

## Cumulative Impact Analysis

The purpose of this section is to evaluate the cumulative impacts of reasonably foreseeable future development on shoreline ecological functions supported by the goals, policies and regulations of the City of Medical Lake’s Shoreline Master Plan. This evaluation includes the factors identified in WAC 173-26-186 (8)(d)(i) through (iii):

- \* Current circumstances affecting the shorelines and relevant natural processes;
- \* Reasonably foreseeable future development and use of the shoreline; and
- \* Beneficial effects of any established regulatory programs under other local, state or federal laws.

### **Current circumstances affecting the shorelines and relevant natural processes.**

Cumulative Impact Analysis requires an understanding of the current land use patterns, regulations affective development, shoreline ecological functions and other cultural, social and historic conditions. Appendix I, entitled “City of Medical Lake Shoreline Inventory and Characterization” (Geo-Ecology Research Group, Central Washington University, 2005) established the baseline for understanding the current conditions of Medical Lake and specific shorelines of West Medical Lake and Silver Lake. The following tables and text summarize the current conditions of the city’s jurisdictional shorelines:

#### **Reach 1**

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Flood Zone: 0.7% Erodible Soils: 0.2% Steep Slopes: 3.4%	Wetlands: 34.4% Priority Habitats: 2 Species of Concern: 5		Principal land use: Public/Community Pump Stations: 1

Ecological functions on Reach 1 are relatively intact. The shoreline within this reach is primarily natural and undeveloped, providing potential habitat for a wide variety of wildlife and fish species. The riparian vegetation is diverse and well established, providing bank stability and sources of large woody debris. Agricultural development, occurring approximately 200 meters back from the shore,, is a potential source of non-point pollution such as sediment, fertilizers and pesticides.

#### **Reach 2**

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Steep Soils: 3.9%	Wetlands: 11.3% Priority Habitats: 1 Species of Concern: 5	Boat Launches: 2	Principal Land Use: Public/Community Imperviousness: 32.2% Roads: 0.2 km Bulkheads: 8.1%

Ecological functions on Reach 2 have been impaired by heavy recreational use stemming from a public boat launch and private boat launch/fishing dock. The riparian vegetation along this shoreline has been largely modified and removed, while approximately 8% of the shoreline is also hardened with shoreline protection. The highway is another potential source of non-point pollution.

### Reach 3

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Flood Zone: 7.7% Steep Slopes: 23.1%	Wetlands: 1.7% Priority Habitats: 1 Species of Concern: 4		Principal Land Use: Public/Community Roads: 0.5% Pump Station: 1 Sewage Outfall: 1

Ecological functions on Reach 3 are relatively intact. The shoreline within this reach is primarily natural and undeveloped, providing potential habitat for a wide variety of wildlife and fish species. The riparian vegetation, dominated by extensive wetlands, is diverse and well established, providing bank stability and sources of large woody debris. The natural vegetation is largely unmodified within the jurisdiction, with the exception of a small lawn area associated with a private dock and picnic area. A former dump is located along the shoreline, with debris such as old cars, tires, barrels, and car parts spilling into the near shore.

### Reach 4

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Flood Zone: 7.1% Erodible Soils: 44.5% Steep Slopes: 3.5%	Wetlands: 4.9% Priority Habitats: 2 Species of Concern: 5		Principal Land Use: Public/Community Roads: 0.5%

Ecological functions on Reach 4 are relatively intact. The shoreline within this reach is primarily natural and undeveloped, providing potential habitat for a wide variety of wildlife and fish species. The riparian vegetation, including extensive wetlands, is diverse and well established, providing bank stability and sources of large woody debris. The natural vegetation is largely unmodified within the jurisdiction.

### Reach 5

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Erodible Soils: 77.5% Steep Slopes: 28.7%	Wetlands: 40.6% Priority Habitats: 2 Species of Concern: 5	Park Land: 43.1%	Principal Land Use: Public/Community Imperviousness: 2.7% Roads: 0.8% Bulkheads: 3.6% Docks: 1

Ecological functions on Reach 5 are relatively intact. The shoreline within this reach is primarily natural and undeveloped, providing potential habitat for a wide variety of wildlife and fish species. The riparian vegetation is dominated by a riparian wetland and is diverse and well established, providing much needed bank stability in an area of erodible soils, as well as sources of large woody debris. The natural vegetation is largely unmodified within the jurisdiction, with the exception of a small lawn associated with a public dock and picnic area. The highway is another potential source of non-point pollution.

### Reach 6

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Steep Slopes: 36.4%	Wetlands: 6.3% Priority Habitats: 1 Species of Concern: 5	Park Land: 79.1% Boat Launches: 1	Principal Land Use: Public/Community Imperviousness: 3.1% Roads: 1 km

Ecological functions on Reach 6 are relatively intact. The shoreline within this reach is primarily natural and undeveloped, providing potential habitat for a wide variety of wildlife and fish species. The riparian vegetation is diverse and well established, providing bank stability, as well as sources of large woody debris. The natural vegetation is largely unmodified within the jurisdiction on the east side of the lake, with the exception of a walking/biking trail that surrounds the lake. The natural vegetation in the southern end of the lake has been moderately impacted by recreational use, including a small lawn area and swimming beach associated with Waterfront Park and vehicular and pedestrian access to an unimproved boat launch at the south end of the lake. The neighboring highway is a potential source of non-point pollution.

### Reach 7

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Steep Slopes: 8.7%	Species of Concern: 5	Park Land: 17%	Principal Land Use: Single-Family Res. Imperviousness: 15.4% Roads: 1.3 km Bulkheads: 17.7% Docks: 20 Storm Drains: 1

Ecological functions along Reach 7 are moderately impaired by residential development. Riparian vegetation has been removed and replaced with lawns, which can promote increased runoff from non-point pollution sources. Impervious surfaces, such as residential roads and buildings, can promote runoff and non-point source pollution. Extensive shoreline hardening has increase wave reflectivity, thereby affecting aquatic vegetation and fish habitat. This habitat is further impaired by the moderately large number of docks found in this reach.

### Reach 8

<b>Hazard Potential</b>	<b>Habitat Conditions</b>	<b>Public Access</b>	<b>Key Modifications</b>
Flood Zone: 74.9% Erodible Soils: 18.6% Steep Slopes: 5.1%	Wetlands: 60.7% Priority Habitats: 1 Species of Concern: 5		Principal Land Use: Vacant Imperviousness: 1.9% Roads: 0.4 km

Ecological functions on Reach 8 are relatively intact. The shoreline within this reach is predominantly made up of wetlands identified by the National Wetland Inventory, providing potential habitat for a wide variety of wildlife and fish species. Currently there are no shoreline protection structures along this reach, unlike those found on neighboring Reach 9. However, residential development in the upland is encroaching on the wetland environment and is a potential source of non-point pollution. The causeway also cuts off the relatively shallower northern end of the lake from large-scale circulation patterns, thereby allowing the buildup of nutrients and increased eutrophication.

The inventory and characterization of the shorelines within the jurisdiction of the City of Medical Lake (i.e. Medical Lake and specific shorelines of West Medical Lake and Silver Lake) is critical to understanding the shoreline resources. This also establishes the base from which compliance with the standard of “no net loss” is to be measured for purposes of reviewing and approving development proposals within the shoreline jurisdiction.

### **No Net Loss**

WAC 173-26-201 (2)(c)

Master programs shall contain policies and regulations that assure, at minimum, no net loss of ecological functions necessary to sustain shoreline natural resources. To achieve this standard while accommodating appropriate and necessary shoreline uses and development, master programs should establish and apply:

- Environment designations with appropriate use and development standards; and
- Provisions to address the impacts of specific common shoreline uses, development activities and modification actions; and
- Provisions for the protection of critical areas within the shoreline; and
- Provisions for mitigation measures and methods to address unanticipated impacts.

Shoreline master programs must achieve a no net loss of ecological functions necessary to sustain shoreline natural resources as development and use of shoreline continues over time. Influences outside of the shoreline jurisdiction place additional pressure on those same shoreline resources. The goals, policies, regulations and restoration plans of the eight reaches of the jurisdictional shorelines assure no net loss of shoreline ecological functions.

### **Foreseeable Future Development and Use of the Shorelines**

There is minimal development opportunity or expected development pressure within the shoreline jurisdiction of Medical Lake, West Medical Lake or Silver Lake. A majority of the natural shorelines of West Medical Lake and Medical Lake are shorelines on state land as Eastern State Hospital and other state correction facilities are located on approximately 1,800 acres of land between the two lakes. Those portions of West Medical Lake's south and southwestern shorelines are located in Spokane County and adjacent to agricultural lands and access roads to West Medical Lake. No development is foreseen.

The Urban Conservancy and Shoreline Residential environmental classifications are assigned to the shorelines of Medical Lake and a small portion of Silver Lake. Development of remaining undeveloped shorelines is minimal to none and parks, small public boat launch and open space account for the remaining shorelines not determined to be shoreline residential. The City of Medical Lake's Shoreline Master Plan insures the state goal of "no net loss of ecological functions of shorelines" through riparian and emergent vegetation buffer zones and permitted stormwater management practices. Zoning in the shoreline residential is single-family residential allowing for only the lowest density of development to occur, the remaining land use is public or recreational. Commercial, Multi-family and Light Industrial land uses are not permitted.

### **Beneficial Effects of Any Established Regulatory Programs under Other Local, State and Federal Laws**

The most common permits required for shoreline development projects include:

1. Review for compliance with the State Environmental Policy Act (SEPA), usually completed by the local jurisdiction. This process is completed as part of the shoreline permitting process.
2. Critical Area Regulations required by the Growth Management Act (GMA), completed by the local jurisdiction. Medical Lake's Shoreline Master Program includes critical area regulations and were adopted consistent with the requirements of the GMA.
3. A Hydraulic Project Approval (HPA) from the Washington State Department of Fish and Wildlife.

4. 401 Water Quality Certification from the Washington State Department of Ecology. This certification is authorized through Chapter 90.48 RCW Water Pollution Control.
5. A building permit from the county or city.

All shoreline permit applications require a 30-day grace period from the date the permitted was filed with the local government. This 30-day period allows for sufficient time for the Washington State Department of Ecology and Attorney General's Office to review the permit application and comment.