

RESOLUTION NO. 2867

A RESOLUTION SETTING FORTH A MODIFIED PLAN TO RETAIN BEND'S DUAL WATER SOURCE AT REDUCED COST TO RATEPAYERS, DIRECTING A LIMITED RE-EVALUATION OF CERTAIN ASPECTS OF THE SURFACE WATER IMPROVEMENT PROJECT, AND INSTITUTING A PROGRAM TO INCREASE FLOWS IN TUMALO CREEK

Findings:

- A. Certain assumptions and values have formed the basis of the City Council's decision related to the Surface Water Project, and the Council finds that it is beneficial to document those values so that citizens fully understand the reason for its judgment and the decisions Council has made. These have been stated in numerous prior council meetings and resolutions but are worth restating (see Resolutions 2814, 2817, 2846 and 2853).
- B. The City Council is fully aware that the project has generated controversy. This can be normal for large and costly infrastructure projects, but Council desires to be responsive to the community's concerns related to the timing, economics and environmental impacts of the project.
- C. The City Council is especially aware of the rate impacts of large infrastructure projects at a time when the Bend economy continues to struggle.
- D. The Bridge Creek source has been studied and evaluated many times, including in the 1980 Water System Master Plan, the Bridge Creek Pipelines Evaluation (2009), the Brown and Caldwell Water Supply Alternatives Study (2009), the HDR Surface Water/ Ground Water Cost Comparison (2010), the Value Engineering Study (March 2011), the Optimization Study (2011), and the HDR Technical Report Timing of Hydro Project (August 2011). The City Council has held numerous public work sessions and other public meetings related to the proposed project. In addition, the City's Infrastructure Advisory Committee held a more recent public forum, receiving input from the public and City consultants, and indicated its firm support of the project. The IAC is made up of members of the public that have expertise in engineering, water utilities, geology, environmental law, as well as representatives of the public and business interests. Over-studying a project may not serve the community well in terms of time, expense and resources. Still, Council values the importance of a thorough risk/benefit assessment, and desires to ensure that its approach to the problem remains the most viable in light of current economic and regulatory conditions.
- E. The City Council also must be cognizant that it is currently under a regulatory obligation to meet the requirements of the Safe Drinking Water Act, and the requirements of the Long Term 2 Enhanced Surface Treatment Rule ("LT2 rule"),

that it has received a two year extension through October of 2014, and that the extension is dependent on meeting a tight project schedule that will be put in jeopardy by much more delay in the project. Nonetheless, the Council believes that pausing design and delaying construction of the treatment aspect of the project is in the best interest of the community for the reasons set forth in this Resolution.

- F. This Resolution is intended to again articulate the City Council's values and assumptions related to the Surface Water Project, and to describe a new approach with the goals of reducing cost, improving stream flows in Tumalo Creek and the Deschutes River, and continuing to provide exceedingly high-quality drinking water for the City's residents..

Values and Assumptions:

- G. The City of Bend is extremely fortunate and prior councils were farsighted and perceptive in securing and protecting two sources (a dual source) of water, especially a high quality and pristine source such as the Bridge Creek surface water supply. Bend has used water from Bridge Creek for approximately 85 years. It gets half of its water, annually, from Bridge Creek, which flows from the flank of Broken Top through a protected watershed, owned by the USDA Forest Service ("Forest Service"). It would be irresponsible of this Council to forsake half of the City's water supply.
- H. A dual source is an especially valuable asset in the modern era—other communities are paying a high price to find a second or multiple source of water due to climate change/drought risks, water quality concerns, regulatory requirements, and water rights uncertainty. Specifically in Oregon, the City has received letters from the Tualatin Valley Water District, the Oak Lodge Water District, and the Eugene Water and Electric Board, all confirming that a second source of water supply brings invaluable flexibility and reliability into the future, and that as water utilities, they have relentlessly been pursuing strategies to develop a second source of water. Those letters are attached to this Resolution.
- I. The City has received the attached letter of support from EDCO for a similar reason—the recognition that a high quality surface water source is the envy of communities that do not have it, that it is in the best interest of Bend residents and businesses to keep the surface water source, longtime water rights, and the transmission system to deliver surface water to Bend residents and businesses. EDCO mirrored the Council's view that dual system provides valuable reliability for future needs, that a gravity system is cost effective long term, and that without such a system, the City's infrastructure could be hampered, limiting job growth and economic development.

- J. Gravity flow provides a reliable, energy efficient, lower operation and maintenance cost water supply with low carbon footprint into the future. Groundwater, while also a valuable water source and beneficial to the City, requires pumping from 400-700 feet below surface, which is an energy intensive activity and highly likely to be more expensive in the long run (however, electricity costs fluctuate over the years).
- K. A dual source provides operational flexibility and gives high confidence in water availability as demand changes with season and population growth into the future.
- L. A dual source provides environmental flexibility so that if quantity, quality or regulatory problems with one source occur, the other can still be used. Equally important, in the event that something happens to one source, the second source gives the City potential for lower cost solutions to enable the City to maintain two sources. A recent study by DEQ found that out of 253 wells for drinking water systems within the Deschutes Watershed, 101 of them have had contamination events. The EPA has indicated it is "likely" to further regulate groundwater in a manner that could require costly filtration of that source. A dual source also maximizes potential for renewable energy.
- M. The surface water source is secured by water rights, including senior and certificated rights, the value of which cannot be underestimated or lightly put at risk. This is especially true in light of the complexities of Oregon water law, further complicated by the intricacies of the Deschutes Groundwater Mitigation Program and its requirements to provide for offsets to impacts to the Lower Deschutes Scenic Waterway flows caused any newly permitted groundwater withdrawals within the upper basin's defined study area. The Deschutes Groundwater Mitigation Program is itself a temporary and, in some circles, controversial program, without which newly permitted groundwater withdrawals in the upper basin would be impossible. In the event the Mitigation Program's detractors are successful in further limiting it or preventing its reauthorization in the future, a sole reliance upon groundwater would significantly hamper the City's ability to meet water demand.
- N. As stewards of Bend's infrastructure and long term water system and community and economic growth, the time frame the City Council has determined is appropriate to consider in making long term water infrastructure decisions is at least 50 years in Bend's future. The City Council recognizes that the existing water infrastructure related to the surface water source is over 80 years old and that any replacement of this infrastructure will utilize materials and design that will last in excess of 100 years.
- O. There are three primary threats to the continued use of Bridge Creek:

a. The EPA LT2 was implemented by the federal government to address real problems with surface water in some parts of the country. The deadline is currently October 1, 2014;

b. The risk of wildfire in the watershed which would potentially increase long term turbidity and sedimentation issues to the water source; and

c. Deteriorating pipe infrastructure, including a pipe that was constructed in 1926, the tar lining of which is currently fragmenting and traveling down the pipe (see photo exhibits showing lining in bottom of tank). 1926 and 1950s pipes, both of which are subject to tree and root encroachment further increasing risk failure.

P. Environmentally, the project will not alter the upper diversion at the source springs which has operated continuously since the 1950's, and therefore will cause no change to the existing flow regime established to minimize turbidity into Bridge Creek by keeping diverted flows constant. The proposed project will have an environmental benefit in that the City's existing system has lacked flow control so that the City has diverted water at a constant rate of 18.2 cfs, even when actual city use is lower. The new system will have flow controls so that only water needed will be diverted, eliminating downstream return flows and related turbidity events and now passing unused flow beginning at the intake location through 9.5 miles of stream.

Q. The City Council has considered changing the point of diversion to farther downstream on Tumalo Creek, as a cost saving measure in that it would result in a shorter pipe which would create a new intake upstream of Shevlin Park. However, as in the past, the City rejected this idea due to water quality concerns (possibility of water pollution due to upstream development, vehicle traffic and human activity, increased fire probability, turbidity issues further downstream, etc.), legal risks to water rights in changing the point of diversion, environmental concerns in moving the diversion through the rocky/steep canyons further down the river, and uncertainties as to constructing a new diversion on/across Forest Service lands.

R. The City received the attached letter of support from Central Oregon Irrigation District in which they state, "... perfected and certificated water rights in the Deschutes Basin are not held by many entities, and are rarely if ever voluntarily relinquished. COID would only consider relinquishment of its water rights if there was a 100% guarantee of replacement of that supply...and Bend has only the promise of future supply..."

S. The City has received the attached letter of support from Tumalo Irrigation District and through ongoing discussions throughout the project development with Tumalo Irrigation District, and as evidenced by its State approved 2005 update to its Water Management and Conservation Plan (WMCP), that it has identified estimated annual water losses of over 31,000 acre feet, much of it

within its delivery system, which it intends to reduce by completing conservation projects.

- T. It is the City's understanding that Tumalo Irrigation District has completed the following projects to date:
- a. Completed the Bend Feed Canal that returned 5.82 cfs of senior water, and 11.3 cfs of junior water (State project CW-9);
 - b. Completed two phases of the Tumalo Feed Project (State project CW-37), which when fully completed is estimated to return an additional 20 cfs of water for instream purposes (depending on funding). Phase 3 is underway this winter, expected to be completed by start of irrigation season; and
 - c. Completed annual instream leases over the past ten years averaging approximately 5.4 cfs of senior water placed instream (Source DRC).

The district expects to continue this trend of conserving water and increasing the instream flows within Tumalo Creek.

- U. The City Council also finds it fortunate to have an existing 1926 agreement with the Forest Service which created the Bend Municipal watershed and laid the basis for subsequent special use permits and memorandums of agreement that continues the protection and management of the watershed today with a recognized priority for the production of municipal drinking water.
- V. At the request of this City Council, Bend sought successful inclusion and assisted in creation of the Deschutes Skyline Collaborative Forest Landscape Restoration Project with the potential for up to \$10 Million dollars of additional funding for this collaborative with the Deschutes National Forest through the Collaborative Forest Landscape Restoration Act of 2009, and that the Bend Municipal Watershed is included in the study area with the goal of finding additional cost effective methods of reducing the risk of fire that work in conjunction with the surface water project and continuing to assist agencies and organizations who continue to work towards improving water quality (temperature), enhancing riparian and aquatic habitat, and improving stream bank stability in Tumalo and Whychus Creeks.

Based on these findings, the Bend City Council resolves as follows:

Section 1. The Council is committed to continuing with the pipeline and intake facility design/construction on schedule, and obtaining the Special Use Permit from the Forest Service (including the National Environmental Policy Act (NEPA) process), to coincide with the Federal Highway Administration and Deschutes County rebuild of the existing Skyliners Road occurring in 2013. Council reaffirms its commitment to retaining the current diversion point because it minimizes potential contamination, and legal risk of

environmental compliance costs and risk to water rights, as further set forth in the above Findings.

Section 2. Council is equally committed to retaining the Bridge Creek source at the lowest possible cost. The City is currently seeking to delay compliance with the treatment requirement of the LT2 rule, thereby significantly reducing water rate increases. To this end, the City has initiated aggressive efforts on behalf of its constituents, by working with:

- The Oregon Health Department to seek an Alternative Compliance Schedule for treatment under a negotiated administrative order; and
- The EPA and Congressional delegation to seek flexibility in the LT2 treatment rule, including delaying treatment improvements as the EPA reviews the LT2 rule, and rebalancing the costs and benefits of rule compliance as applied to Bend and other similarly situated cities with high quality water sources.

Because of the risk of fire, City staff is directed to work with the Forest Service to mitigate the fire risk to the greatest extent possible, as the City works through the issues related to the staging of the surface water treatment improvements.

Section 3. By Resolution No. 2817, the City Council directed staff to proceed with design and construction of the Membrane Filtration Treatment for the City's Surface Water Reinvestment Project. The engineering design of the treatment facility is currently at about 75%. City staff has recently worked with its design consultant, HDR, to reduce monthly expenditures by slowing down the pace of design, so that the tasks that were scheduled for completion by March, are now scheduled for completion by June, at no corresponding increase in cost.

The City Council continues to find that it is in the best interest of the City to continue to 90% design for the Membrane Treatment Facility in order to avoid significant work stop/start charges. However, prior to proceeding to 100% design, the City desires to "pause" to take the actions set forth in Section 6 below. Council believes that 100% design is likely desirable to show good faith progress with its obligations under the LT2 rule, to have a ready design in the event of a wildfire in the watershed, and to receive the full benefit of the City's investment to date, but it believes further community input on this decision would be valuable.

Council directs staff to delay construction of the Membrane Treatment Facility as it works through the issues identified in Section 2 above. A delay in construction costs is expected to reduce the immediate need for significant rate increases. A recognized risk is that it could increase project construction costs in the future, compared to the costs projected currently.

Section 4. The City Council holds open the possibility of opting for UV or another treatment type as a less costly measure given economic problems in Bend. Council continues to recognize the benefit of membrane treatment as a superior treatment method in the event of turbidity from a wildfire in the watershed.

Section 5. By Resolution No. 2846, the City Council directed staff to proceed with the construction of the hydroelectric facility as part of the Surface Water Improvement Project. The Hydro portion of the project was to operate on water used by Bend for beneficial use, based on current demand and its water rights—in other words, no additional water would be diverted for hydroelectricity other than what is needed to serve utility customers.

The design of the Hydro project and permitting has been stopped pending further direction from Council. The City Council desires to re-evaluate Hydro at this time, and delay the cost of design, turbine procurement, construction and permitting, in order to reduce the up-front cost of the surface water project.

The City Council understands that the trade-off in doing so is that a hydroelectric facility produces a valuable revenue stream which would provide ratepayer relief as well as the potential for investment in stream flow improvement efforts, offsetting operational and construction costs in relatively few years, and produces clean, green energy. However, the City Council is willing to defer construction to a future date, and further explore private investment.

Section 6. As part of its commitment to being responsive to community questions about the project, the City Council is willing to take an additional third party, independent look at the treatment methods, timing and hydro aspects of the project, with a neutral and knowledgeable third party facilitating the discussion. The City Council does not intend to review the underlying values and assumptions for the Council decisions to retain the dual source and to replace the transmission line.

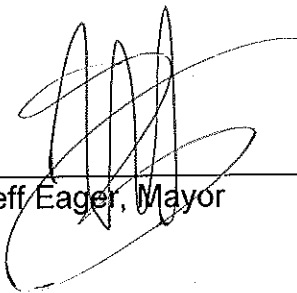
Section 7. In taking the steps described in Sections 1 through 4, it is Council's intent to reduce project costs so that rate increases in fiscal year 2012-2013 will be reduced from 15% to no more than 5%, with corresponding reduction in rates in the years thereafter. The estimated rate increase for a fiscally constrained surface water project would equate to an additional monthly charge ranging from \$.85-\$1.70 each year for the average Bend household.

Section 8. The Council directs the formation of a Tumalo Creek restoration subgroup, at first comprised of at least one council member, supported by city staff, to create a collaborative dialogue with the Tumalo Irrigation District board and staff, to establish a mutually agreeable flow restoration target; identify a mutual list of priority projects; determine related funding requirements and potential partners; and seek other mutually beneficial projects, processes or agreements that may be necessary to meet restoration and long term water supply goals of each entity.

Adopted by roll call vote on March 7, 2012.

YES: Tom Greene
Scott Ramsay
Mark Capell
Jodie Barram
Kathie Eckman
Mayor Jeff Eager

NO: Jim Clinton



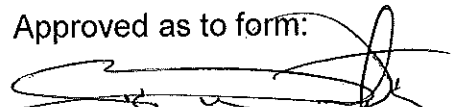
Jeff Eager, Mayor

ATTEST:



Robyn Christie, City Recorder

Approved as to form:



Mary A. Winters, City Attorney

Tualatin Valley Water District



1850 SW 170th Ave. • Beaverton, Oregon 97006 • Phone: (503) 642-1511 • Fax: (503) 649-2733 • www.tvwd.org

Gregory E. DiLoreto
Chief Executive Officer

November 2, 2010

Bernice Bagnall
Chief Financial Officer

Mayor Kathie Eckman and Bend City Councilors
City of Bend
710 NW Wall Street
Bend, Oregon 97701

TRANSMITTED VIA EMAIL

Debra Erickson
Manager, Human Resources

Dale Fishback
Manager, Operations & Field Services

Dear Mayor Eckman and Bend City Councilors:

Todd Heidgerken
Manager, Community & Intergovernmental Relations

It is my understanding that you are soliciting feedback from other water providers regarding the City of Bend's water supply options and, more specifically, our experience with our water supplies. Obviously the approach that the City of Bend takes is ultimately up to you, however, we are pleased to share our experience in the hope that it will assist you in making an informed decision that considers the various risks associated with water supply and water rights.

Mark Knudson, P.E.
Chief Engineer

As background, the Tualatin Valley Water District (TVWD) serves more than 200,000 people in parts of Washington County. Our service area covers more than 45 square miles and includes portions of Beaverton, Hillsboro, and Tigard. Approximately 70 percent of our water is used by residential customers and the other 30 percent used for business and industrial needs. Our water supply is comprised of water purchased from the Portland Water Bureau (includes water from the Bull Run Watershed and the Columbia South Shore Wellfield) and our ownership in the Joint Water Commission (includes water from Barney Reservoir, Hagg Lake and the Tualatin River). As you can see, we have a number of sources that are used to meet our needs and provide the reliability our customers have come to expect.

Brenda Lennox
Manager, Customer & Support Services

For a number of reasons, TVWD has deliberately pursued a water supply strategy that involves the use of multiple sources of water. This approach has served us well in periods of short supply (drought) or when a source might not be available due to mechanical or quality issues. Prior to this approach, residents served by TVWD (and its predecessor) were saddled with water restrictions due to limitations of relying on a single source of supply. The drought of 1992 was a clear example of some of the unfortunate consequences and impact of a sole source strategy. It was during this period that TVWD customers experienced mandatory water restrictions that prevented the watering of established lawns, car washing and other normally allowed uses of water. Enforcement included the imposition of penalties ranging from \$100 to \$500. Interestingly, that drought only affected one source in the Portland Metro area, Portland's Bull Run System. It was as a result of that drought that the TVWD Board of Commissioners instructed staff to develop a second source of supply for the District.



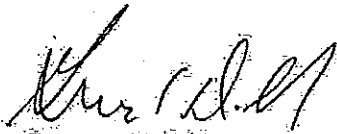
Mayor Eckman and Bend City Councilors

November 2, 2010

Page 3

I hope the information I have provided regarding TVWD's experience is helpful and provides some background on how and why we have approached the issues of water supply, reliability and value of water the way we have. Good luck in your water supply planning process and implementation. Please let me know if I can be of any assistance or provide additional information that you might find useful.

Sincerely,



Gregory E. DiLoreto
Chief Executive Officer

Cc: Eric King, Bend City Manager



WATER - not to be taken for granted

To: Tom Hickman, City Engineer/Assistant Public Works Director

From: Dan Bradley, General Manager

Date: October 27, 2010

Subject: Abandonment of Existing Water Supply

I would like to offer my perspective of the discussions occurring at the City of Bend regarding the abandonment of the Bridge Creek surface water supply. I have actually visited the site and am familiar with the supply source.

I can, without hesitation, say that I would never recommend let alone consider abandoning a source of such high quality water as the Bridge Creek source. It is an asset not only of huge value today but of untold value in the future.

The Oak Lodge Water District currently receives its source water from the Clackamas River. The Clackamas River is fully allocated and is no longer available for summer appropriation. As a result, Oak Lodge currently has a contract with MSA/GSI to develop a groundwater source not only for emergency purposes but also as an additional source of supply. Quite the opposite of what is being proposed in Bend.

I know some parts of the Deschutes Mitigation Plan but certainly not enough to comment with much certainty. But from what I know of the Plan I wonder why anyone in the area would even consider abandoning a pristine source that provides so many opportunities especially with the addition of adding hydroelectric generation that will provide a sizeable income for decades.

I mentioned this to some of my Board Members who were essentially shocked at the concept. Some of the comments I received are "What are they thinking?" "Why would they do something like that?" "Is there any chance we could get access to the water if they give it away?" Based on these comments I think it is clear the Oak Lodge Water District Board would never consider abandoning a water source.

In conclusion, possessing water rights to any water supply sources in Oregon is an asset that I could not put a price on today and certainly not into the future. I strongly recommend the City of Bend not abandon this wonderful source.



Eugene Water & Electric Board

500 East 4th Avenue/Post Office Box 10148
Eugene, Oregon 97440-2148
541-685-7000
www.eweb.org



October 28, 2010

City Manager/City Council
City of Bend
710 NW Wall Street
Bend, OR 97701

RE: Feedback on Upcoming Water Supply Planning Decision

Dear Mr. Eric King and City Council Members:

It is with the unpleasant distinction as the largest water provider in the Pacific Northwest without a second source of supply that we are writing you to encourage maintaining both your surface water source and your ground water source for future water supply for your community. Having a single source of supply may be common in small towns and rural communities in Oregon, but the majority of larger communities rely on diversity to meet the growing needs of their communities (both residential growth and industrial/commercial growth). Some examples of diversified water supply sources in Oregon are: Portland Water, Medford Water Commission, City of Albany, Springfield Utility Board, Clackamas River Water, City of Lake Oswego, City of Wilsonville, City of Beaverton, City of Tigard, Tualatin Valley Water, City of Salem, City of West Linn, Oak Lodge Water District, City of Hillsboro, and City of Milwaukie. It is our Board directed goal for staff to add the Eugene Water & Electric Board (EWEB) to this list.

We recognize and acknowledge the economic factors in your decision. The unquantifiable cost to your community of not being able to provide water reliably in the future should cause you great pause while considering the cost differences (short and long term) between a single source of supply and dual source of supply. In addition to providing the flexibility of a second source, your surface water system provides gravity flow of water to most of your city (an extremely valuable asset in itself for public health and public safety). Furthermore, it provides a renewable energy supply to be used locally for electric power. Being the largest publicly owned utility in Oregon we recognize the value of renewable energy sources to our northwest power customers. We believe you will find benefits and additional pride in adding power generation to the services you provide to your community. As a water provider we rely on our electric utility for reliable power (the water utility is our 7th largest customer on the electric side). Having a power source that you control will provide a degree of increased reliability if you choose to utilize this electric resource to supply some of your water infrastructure.

We are envious of your current position as a dual source of supply water system. EWEB serves the second largest city in Oregon (170,000+ people). We have been working relentlessly to bring viable options to our Board to consider adding a second source of supply to our water

supply portfolio. Because of the difficulty with obtaining legal access to new supplies we have yet to realize this Board supported objective. I highly encourage you to not underestimate the challenges of acquiring legal access to new water supplies, especially in light of the complexities of our Oregon water right laws, which are further compounded in the Deschutes basin because of the designation of the Deschutes River as a wild and scenic river and the mitigation rules for ground water withdrawals.

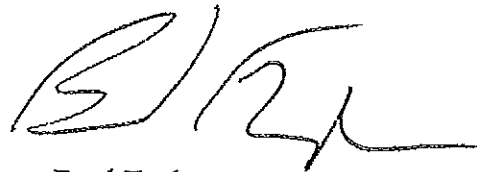
The city of Bend is fortunate to have many things that attract visitors, residents and businesses to it: mountains, the endless recreational opportunities, the micro-brews, and a diverse water supply. It is our professional judgment that it would be in your city's best interest to maintain this water supply diversity to meet the needs of your community now and into the future. It will be a decision that future generations will grow to appreciate.

If we can provide you or your staff with any additional information or testimony we would be glad to participate as needed.

Regards,



Tom Buckhouse
Director of the Water Division
EWEB
tom.buckhouse@eweb.org



Brad Taylor
Water Resource and System Planner
EWEB
brad.taylor@eweb.org

cc: Roger Gray, General Manager, EWEB
Tom Hickmann, City Engineer/Assistant Public Works Director, City of Bend



CENTRAL OREGON IRRIGATION DISTRICT
1055 SW Lake Court, Redmond, OR 97756
Phone: 541.548.6047 Fax: 541.548.0243
www.coid.org

A MUNICIPAL CORPORATION OF THE STATE OF OREGON

2 November, 2010

Mayor Kathie Eckman
City Council Members
City of Bend – City Hall
710 NW Wall Street
Bend, OR 97701

Re: Project to Replace the City's Surface Water Supply System

Mayor Eckman and City Council Members,

Central Oregon Irrigation District (COID) is providing these comments out of respect for your process of deliberation on this issue and under the objectives stated in our joint Memorandum of Understanding (MOU) signed in 2003.

The MOU was approved and executed by both of our governments recognizing that cooperative and creative efforts are going to be needed in meeting current and future water supplies. A foundational element of Bend's current water supply is the perfected and certificated water right on Bridge Creek. Perfected and certificated surface water rights in the Deschutes Basin are a precious item not held by many entities and are rarely if ever voluntarily relinquished. COID would only consider relinquishment of its water rights if there was a 100% guarantee on replacement of that supply. That situation does not currently exist for the City of Bend as the Deschutes Ground Water Mitigation Program is due for legal sunset in 2014 and the chances of that program to be extended by the state legislature is not known. While many informed voices may advocate for an all groundwater supply, the fact remains that the City of Bend already has a perfected water right in hand and only a promise of additional groundwater rights in the future.

In addition, as with COID's water delivery system, the Bridge Creek water supply is fully provided by gravity and a sustainable and affordable delivery independent of mechanical or electrical failures. While the infrastructure may require repair and maintenance over time the fundamental delivery is provided by gravity at no additional expense.

Thank you for your attention to these comments and trust they are of benefit in your deliberations.

Sincerely yours,

Steven C Johnson

Steven C Johnson
District Secretary - Manager

December 11, 2010

To: Members of the Bend Infrastructure Advisory Council

Subject: Letter of support for combined surface and groundwater option for the City of Bend.

I regret that I will not be able to attend the IAC meeting on December 13th regarding the Bend water upgrade option. Please accept this memo in my absence.

Securing an adequate water supply to meet Bend's population projections will involve substantial infrastructure decisions that will impact City residents for decades. I strongly support a combined surface and groundwater system, including the proposed upgrade of the Bridge Creek facility that the City Council recently approved.

The existing dual-source system is the most cost-effective option over time given the energy required for an all-groundwater system and inevitable increases in energy costs. The Northwest Power Planning Council, PGE and Pacific Corp, the Bonneville Power Administration and the Oregon Department of Energy all anticipate steady increases in the cost of electricity. These costs will be exacerbated by the fact that Oregon currently faces a bottleneck in transmission capacity. Whether Oregonians choose to meet additional electricity demand through the existing coal based system or through development of renewable energy sources, capacity must be added to the transmission system. This is an expensive undertaking and it will be reflected in increased electricity costs.

Pumping water is a very energy-intensive activity. The gravity-fed surface water system will save Bend residents significant money by reducing electricity costs associated with groundwater pumping.

Another point to consider is that, in an effort to reduce greenhouse gas emissions and increase energy security, the Pacific Northwest region will likely expand policies and incentives for development of renewable energy sources. Designing the upgraded surface water system so that it provides opportunities to develop small-scale hydro-electric facilities will give the City flexibility to benefit from programs supporting renewables. In addition, at some point it is likely that we will see regional, and eventually national, regulations on greenhouse gas emissions. It is possible that the increased greenhouse gasses associated with groundwater pumping will be a liability under those regulations.

932 SE Douglas St. Bend, Oregon 97702

(541) 617-9013

FAX: (541) 382-2287

Info@3estrategies.org www.3estrategies.org



3E STRATEGIES

ECOLOGY • ECONOMY • EQUITY

Finally, climate change is a real concern and there is great uncertainty about the impacts it will cause. The best way to safeguard against such uncertainty is to add diversity to our systems. Climate change will likely affect surface water flows, and this further supports the case for reinvestment in the Bridge Creek system, which is groundwater fed and will be less affected. If climate change becomes severe enough to significantly affect surface water and snowpack fed streams and rivers, it will reduce the hydropower capacity on the Columbia system, further driving up electricity costs.

I urge the IAC to consider these points and support the City Council's decision to move forward with a combined surface and groundwater system.

Sincerely,

A handwritten signature in cursive script that reads "Cylvia Hayes".

Cylvia Hayes
CEO, 3EStrategies

932 SE Douglas St. Bend, Oregon 97702

(541) 617-9013

FAX: (541) 382-2287

Info@3estrategies.org www.3estrategies.org

TUMALO IRRIGATION DISTRICT

64697 Cook Ave.
Bend, OREGON 97701
Phone (541) 382-3053
FAX (541) 383-3287
Email: tid@tumalo.org
Web Page: www.tumalo.org

November 3, 2010

Mr. Eric King, City Manager
City of Bend
710 NW Wall Street
Bend, Oregon 97701

SUBJECT: LETTER OF SUPPORT, CITY OF BEND WATER SUPPLY PROJECT

Dear Mr. King:

It is the understanding of the Tumalo Irrigation District that the City of Bend is currently in the investigative and design stages of renovating its surface water supply from the Bridge Creek/Tumalo Creek watershed. The supply has been in use for over 80 years and we understand that the project includes the replacement of aged, failing pipe and the addition of water treatment to address new EPA rules. We also understand that the City is investigating the addition of renewable energy production through hydroelectric power generation.

As you know, the City and the Tumalo Irrigation District have been long time stewardship partners on Tumalo Creek requiring continuing cooperation to facilitate the proration of the various water rights held by both entities (according to the State water right certificates). We understand the proposed project to enhance control, use and delivery of the City's water through the addition of measurement devices for intake water and elimination of routine operational return flows at the Outback site. This will serve to facilitate better tracking and evaluation of water use and insure the proper allocation of water to the City and Tumalo Irrigation District as called for in the State water rights held by each party. We perceive this as a benefit of the project. We also note that a portion of the City's water rights include assessment payments to the District (for 692 equivalent acres). Preserving and upgrading its surface water right insures the continuing beneficial value of these specific rights.

We understand that the City's historical and proposed supply of surface water is through gravity and based upon the natural "fall" from the diversion point to the Outback site. Additionally, the City may implement hydroelectric power generation if practical. The Tumalo Irrigation District supports the idea of sustainable and energy efficient operations.

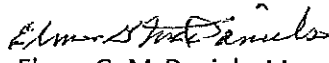
The District shares the City's desire to upgrade its systems and is in the process of upgrading its century-old delivery systems as well and appreciates the support of the City in the District's endeavors to further enhance the Tumalo Creek watershed and provide additional conserved water instream through such projects as its Tumalo Feed Canal piping project.

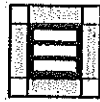
Based upon our current understanding of the project and our continued input and involvement in the City's process, the Tumalo Irrigation District supports the City of Bend's efforts to renovate its surface water supply system, implement and share the data results of complete water diversion measurement and associated telemetry, implement water treatment as required by law, and to investigate the implementation of renewable energy.

Should you have any questions on this letter of support, please call.

Sincerely,

TUMALO IRRIGATION DISTRICT


Elmer G. McDaniels, Manager



ECONOMIC DEVELOPMENT FOR CENTRAL OREGON

February 22, 2012

City of Bend
City Councilors
710 NW Wall St.
Bend, OR 97701

Dear Councilors:

On behalf of our Board of Directors, I would like to express support from Economic Development for Central Oregon (EDCO) for the City of Bend to maintain its dual source water system and preserve its current surface water rights. At its February 9th meeting, the EDCO Board of Directors unanimously approved a motion to write a letter of support for this critical infrastructure asset. A high quality surface water source such as the one Bend possesses is the envy of those communities that do not have it. Any effort or campaign to eliminate it is not in the true best interests of the City of Bend, its residents and businesses.

We understand that there are a number of issues currently being publicly debated – whether to have a hydroelectric component to the surface water source as well as the cost, timing and method of treatment required by federal laws. To be clear, EDCO is not weighing in on these issues with this letter, rather our support is specific to keeping the surface water source, longtime water rights, and the transmission system to deliver surface water to Bend residents and businesses. It is our understanding that the aging transmission line is at risk of failure or is already experiencing problems in sections. Modernization and replacement of such transmission lines are common in the region, and consequently are a very straightforward project for EDCO to support.

As you know, EDCO has been the tri-county region's lead economic development organization for the past 30 years. Water supply is frequently an important element of our business and industry recruitment efforts as well as work we do to help local manufacturers, high technology and other traded-sector companies to grow and prosper. During that time Bend has experienced tremendous growth that was supported by the City's abundant and high quality water supply.

Evaluations conducted throughout the years have confirmed time and again that the City's dual source water system (surface water from Bridge Creek and ground water) is by far the most reliable arrangement for future needs. With gravity delivering the needed pressure to make the system work, it is also the most cost effective alternative, long term. Without such a system, the City's infrastructure could be hampered, limiting future growth and development.

Water rights and mitigation credits in the high desert climate of Central Oregon are very limited, so to consider forfeiting those the City already has would be—in the opinion of our Board—shortsighted. EDCO relies on assets such as a high quality workforce, low cost power and worker's compensation rates, in addition to quality of life and other amenities when it comes to job creation. With the competition fierce for such projects it is critical that the City's water supply not be a concern for potential employers.

Thank you for your considerable efforts on this issue. We know it has been a project that has consumed a very large amount of time and with it some controversy, however it really is a critically important aspect of what a city provides. EDCO encourages the City of Bend to stay the course and protect its surface water supply.

Should you have any questions about our support, please don't hesitate to contact me or any of our Board of Directors.



Best Wishes,
Roger J. Lee
Executive Director

EDCO Board of Directors:

Katherine Tank, Partner; Schwabe, Williamson & Wyatt, P.C.
Greg Lambert, President, Mid Oregon Personnel Services, Inc.
Bill Anderson, President & CEO, Mid Oregon Federal Credit Union
Amy Tykeson, Owner and CEO, BendBroadband
Angela Jacobson, Business Manager, Pacific Power
Wes Price, Partner; Harrigan, Price Fronk & Co. LLP, CPA's
Doug Ertner, Senior Account Executive, Central Electric Cooperative
Darren Powderly, Partner, Compass Commercial Real Estate Services
Lorie Harris Hancock, Principal, Harris Hancock Attorney at Law
Melanie Widmer, President, Madras Sanitary Service
David Asson, Councilor, City of Sisters
Mark Beardsley, Sr. Business Relationship Manager, Wells Fargo
Joe Centanni, Partner, Integrity First Financial
Margie Dawson, Councilor, City of Redmond
Wayne Fording, Commissioner, Jefferson County
Steve Forrester, City Manager, City of Prineville
Tom Greene, Councilor, City of Bend
Andy High, VP of Government Affairs, Central Oregon Builder's Association
Becky Johnson, Vice President, OSU-Cascades
Doug Lofting, Vice President, Shielding International
Mike Malmquist, Senior Lending & Region Manager, US Bank
Matthew McCoy, VP for Administration, Central Oregon Community College
Kathy Ragsdale, CEO, Central Oregon Association of Realtors
Scott Ramsay, Councilor, City of Bend
Kirk Schueler, Chief Administrative Officer, St. Charles Medical Center
Lee Smith, Executive Director, La Pine Industrial Group
Alan Van Vliet, Sr. Director Construction & Development, North View Hotel Group
Sean Watt, Market President, Home Federal Bank
Greg Hagfors, CEO, Bend Memorial Clinic
Susan Reed, Vice President & General Manager, CenturyLink
Steve Hultberg, Attorney, Ball Janik, LLP
Alana Hughson, Executive Director, Central Oregon Visitor's Association
Jason McKibbin, Chief Operating Officer, MediSISS

Jeff Staudenmaier, Region Manager, Cascade Natural Gas Corporation



Figure 1. An accumulation of pipe lining material (black material) with sand and gravel in one of the Outback reservoirs



Figure 7. A 30-inch conifer within 4 feet of the 1926 pipeline

Significant damage from trees is expected in several sections of the upper portions of the pipelines. The pipelines are at risk of failure due to trees overturning for much of the upper sections of the 1926 and 1957 pipelines. Reduction in the risk of damage could be accomplished by cutting the trees, if that can be reasonably done. Tree removal on public land will likely require permits from the land manager. This process may be lengthy and will likely require some form of environmental assessment. Where the trees are now holding the road bank in place above Tumalo Creek and where the trees are major landscape elements in the Skyline subdivision, permission for tree removal may be very difficult to obtain.

Easement Intrusions

The pipeline routes run through the Skyline subdivision and then through several large private holdings east of the subdivision. These large lots create some access problems for maintenance of the pipelines. Certainly the owners would have concerns with major ground-disturbing work, but they are likely to be manageable and a major pipe failure in those areas is not an overt life-safety issue. However, within the Skyline subdivision, several major concerns are apparent, including the following:

- **Structures:** Many structures have been placed in the easements, at least four of which are immediately above the 1926 pipeline (see Figure 8 for examples).



Figure 8. Pipeline route is under right edge of building (left); pipeline route (blue stake) directly under large RV shelter (right)

- **Large trees:** Many large conifers are located near or immediately above the two pipelines. Trees with 24-inch-diameter trunks are not uncommon.
- **Landscaping:** Some of the homes have installed extensive landscaping in the easement and above the 1926 pipeline. See Figure 9 for an example.

Figure 9. Landscaping above pipelines; 1957 pipeline is under concrete in foreground, 1926 pipeline is under trees in planted island



- **Wells:** A number of wells are located in the easement; four were observed. Two were within 1 foot, if not inches, of the 1926 pipeline. One well house was constructed above the pipeline (see Figure 10).



Figure 10. Well house directly above 1926 pipeline; another well can be seen in background that is less than 1 foot from the pipeline

All of this intrusion in the subdivision puts the pipeline at risk from the following:

- localized corrosion due to stray current from power lines to buildings and wells
- accidental damage to the pipeline from further construction
- crushing of the shallow, old pipeline from wheel loads and building foundation pressures.

Failure of the pipeline in this area is both a life/safety issue for those living in the subdivision and a damage liability issue for the City.

Maintenance of this section of the pipeline route will be very difficult at best. The property owners have a lot of land value to lose by the City clearing the easements. They will likely fight any attempt to maintain the easement and argue for at least the 1926 line to be relocated into Skyliners Road. Given the likely poor condition of the pipeline in this area, that will be a hard argument to overcome.

Hydraulic Condition

The two pipelines are not designed to withstand the pressures that would build if a valve near the end of the pipeline was closed. Pressures in such an instance would build to more than 400 psi; the pipe walls would rupture under that much pressure. Therefore, the pipelines were designed to use a small diameter to create friction within the pipelines that will reduce the pressure as the water flows through the pipes. The 1926 and 1957 pipelines have 21 and 28 air valves, respectively, to help relieve the lines of air and prevent vacuum damage. They are shown to also have four interconnections and up to five mainline valves to help control pressures in the lines.