



CITY OF BAINBRIDGE ISLAND

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City Solicits Public Comment on Ground Water Modeling

Bainbridge Island, WA, August 4, 2009 – The City of Bainbridge Island and United States Geological Survey (USGS) will host a public meeting on Tuesday, August 11 from 9:30 am to 12:30 pm, to present an update on the development of a ground water model for the island and solicit public input on potential modeling scenarios.

“When completed, this transient numeric model will be an important tool for understanding the characteristics of the island’s aquifers, such as water holding capacity and interaction between ground waters and surface waters,” said Water Resources Specialist Cami Apfelbeck. “It will give us a better understanding of the way in which changing conditions may impact our ground water resources.”

The public meeting will include a presentation by USGS staff on the current status of the model and initial preliminary modeling scenarios or “runs,” which have been developed based on public input received in response to a March 3, 2009 presentation. “At our last public meeting, the USGS presented potential questions that a ground water modeling scenario could answer, addressing factors such as saltwater intrusion, recharge, drawdown, ground water-surface water interaction and climate change,” Apfelbeck said. “The current preliminary scenarios are based on feedback received at that meeting and subsequent discussions with City Council members and staff. Now, the City and USGS are looking for more input before they fine-tune these scenarios.”

The City has been working on the project in partnership with the USGS since December, 2006. Research to date has gathered data on well levels, springs and seep flows, stream flow and weather patterns. Based on this data, USGS staff have developed a conceptual hydrogeologic model, incorporating additional information from well logs and previous studies. In addition to the March 3 meeting, public involvement has included presentations at the City’s Annual Water Resources Open House events in 2007 and 2008.

For more information or to submit comments, contact Cami Apfelbeck, (206)780-3779 or waterresources@ci.bainbridge-isl.wa.us. Comments must be submitted in writing by 4 pm August 21, and should include full name and address. Comments may also be mailed to City of Bainbridge Island Water Resources, City Hall, 280 Madison Ave N, Bainbridge Island 98110.

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City of Bainbridge Island PUBLIC WORKS DEPARTMENT



MEMORANDUM

TO: City Manager
City Council
Public Works Director
Planning and Community Services Director and Deputy Director
Planning Commission
Environmental Technical Advisory Committee

FROM: Cami Apfelbeck, Water Resources Specialist
Jalyn Cummings, LHG, Public Works Manager

DATE: August 4, 2009

RE: Preliminary Ground Water Model Scenarios/
Ground Water Special Public Meeting

As you are aware, the City and the United States Geological Survey (USGS) have been partnering on the creation of a transient numeric ground water model for Bainbridge Island under a joint funding agreement since 2006.

This model will provide City staff and policy makers with a tool to predict the impacts to the island's ground water resources of various potential scenarios. This will provide valuable data for reference in future policy development.

The USGS has completed the development of preliminary ground water model scenarios based on input received from citizens, City Council members, and City staff during the past two years. (Descriptions of the preliminary scenarios are included at the end of this memorandum.) City and USGS staff will present these scenarios, as well as a status update on the ground water model construct, at a special public meeting on Tuesday, August 11 from 9:30am to 12:30 pm in the City Hall Council Chambers. A press release announcing the meeting will be issued today concurrent with this memorandum.

Past public meetings on this project included the 2007 and 2008 Water Resources Open House events and a public meeting on March 3, 2009. During the March 3rd meeting and through subsequent informal meetings, Council members, City administration, and City directors, with public input, selected from, or submitted alternatives to, a list of questions addressing ground water categories that they felt were of the highest importance and should be addressed by the initial ground water scenarios or "runs". Water Resources and USGS staff tabulated and translated these selections into these preliminary ground water model scenarios.

The next step in the process is for city staff to provide the USGS with specific values for parameters to be incorporated into the modeling scenarios. The USGS requires these data by Monday, August 31st.

To inform the development of these values, staff invites comments from the City Council, Environmental Technical Advisory Committee, stakeholder groups such as the Water Resources Committee and Watershed Council, and the general public on the preliminary scenarios.

Helpful comments may address:

1. General comments and feedback on the draft scenarios,
2. The overall time window that the scenarios should address – through 2025, 2030, 2040?
3. The time intervals to be addressed by data runs – should data be projected for monthly, seasonal or annual intervals, and why?

In order for staff to meet the August 31 deadline, comments must be received by 4 pm on August 21. Comments may be submitted either via regular mail to Water Resources, City Hall, 280 Madison Ave N, Bainbridge Island 98110 or via email to [waterresources@ci.bainbridge – isl.wa.us](mailto:waterresources@ci.bainbridge-isl.wa.us).

Please call me with any questions or concerns you may have (780-3779).

Preliminary Scenarios

0. Predevelopment steady state. This model represents the condition of the BI aquifer prior to human settlement. It includes no groundwater withdrawals and no transient changes in response to things like changing climate. It is typically used as a starting point for simulating the transient period of the model which includes human impacts, and is also used as a basis for comparison to highlight how development has impacted the aquifer.

1. Base case current conditions with transient pumpage. This is the simulation of all known information about the island's water resources, modeled up to and including the most recent data available. It is calibrated against historical records to ensure accuracy, and represents what the island's aquifers have been doing as they were developed. It can also be run from the present out into the future, if you make some assumptions about how conditions are going to change in the future.

2. Best guess annual projection. The base case current conditions model above is extended out to a predetermined date (2035?) using the best available estimates of how population changes will affect water use, how development patterns will affect recharge rates, and how climate change will affect water resources. Annual average values for water use and development patterns are to be supplied by the City of Bainbridge Island, while the USGS will use its expertise in downscaled global climate models to make climate predictions.

3. Monthly time steps of best guess, for extreme monthlies. The scenario described in number 2 will predict the long term changes to the island's water supply, such as when water use may exceed water availability and when specific coastal wells might be impacted by saltwater intrusion, but it does so with a resolution of only one year. Scenario 3 was suggested as a way to determine if seasonal variations in the aquifer might result in problem areas for some months of the year before the long term average values simulated in scenario 2 suggest they arise. For example, the annual average values might predict that Seabold area wells exceed the Chloride drinking water standard in 2030, but the monthly simulation might reveal that the same wells exceed the standard in July and August as early as 2025, due to the increased water demand and reduced recharge available in the late summer.

4. Worst case scenario. Some combination of rapid population growth, widespread island development, and severe climate change will result in the highest foreseeable stresses to the island's aquifers. This scenario will be simulated forward to some predetermined target date, and the results compared to both the steady state predevelopment condition and the best guess annual scenario to assess potential impacts. If there are no adverse impacts under this worst case scenario, the island's water resources can plausibly be declared non-threatened in the window of time simulated by the model under those worse case conditions.

5. Best case scenario. Some combination of low or zero growth, limited and concentrated development, and benign climate change will result in the lowest foreseeable stresses to the island's aquifers. This scenario will be simulated forward to some predetermined target date, and the results compared to both the steady state predevelopment condition and the best guess annual scenario to assess potential impacts. If there are serious and detrimental impacts under this best case scenario, the island's water resources can plausibly be declared to be threatened in the window of time simulated by the model, which may prompt local authorities to take steps to limit current water use or future growth.

6. Future land use changes. In addition to the best and worst case projections, the model may be used to assess the impacts of specific land use plans. Municipal growth management plans typically contain options for either significant new developments or protection of some areas by restrictions in zoning or declaration of conservation areas. Scenario six has been reserved to simulate any such future plan the city may have and to quantify its potential impact on island water availability, as distinct from the simplified growth and development percentages simulated in scenarios 4 and 5.

United States Geological Survey (USGS)

and

City of Bainbridge Island Water Resources

respectfully request your input/comments as follows:

- 1. General comments and feedback on the draft scenarios**
- 2. The planning window that the scenarios should address (through 2025, 2030, 2040)**
- 3. The time intervals or increments for which the scenarios should provide data (monthly, seasonally, annually)**