APPENDIX B

ASSESSMENT OF SHORELINE STATUS OF FORBES LAKE AND TOTEM LAKE

The Watershed Company

15 February 2006

Patrice Tovar
City of Kirkland Planning and Community Development
123 Fifth Avenue
Kirkland, WA 98033

Re: Shoreline boundary and associated wetlands

Dear Patrice:

We are pleased to present our shoreline jurisdiction findings in support of our work on the Shoreline Master Program (SMP) Update. Enclosed please find the following supporting maps:

1) The 1986 Shoreline Environments and Jurisdiction map.
2) Our revised map showing the updated shoreline jurisdiction, including associated wetlands.
3) Analysis maps of both Forbes and Totem Lakes – two significant areas in the City that we have determined are outside shoreline jurisdiction.

This letter summarizes the changes from the 1986 SMP maps and outlines our rationale for not including the two smaller lakes.

Methods

The first step in updating the map of shoreline jurisdiction was to review the precise shoreline and associated wetlands definitions found in the WAC and in Washington Department of Ecology's rules and guidance documents. Portions of these definitions that apply to the City of Kirkland revolve around the size threshold for waterbodies meeting Shoreline criteria, the State Ordinary High Water Mark (OHWM) definition, and when to consider critical areas (wetlands) as "associated" with the shoreline.

The minimum size limit for lakes to be designated as shoreline is 20 acres. Thus, as in the original SMP work, Lake Washington is identified as the main shoreline in the City. The OHWM of the lake was reviewed for accuracy. A few questionable areas were field checked to the extent access was possible from public property and rights–of-way.

Existing wetland inventory information was reviewed to identify associated wetlands. Two wetlands, Forbes Creek and Yarrow Bay, were inventoried within the 200-foot Shoreland Zone. These areas were field-checked to determine that the inventory presents a reasonably accurate representation of the true wetland boundaries.

Ecology guidance states that the entire wetland is associated if any part of it lies within the area 200 feet from the OHWM (or floodway in riverine environments) of a state shoreline. Further guidance states that wetlands that are hydraulically connected to a Shoreline also would be considered associated. Wetlands that are separated by an obvious topographic break from the

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shoreline are not associated, provided they are outside the shoreland zone and provided that the break is not an artificial feature such as a berm or road.

Aside from Lake Washington, the only other significant waterbodies in the City are Forbes Lake and Totem Lake. Both lakes were measured for size to determine if they exceeded the threshold. Since Forbes Lake has a well-defined OHWM, the analysis for it was done solely though aerial photograph interpretation and GIS mapping software.

Totem Lake has much more gradual topography, therefore the OHWM was field-checked and mapped onto aerials using GIS software. Interpretation of the OHWM was based on Ecology guidance provided through their Coastal Training Program.

Findings

The following changes were made to the SMP maps, subject to acceptance by Ecology. It should be noted that few, if any, private properties will be affected by these changes in terms of shoreline regulation.

Revisions to the OHWM of Lake Washington

1) Minor changes to rectify mapping errors at the mouths of Juanita Creek and Yarrow Bay Creek.
2) Minor changes along some shoreline properties based on latest aerial photographs and known conditions.
3) Added Lake Washington OHWM mapping within the City's Potential Annexation Area (Juanita Bay Park to St. Edwards State Park) using aerial photographs and topography.

Jurisdictional Boundary Changes

1) The Shoreland Zone line was added 200 feet from the revised OHWM.
2) The Shoreland Zone line was adjusted where associated wetlands were verified.
3) The boundary of the Yarrow Bay wetland was refined based on newer inventory data and limited ground-truthing.
4) The extent of the associated wetland at Forbes Creek was significantly extended based on newer inventory data and limited ground-truthing. The 1986 map shows the Forbes Creek associated wetland extending across 98th Avenue NE and the sewer line easement. This represents a distance of only about 1,800 feet southeast of the Lake Washington OHWM. The actual wetland is mapped in the inventory as extending nearly 1 mile southeast and east. The inventory mapping was field-verified as part of this study. The wetland is associated with Forbes Creek and is contained within a broad valley that slopes gently up from the lakeshore. Thus, the wetland is hydraulically connected to Lake Washington by Forbes Creek; it is also hydraulically connected by groundwater. There is no distinct topographic break between any part of the mapped wetland and the lake.

The wetland is crossed in three places: 1) 98th Avenue NE, a major arterial road; 2) a sanitary sewer line; and 3) 108th Avenue NE, a small residential street. However, these crossings are artificial features and do not serve as breaks in the jurisdictional status.

Forbes Lake and Totem Lake

Based on the updated mapping, the OHWM of Forbes Lake contains an area that is approximately 6.60 acres. This size remains unchanged from prior City mapping. This is well below the 20-acre threshold for shoreline jurisdiction.

Current City maps show Totem Lake as being 3.29 acres. This is based on the area of open water visible in aerial photographs. Because the lakeshore of Totem Lake is so gradual, there are large areas of emergent vegetation growing in shallowly ponded areas. Field observation revealed that the actual extent of standing water extends well beyond what is visible open water in the aerials. The area contained within the OWHM as verified in the field and as mapped using aerial photos and topography is 18.98 acres. This size is still more than 1 acre smaller than the 20-acre threshold for shoreline jurisdiction. In some instances, jurisdictions have, at their option, decided to place areas near the 20-acre limit within the shoreline jurisdiction. However, we do not expect that mapping error is significant enough to add an entire acre to the overall size. Further, the lake is owned by King Conservation District, officially designated by the City of Kirkland as a Park/Public Use Zone, and is protected under the City's critical areas regulations, which were updated in 2002 pursuant to the GMA. Therefore, we recommend that Totem Lake not be designated as a Shoreline.

Once the revised mapping has been reviewed by the City, it will be ready for review by Ecology. After receiving Ecology's approval, the final shoreline jurisdiction GIS layer will be provided to Xiaoning Jiang, the City's GIS Administrator, to serve as the foundation for the remaining map products required by Ecology as part of the SMP Update.

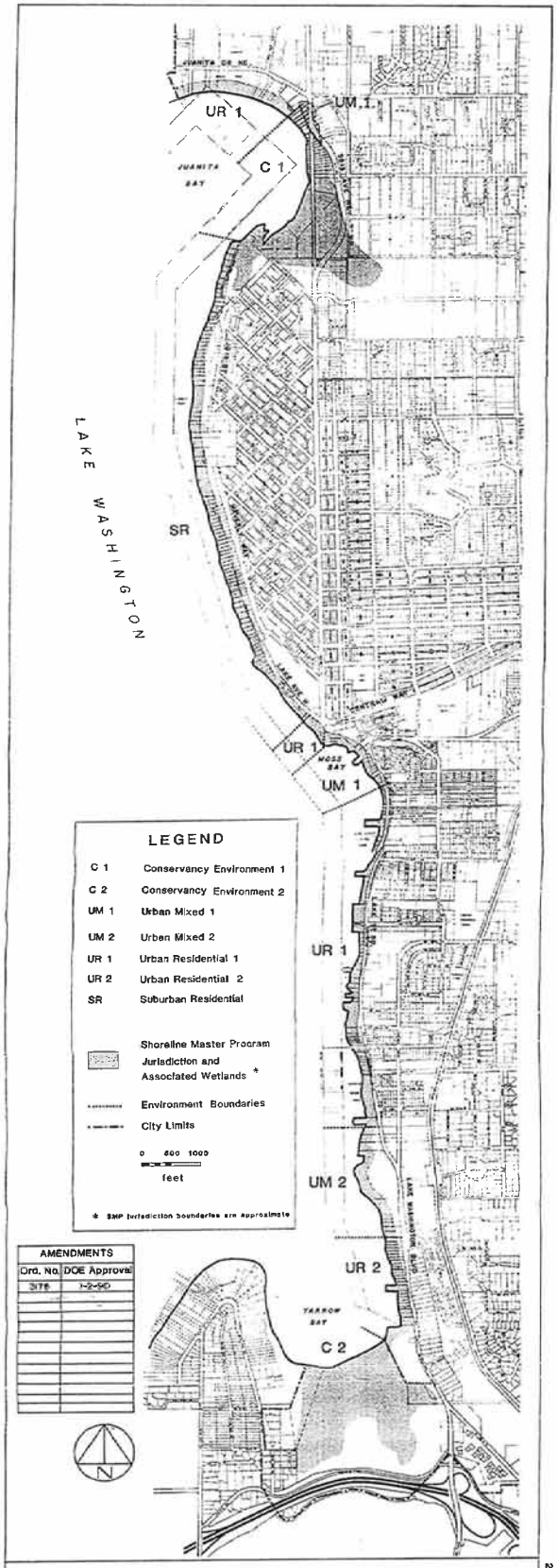
Please call if you have any questions.

Sincerely,

for Amy Ellyers

Hugh Mortensen
Ecologist/PWS

Enclosures



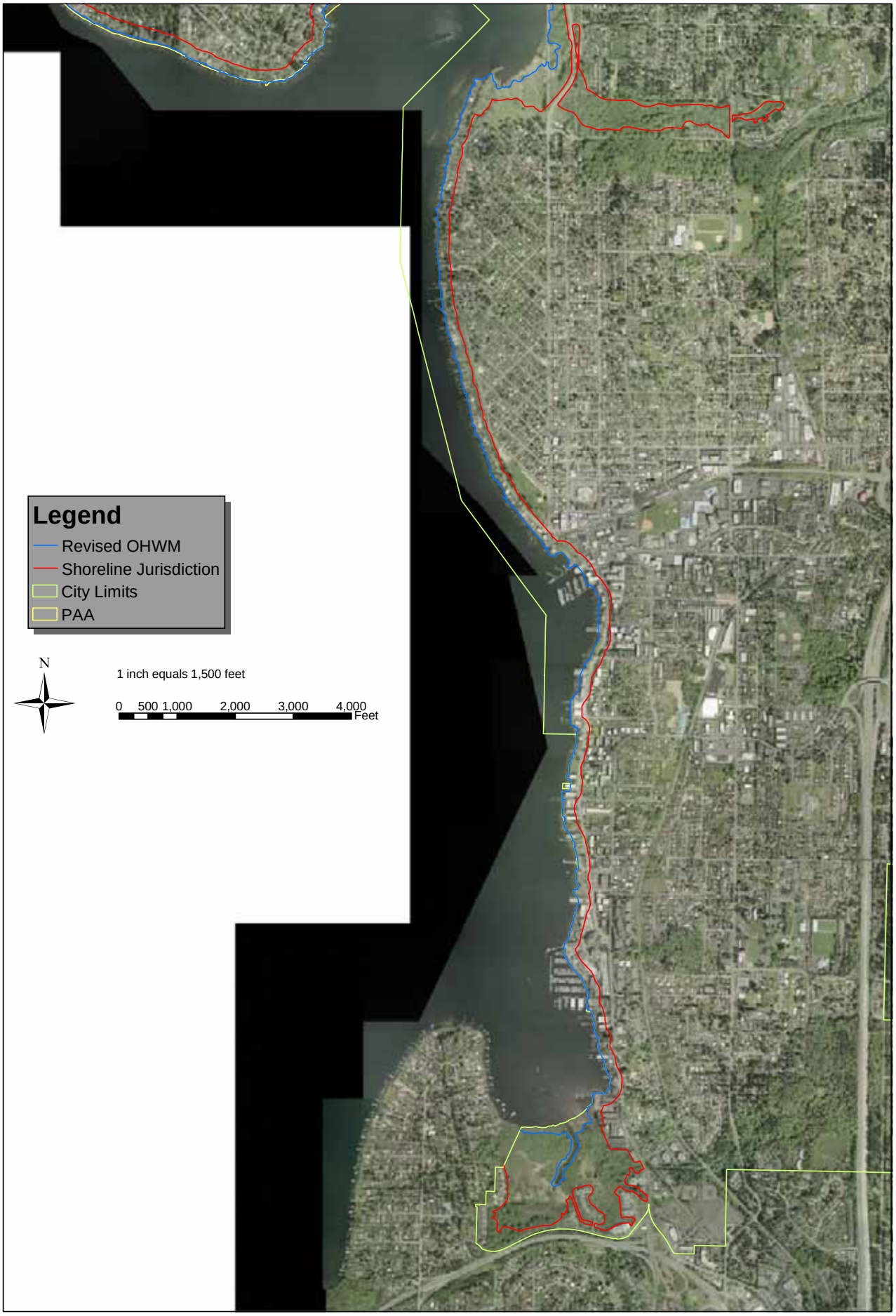
City of Kirkland February, 1986 (Ordinance 2938)

SHORELINE ENVIRONMENTS AND JURISDICTION

24.05.215

City of Kirkland and Potential Annexation Area
Shoreline Jurisdiction Determination: North
February 2006

City of Kirkland and Potential Annexation Area
Shoreline Jurisdiction Determination: South
February 2006



Forbes Lake: 6.60 acres at OHWM

1 inch equals 150 feet

0 37.5 75 150 225 300 Feet

N

Totem Lake: 18.98 acres at OHWM

N

1 inch equals 150 feet

0 37.5 75 150 225 300 Feet