



## Resolution 2018-19

### **A Resolution Declaring a Moratorium on New Development in the City of Banks Due to a Documented Shortage of Municipal Water Supply.**

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The Banks City Council adopts the following findings:

**WHEREAS**, the City of Banks operates a municipal water system and utility serving all homes and businesses within the City of Banks; and

**WHEREAS**, the City's Water Utility is established and operating under the rules and regulations codified in Chapter 5.01 (Water) of the Banks Code of Ordinances; and

**WHEREAS**, the City's supply of potable water is limited, and the City is nearing the planned capacity of its water supply and utility. Without further measures to conserve and increase the current municipal water system capacity, peak water demand in the City will soon exceed the City's water supply and system capacity during the times of year when the supply is most limited; and

**WHEREAS**, at a June 12, 2018 public workshop, the City Council received information from the City Engineer and the City's water system consultant about the current water system capacity relative to current demand and subsequently received a detailed memorandum from the City Engineer, dated August 7, 2018 that documents the seasonal fluctuations in water system capacity and demand; and

**WHEREAS**, the Engineer's August 7<sup>th</sup> report, attached hereto as Exhibit A, documents that the current system capacity during the summer high demand and low supply months (June through August) is equivalent to the current number of water system connections of 693 connections with no extra water system capacity remaining in an especially dry year; and

**WHEREAS**, Exhibit A also documents that the current system capacity during the winter low demand and high supply months (September through May) shows approximately 60 additional connections, or a total of 753 system connections are available during the wettest parts of the year; and

**WHEREAS**, the City has undertaken several measures and projects to prevent water system loss and to increase supply capacity, and is planning others, to increase its water system capacity to accommodate additional connections. These measures include a water line replacement for the City's water mains running down Sellers Road and Cedar Canyon Road, a comprehensive leak detection and repair program and the adoption of water conservation and curtailment measures. The water main replacement projects, however, will take at least one to two years to complete and it is not clear how many, if any, additional system connections these measures, collectively or individually, will produce; and

**WHEREAS**, until the City's measures for increasing water system capacity are implemented and generate additional water system capacity, the City desires to preserve what little system capacity remains in the water system; and

**WHEREAS**, the City is aware of several significant undeveloped and underdeveloped areas of the City that may be the subject of development proposals within the next year. If approved, these developments could significantly increase water system demand by creating new connections that would eliminate the few connections that currently exist and quickly exceed the City's estimated water system capacity, which would place the City in a critical water shortage situation; and

**WHEREAS**, such a critical water shortage would require drastic curtailment measures that would be detrimental to the entire city and cause significant public harm. The city's current development ordinances and land use regulations are not adequate to prevent or slow the submission of development proposals, nor do current regulations allow the City to reserve the current limited number of connections. Instead, state law requires the City to allocate the current limited capacity on a first come, first served basis as development applications are submitted and vest. Thus, the city's current land use regulations are not adequate to prevent irrevocable public harm from development proposals and the consumption of the last remaining water system capacity in the City; and

**WHEREAS**, the moratorium proposed herein is sufficiently limited to ensure that an adequate supply of needed housing types and the supply of commercial and industrial facilities within or in proximity to the city are not unreasonably restricted by the adoption of the moratorium. For example, the moratorium provides a specific exemption for high-density multi-family and affordable housing as well as industrial developments that meet certain low water use requirements; and

**WHEREAS**, alternative methods of achieving the objectives of the moratorium are unsatisfactory due to the State's vesting law and priority for development applications filed with the city; and

**WHEREAS** the public harm that would be caused by failure to adopt a development moratorium outweighs the adverse effects on other affected local governments, such as shifts in demand for housing or economic development, public facilities and services and buildable lands, and the overall impact of the moratorium on population distribution; and

**WHEREAS**, sufficient resources are available to complete the development of needed interim or permanent changes in plans, regulations or procedures within the period of effectiveness of the moratorium; and

**WHEREAS**, the City's housing and economic development needs will be accommodated as much as possible in the formulation of conservation and leak repair programs that are intended to create additional water system capacity within one or two years of the date of their adoption.

**WHEREAS**, the industrial developments with certain limitations and with low water demand are an important component of the Banks' economy and are worthy of an exemption from the Development Moratorium declared herein; and

**WHEREAS**, the City's recently completed and adopted Housing Needs Analysis documents an unmet need for affordable housing options within the City. The Council specifically finds that multi-family apartment and condominium housing options are less expensive and more affordable than detached single-family housing, help address the identified need for more affordable housing, and for those reasons are worthy of an exemption from the Development Moratorium declared herein; and

**WHEREAS**, ORS 197.505 to 197.540 authorize the City to declare and impose a moratorium on new development and water system connections to prevent the exceedance of the City's water system capacity, an anticipated critical water shortage situation, and the significant public harm that would occur if the last few remaining water system connections were allocated and the City's water system lost its capacity and ability to serve basic and essential private and public functions; and

**WHEREAS**, at its regular meeting of December 11, 2018, the City Council convened a duly noticed public hearing to consider a development moratorium as a means of preventing the exceedance of the City's water system capacity and to prevent a critical water shortage situation, at which time the City Council accepted public testimony and comment on the proposed moratorium; and

**WHEREAS**, the City provided notice to the Oregon Department of Land Conservation and Development at least 45 days prior to its December 11, 2018 hearing where the Council accepted public testimony on this proposed development moratorium.

**NOW THEREFORE**, based on the foregoing Findings, the Banks City Council resolves as follows:

1. **Development Moratorium Declared.** Pursuant to the authority of ORS 197.505 to 197.540 and based upon the Engineer's August 7, 2018 report, attached hereto as Exhibit A, the City Council hereby declares a Moratorium on new development and new water system connections whereby, notwithstanding the City's adopted development regulations and procedures, the City shall not accept, process or approve any application for new development that entail one or more new water system connections.
2. **Exceptions to the Moratorium.** Notwithstanding the foregoing development moratorium, proposals for the following development types are deemed to be critical to the City's economy and to meeting the City's need for affordable housing shall be exempt from this development moratorium:
  - a. Any land use application for development that was submitted prior to the effective date of this moratorium.
  - b. Development applications for multi-family housing, including apartments, condominiums and multi-family affordable housing projects, that propose a minimum of 25 dwelling units, a maximum of 40 dwelling units, and incorporate and employ the water conservation measures in Banks Code of Ordinances Chapter 5.24. No more than three such qualifying development applications for multi-family housing shall be accepted, processed and approved during the pendency of this Development Moratorium, including any extensions thereof. In support of this exemption, the Council relies upon the portions of the City's Housing Needs Analysis, attached hereto as Exhibit B, which document a need for more affordable housing in the City.
  - c. Development applications for industrial uses on industrial or mixed-use zoned land that proposes to use no more than 5,000 gallons per day, and incorporate and employ the water conservation measures in Banks Code of Ordinances Chapter 5.24.
  - d. Any development that can provide a non-municipal source of water of sufficient quality to serve the new water demand created by the proposed development may submit and the city shall accept a land use application for purposes of verifying the use of the developer's water source for municipal purposes and verifying that the quantity of the developer's water source is sufficient to supply at least 75% of the water demand created by the proposed development. If these facts can be verified, the city may proceed to process and approve such a development. If these facts cannot be verified, the City shall suspend and may terminate or deny the application due to lack of sufficient water to serve the demand created by the proposed development.

3. **Adoption of a Water System Correction Program.** Within 60 days of the adoption of this Moratorium, the City Engineer, with the assistance of other city staff, shall prepare and present to the Council for adoption a Correction Program to address and resolve the identified water system capacity problem.
4. **Moratorium Duration.** This Moratorium shall remain in effect for a period of 6 months following the date on which a Correction Program is adopted and may be renewed for successive 6-month periods as needed to prevent any exceedance of the City's water system capacity until such time as the City's Correction Program has increased water system capacity.

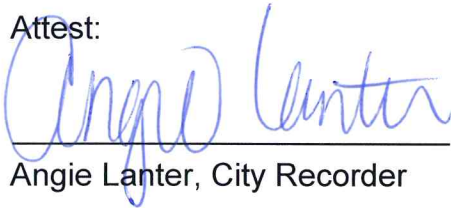
**ADOPTED, APPROVED AND EFFECTIVE** this 11<sup>th</sup> day of December 2018.



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Peter C. Edison, Mayor

Attest:



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Angie Lanter, City Recorder

# EXHIBIT A

## Kennedy/Jenks Consultants

7 August 2018

### Memorandum

To: Jolynn Becker, City Administrator

From: Robert Peacock, PE, City Engineer  
Benjamin Bosse, PE

Subject: City of Banks  
Water Inventory Analysis  
K/J 0791015.00

### Executive Summary

Kennedy/Jenks Consultants has prepared this Water Inventory Analysis in response to questions posed during the 12 June 2018 Council Workshop regarding potable water supply relative to demand, and the number of additional connections that the system can support. Table 1 summarizes the current and projected water demands and supply capacities.

**Table 1: Water Supply and Demand Summary**

Parameter	Average Day Demand, Current / Post-Pipeline Replacement <sup>(a)</sup>							
	Dec - Feb		Mar - May		Jun - Aug		Sep - Nov	
<b>Supply</b>	<u>Current</u>	<u>Post</u>	<u>Current</u>	<u>Post</u>	<u>Current</u>	<u>Post</u>	<u>Current</u>	<u>Post</u>
Gallons per day <sup>(b)</sup>	377,280	417,909	377,280	417,113	348,480	394,561	377,280	418,530
No. of Connections <sup>(c)</sup>	753	834	753	833	696	788	753	835
<b>Demand</b>								
Gallons per day <sup>(b)</sup>	201,744		217,725		321,707		224,398	
No. of Connections	693		693		693		693	

**Notes:**

- (a) Transmission pipeline replacement is assumed to reduce water losses between the NorthStar reservoir and Carsten storage tanks by 90% of current loss.
- (b) Based on observed supply available at the Behrman Wells and Green Mountain Springs during peak water use months and water curtailments periods.
- (c) Assumes a density of 3 persons per connection based on current population and number of connections.
- (d) Average daily demand for peak water use months of June, July, and August.

In the peak demand season of June, July, and August, under average conditions, and with current system losses, the water system has capacity to serve approximately 696 connections. The system currently has 693 connections and is operating very close to capacity during the summer months. For the remainder of the year, during the months of September through May, the water system has capacity to serve approximately 753 connections. Replacement of the water transmission pipeline is anticipated to reduce water loss from leaks and add capacity to serve an additional 92 connections outside of the peak season.





Parameter	Jun – Aug 2015 to 2018	Sep – May 2015 to 2018
Green Mountain Springs Production, gpd	168,355	150,273
Behrman Wells, gpd	152,080	69,205
High Zone Losses, gpd	49,815	45,336
Main Zone Losses, gpd	47,545	45,825
Consumption, ADD, gal/connection/day <sup>®</sup>	324	198
Consumption, MDD, gal/connection/day	745	455
Effective <sup>®</sup> ADD, gal/connection/day	464	320
Effective MDD, gal/connection/day	1,068	736

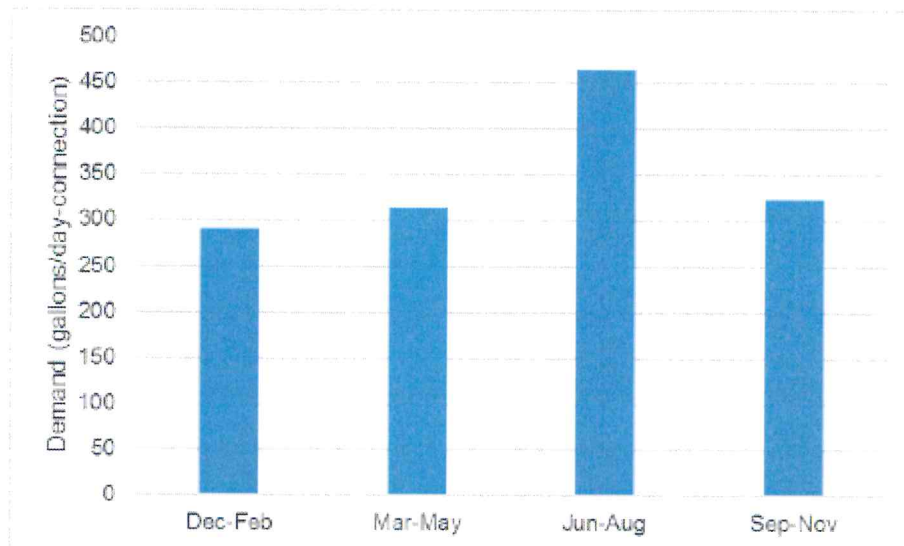
MDD = maximum day demand

Figure 2 illustrates the seasonal variation in demand based on historic data in 3-month periods. The peak demand season has significantly greater demand than the remainder of the year, at approximately 464 gallons per connection per day. From September through May the per connection demand is very consistent, ranging from 291 gallons per day to 324 gallons per day.



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**Figure 2: Seasonal Average Water Demand**

The summer months pose a significantly greater demand than the other seasons and will be the focus of the analysis in this memorandum.

## Projected Demand

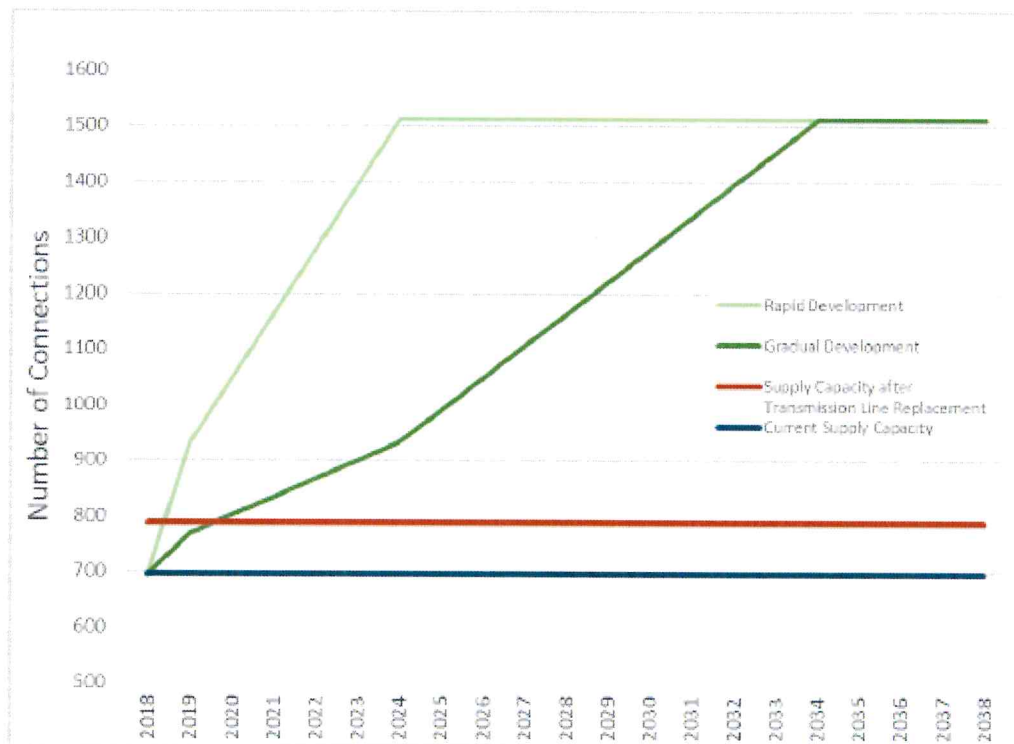
Previous water demand projections were made for multiple development patterns (Farallon, 2014) with an estimated ADD per connection of 585 gallons per day (gpd). The City's water audit and leak repair program implemented from 2014 through 2016 reduced water losses resulting in approximately 121 gpd per connection during peak demand period, or approximately 60 gallons per minute. The analysis provided in this memorandum revises projections based on an observed Effective ADD per connection of 464 gpd during peak demand periods from 2015 through 2018.

Demand is expected to increase with time, as several developments currently in the preapplication and predevelopment stage will add connections. Long-term growth projections were made for a gradual growth scenario and a rapid growth scenario. Buildout of the available land is projected within the planning window discussed in this analysis (20 years). Figure 3

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projects future connections through 2038 based on gradual and rapid development patterns as well as available water supply capacity.



**Figure 3: Average Summer Demand Relative to Supply**

Demand values presented are 'Effective' values because they also account for losses within the distribution system and are part of the "Current Supply Capacity" shown on Figure 3. Under both development scenarios, the current supply capacity can meet the average day demand of the existing connections with no surplus capacity, and any additional connections will result in demand exceeding supply.

Following the replacement of the transmission line (projected in 2020), the number of connections projected under the gradual development scenario predicts the supply will just





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curtailment over summer seasons in 2014, 2015, and 2018. Figure 5 shows a significant deficit relative to MDD.

## Water Supply

The historic production of water from the slow sand filter plant (SSFP) and wells are summarized in Table 3.

**Table 3: Historic Water Production**

Parameter	Jun – Aug 2015-2018	Sept – May 2015-2018
SSFP Production, gpd	168,480	149,760
SSFP Reported Design Capacity, gpd	172,800	172,800
Behrman Wells Average Production, gpd	152,640	69,120
Historic Well Production, gpd	312,480 <sup>(1)</sup>	155,520

(1) Production from August 2015

While the historic production appears to be greater in the summer, the available supply is generally greater in winter due to recharge of the springs during rainy season. The pumping capacity of Behrman Well No. 2 is 540,000 gallons per day; however, extended periods of pumping at this rate appears to be unsustainable, as significant drawdown of the groundwater table has been observed.

## Green Mountain Springs Supply Capacity

For the period of record, water production at the SSFP operated at or above the reported design capacity of the filters during summer, however, the capacity of the springs has been observed to drop to 129,600 gpd in late summer just prior to beginning of the rainy season. We have assumed this is the capacity of the Green Mountain Springs during the peak demand season.

## Behrman Well Supply Capacity

Behrman Well production is observed to increase significantly by extending the pumping duration during the peak season months to accommodate additional demand. Although the wells have been observed meet peak day demand presented in Table 3, the capacity values do not take into consideration the long term lowering of water level in the aquifer. For this reason, the well production rates are assumed to better represent the actual supply capacity. We selected the average flowrate during August 2015 of 312,480 gpd to represent the capacity of the wells during the peak demand season. It should be noted; this flowrate may not be sustainable for long term operation. As additional demand is placed on the wells to provide



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water, the available water in the aquifer may be drawn down and long-term capacity could be reduced.

### Additional Supply Capacity

The Banks-Green Mountain Aquifer Storage and Recovery Feasibility Study (CWM-H2O, May 2018) evaluated the feasibility of "banking" unused water from the springs that could be diverted under the City's water right. The study determined a supply deficit will occur prior to the City's buildout, thus, additional supply will be necessary. The study proposes the City acquire additional water sources in phases. The first phase will include acquisition of a well and water right permit for use as a municipal water supply.

### Additional Storage Capacity

The MDD is more than twice the current storage, and demand in the range of the MDD is typically observed for 3 to 10 days in a row. Thus, storage required to manage supply required for a 10-day MDD event would be approximately 10 times the existing storage capacity.

## Conclusions

Review of water supply and projected demand indicates that the system is currently operating at capacity under average summer conditions, and additional connections are likely to result in ADD exceeding supply. MDD exceeded reliable supply for several days in 2014, 2015, and 2018 resulting in Stage 1 (voluntary) curtailment of water use. Additional connections will likely extend periods of curtailment during periods of high demand and may cause the City to declare more severe curtailment stages. If the City wishes to avoid future curtailment actions, the recommendations in the subsequent section provides several steps to improve water supply availability.

Although the supply limitation associated with the Behrman Wells is significant, the City is also losing approximately 50,000 gallons per day, or approximately 30% of supply produced at the SSFP, via the Sellers Road Transmission Line leaks. The Sellers Road Transmission Line is expected to be replaced by 2020 and is estimated to reduce losses equivalent to the water required for approximately 92 connections.

## Recommendations

For the City's long-term water supply needs, we recommend pursuing the feasibility options recommended in the *Banks-Green Mountain Aquifer Storage and Recovery Feasibility Study* prepared by CWM-H2O, May 2018. In addition, we recommend the City pursue the Capital Improvement Projects currently planned and underway.



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To meet short-term demand and limit curtailment, we recommend the City implement measures to reduce demand from existing connections. The following measures could be implemented prior to 2020 and are likely to limit curtailment periods.

### **Public Outreach**

City-sponsored outreach can educate water customers of water supply issues, strategies to conserve water in the home, and the potential savings to the customers. Voluntary reductions in water use can be achieved through public education on outdoor water use, as well as plumbing fixture and daily practice improvements, such as:

- Installing water-saving appurtenances within their households including low-flow shower heads or energy efficient laundry units
- Run only full loads in dishwasher or laundry units
- Efficiently washing vehicles by restricting water flow or using a bucket while washing
- Reporting and repairing water leaks as soon as possible
- Limiting landscape irrigation frequency (e.g. odd or even days)
- Installing drip irrigation and repairing irrigation system leaks

Outreach can be in the form of billing inserts, door hangers, public education events, and media outreach.

### **Water Conservation Ordinance**

The implementation of a water conservation ordinance would allow the City to prohibit nonessential uses of water during water shortages and emergency situations, and to promote water conservation throughout the year. Reducing the water demand during critical peak demand periods could allow the city to delay water system expansions. The water conservation ordinance would be written to reduce outside uses of water, such as landscape irrigation and car washing, and could be structured to include fines for failure to follow the requirements. A Water Conservation ordinance could be an effective means to reduce demand and could help bridge the City's supply need until new supply is brought online.

A water conservation ordinance typically requires residents to observe irrigation hours from April 1<sup>st</sup> to October 31<sup>st</sup>. Allowable irrigation hours will be set forth in the irrigation ordinance. Examples of irrigation rules are set forth in ordinances adopted by the Cities of Redmond (Code 4.125-4.155) and Bend (Code 14.20.050).

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### **Development Moratorium**

The City can implement a development moratorium until the impacts of the transmission line repair can be evaluated. The objective of a moratorium would be to preserve the limited remaining water system capacity while the city remedies the problem. The City Attorney will facilitate the City Council's development of the ordinance in accordance with Oregon Revised Statute 197.505 through 197.540. Under the statute, the City must:

- Provide required notices to the Department of Land Conservation and Development
- Make written findings justifying the need for a moratorium
- Set a specific duration for the moratorium
- Adopt a program for correcting the issue causing the moratorium
- Demonstrate reasonable progress is being made to alleviate the problem giving rise to the moratorium

The moratorium can be effective up to 6 months and can be extended a total 3 additional periods up to 6 months duration.