or proceed directly to automated billing integration.
- Develop a customer rollout plan for EyeOnWater enrollment, leak notifications, and customer education regarding the new AMI system.
- Phase in any optional SCADA or branded-portal enhancements after core AMI deployment is stable.

## 9. Q&A

**1) Is cellular coverage reliable enough for this system throughout Ivins?**

I think the best answer is yes, with the pilot intended to confirm it under real field conditions. Hydro's proposal says they completed a cellular coverage analysis and concluded coverage was adequate for all City-provided locations, with strong propagation on both carriers, and they state their ORION endpoints are not locked to a single provider if a difficult location needs a different carrier strategy. They also cite an average current read rate of 99.3% across more than 47,000 deployed endpoints and say Badger normally guarantees 98.5% monthly billing data success when endpoints are properly installed. I would also point out that a spotty phone at one house is not a perfect apple-to-apples comparison because these are purpose-built low-bandwidth utility devices, not consumer phones. The RFP also already anticipated this issue by requiring a 100-unit pilot, followed by a pilot evaluation period, before the City fully commits. I anticipate that with the pilot program we might not install a full 100, but we will certainly be trying to locate areas that I would guess would be the most troublesome and make sure we get some meters installed in those areas.

**2) The costs are virtually equal over 15 years, but the recommended system only has a 10-year warranty. I'd like them to up their warranty to 15 years to be competitive.**

I would clarify that the Hydro proposal is better than a simple 10-year warranty. The proposal warranty documents show the ORION cellular endpoints are warranted for 20 years and 6 months, with full replacement for the first 10 years and then prorated coverage in years 11 through 20. So, I would not characterize the Hydro option as "only a 10-year warranty." A better way to say it is that the Hydro option has a full 10-year replacement period and longer prorated product coverage beyond that. It should be noted that the warranty terms for the Sensus meters is the outliner. They have a magnetic meter that generally uses less energy, and because of this they have found that they can offer a longer warranty than pretty much everyone else in the industry. They are the proprietors of mag meter technology, so that's one reason why they can do this. They are unique in that offering. If Council wants additional protection, staff is open to asking Hydro for a written clarification or an improved term before final implementation.

**3) Does the $1.65M estimate assume full replacement of all meters, and what would the realistic initial phase and initial project cost be? If we went with a retrofit scenario, what would be the potential upfront savings?**

Yes — that larger number is a broad replacement scenario, not the more flexible retrofit-heavy path Hydro is providing as an alternative.

Here's the scenario that I've investigated and what the potential savings we'd get running with a retrofit plan. Using our current approximate inventory, we have about 4,219 residential meters.

A meter is comprised of three different components.

1. **Meter** – The meter is the part installed in the water line that measures how much water is flowing into a property. Most of the City's existing residential meters are older mechanical meters that use internal moving parts to measure flow. The new meters being proposed are ultrasonic, which means they measure water use electronically and have no moving parts. That provides several advantages: they are less susceptible to wear over time, less likely to be affected by sand or debris in the water, more accurate at detecting very small flows, and more consistent over the life of the meter because there is no physical mechanism to slow down, stick, or under-register as the meter ages. In short, a no-moving-parts meter is generally more reliable, more sensitive, and better suited for the kind of detailed usage and leak data the city is trying to achieve with a modern AMI system.
2. **Register** – attached to the meter that takes the measurement and displays and records the water usage reading, like an odometer in a car.
3. **Endpoint** – connects to the register and takes the reading and sends it to the City's AMI system, either by radio or by cellular.

Often, the meter and register function as a single unit, so replacing the register alone is not always possible without replacing the meter as well. Based on our current understanding, about 10% of the City's meters have older registers that are not compatible with the new cellular endpoints, about 30% have six-digit registers that can communicate but only record to the nearest 10 gallons, and the remaining 60% have nine-digit registers that record to the nearest 0.1 gallon.

As you can imagine, having an AMI system with meters that round to the nearest 10 gallons wouldn't be quite as useful, for instance, because it wouldn't register a leak due to the lack of sensitivity in the recorded data. So, if we went on the route of retrofitting, we would want to at least replace the 10% with old registers and 30% that round to the nearest 10 gallons. In this scenario, 40% of meters would need full replacement. By doing a retrofit or hybrid replacement approach, it would save the city an upfront cost of approximately $354,000. Here's a breakdown of these two options, full replacement and retrofit.

- **Full residential replacement (40%) = $343.69 per meter or $580,950 total**
  - $142.81 new 5/8" x 3/4" E-Series meter
  - $145.88 cellular endpoint with Nicor cable
  - $55.00 install labor
- **9 Digit-register keep/retrofit only (60%)** = **$203.38 per meter or $514,750 total**
  - $145.88 cellular endpoint with Nicor cable
  - $15.00 Itron to Nicor cable adaptor
  - $42.50 install labor
- **Total of $1,095,700 plus integration, lid replacement, annual fees, etc.**

This is a realistic scenario worth exploring.

**4) If we went with a retrofit scenario, approximately how much additional replacement cost would occur annually as older meters are phased out?**

Using the hybrid approach, the meters most likely left in service initially are the full 9 digit register meters. If those are converted to cellular now and then replaced later as they reach end of life, the future replacement cost should be approximately the cost of a new meter plus meter-change labor, not a second endpoint purchase. Using Hydro's pricing, that is roughly $198 per meter. Applied to the approximately 2,531 residential meters in that "keep for now" group, that would be:

- about **$500,000** if phased out over **1 year**, or
- about **$250,000 per year** if phased out over **2 years,** or
- about **$167,000 per year** if phased out over **3 years**.

That is my best planning answer. I would like to have a discussion if we're thinking we'd rather do it over a longer period. You'll notice that we'd save about $354,000 in the upfront cost, but we'd end up paying an additional $146,000 (difference between our savings, $354,000 and the estimated $500,000 cost for the next phase). This is due to having to pay for labor twice and having to pay for a cable adapter for the retrofitted meters. There's a potential that our crews could install these and that labor cost is more of a soft cost, rather than a hard cost.

**5) If the system performs well during a pilot or initial deployment, could the City expand gradually over time as budget allows? Meaning, using an ever-expanding cellular system working alongside our current radio frequency system.**

Yes, but only to a limited extent. The City's current meter-reading system is an older drive-by radio AMR system using ITRON radio frequency endpoints.

In practical terms, however, the City cannot gradually expand the cellular system indefinitely while continuing to rely on the old drive-by system. Our existing AMR approach requires staff to physically drive close enough to each endpoint to collect readings, and that system is already at the end of its useful life from a support and reliability standpoint. Because the new cellular endpoints do not operate as part of that old drive-by radio network, the long-term goal would still need to be converting all meters to the new cellular platform.

The one way the city could phase the conversion more gradually would be to purchase an updated drive-by receiver/collector system that can continue reading the existing radio-frequency endpoints during the transition and can also work alongside the new cellular software. That would allow the city to convert portions of the system over time rather than all at once. Staff's understanding is that this transitional equipment would cost approximately $17,000. The drawback is that this would be temporary bridge equipment only; once the city eventually completes the conversion to cellular, that drive-by equipment would become obsolete because the cellular endpoints would no longer be transmitting readings through the old radio-read process.

Accordingly, the better way to describe the phasing question is yes, the city can gradually install more meters and/or cellular endpoints over time but doing so would likely require a short-term investment in transition equipment. The other issue is we'd have half the city on AMI and the other half on the old system, so the benefits of an AMI system wouldn't come to fruition for the whole city at once or in matter of years, which would likely hurt our ability to educate the public on the benefits of AMI. It would also cause our field crew to continue to drive our city and not capture that elimination of workload that comes from the full cellular system.

**6) Q1 - Our five-year capital plan has $1.4M allocated for AMI. If the realistic initial installation cost is closer to that level, would that be helpful to understand?**

**Q2 - Also, I understand we have grant money to cover the initial cost ($1.65 million). How much will the grant money cover and will $750,000 budgeted in the Enterprise Funds be used?**

**Q3 - In reading the staff report for the selection of a vendor for the Water AMI project, can you go over the financing with me?**

Particularly to Q1, yes, I think that remains one of the strongest practical arguments for the Hydro option. The RFP identifies 4,219 residential meters in the City's system, and the project was structured to allow a pilot first and then modification of the rollout if needed. Based on our current understanding of the number of meters and registers in the field, approximately 10% of the residential meters have older registers that are not compatible with the new cellular endpoints, approximately 30% have six-digit registers that technically can communicate but do not provide the level of resolution staff would want for effective AMI use, and the remaining 60% have nine-digit digital registers that are good candidates for endpoint-only retrofit. (see Q&A question #3 for more information regarding registers and endpoints) Using that assumption, a practical hybrid approach would be to fully replace the 40% of meters in the first two categories and retrofit the remaining 60% with new cellular endpoints only.

Using the Hydro pricing, that hybrid residential approach reduces the estimated upfront residential conversion cost from approximately $1.45 million for full replacement of all residential meters to approximately $1.08 million (excluding costs associated with implementation, conversion, lid replacement, etc.), which represents an estimated upfront savings of about $354,000. This means the initial residential phase appears capable of fitting much more comfortably within the City's $1.4 million AMI capital allocation, while still leaving room for implementation costs, commercial meter conversions, and contingencies. The RFP also specifically anticipated that some meters, registers, endpoints, and meter lids may need to be replaced as part of implementation and allows the city to modify the project after the pilot period.

Lastly, here's the current funding sources and the total, so note that the Ivins City portion comes from the water enterprise fund and not the general fund:

- **State Funding - $500k**
- **WCWCD - $250k**
- **Ivins Water Enterprise Fund - $750k**
- **Total - $1.5m**

**7) Will we be locked into 1 carrier or can we switch wireless companies if we want?**

Based on the Hydro / Badger proposal, the city would not be locked into only one carrier forever. My reading of their proposal is that the recommended endpoint for this project uses the Verizon network, but the system is not limited to a single provider, and Hydro describes AT&T as an available alternative if communication at a given location is problematic. They also describe carrier-switching as one of the mitigation strategies for non-communicating endpoints.

The most upfront way of saying this is, the initial deployment would likely be primarily Verizon-based, but the proposal indicates the platform can use another provider where needed rather than locking the City into only one carrier. The RFP also specifically required proposers to provide a cellular coverage map from the carrier or otherwise demonstrate coverage, so this was clearly contemplated as part of the procurement.

**8) Are the annual costs paid for by enterprise funds, or will customer charges be recalculated to account for this extra annual expense, or do these costs come out of general funds?**

Since this is a water utility AMI system for the City's water system, my expectation is that the ongoing AMI operating costs would typically be treated as a water enterprise fund expense, not a general fund expense. We're currently updating our water master plan, impact fee analysis, and user water rate study. These annual and cellular expenses will be incorporated into the user water rate study and will be paid for by the customer, that is how I would anticipate those additional expenses being paid for.

**9) The annual $47,000 in service costs is covered by a "$0.90 per endpoint per month" Can you explain whether "per endpoint" means per household?**

Not exactly "per household," but effectively per active metered connection that has an endpoint. An endpoint is the communication device attached to a meter/register that sends the reading into the AMI system. So, the fee is charged per installed cellular endpoint, not strictly per house.

In Ivins' case, the RFP shows 4,326 total meter connections, including residential, larger commercial/irrigation meters, and hydrant meters. At $0.90 per endpoint per month, that works out to be about $46,721 per year if all 4,326 connections ultimately have installed endpoints, which is why the annual service estimate lands at roughly $47,000/year. Ivins City will always only be paying for the number of endpoints in service. So, if we go with the gradual approach where we have some cellular end points and some radio frequency end points, we only pay the $0.90 per cellular end point in service, and then we don't pay anything for the radio frequency end points.