

Existing Conditions

There are two water bodies in the study area: Campbell Creek and Tina Lake (see Figure 3.2). Both water bodies are considered navigable by ADNR but not by the U.S. Coast Guard (USCG) or the USACE (Atkinson 2004, Helfinstine 2005, Plumb-Mentjes 2007).

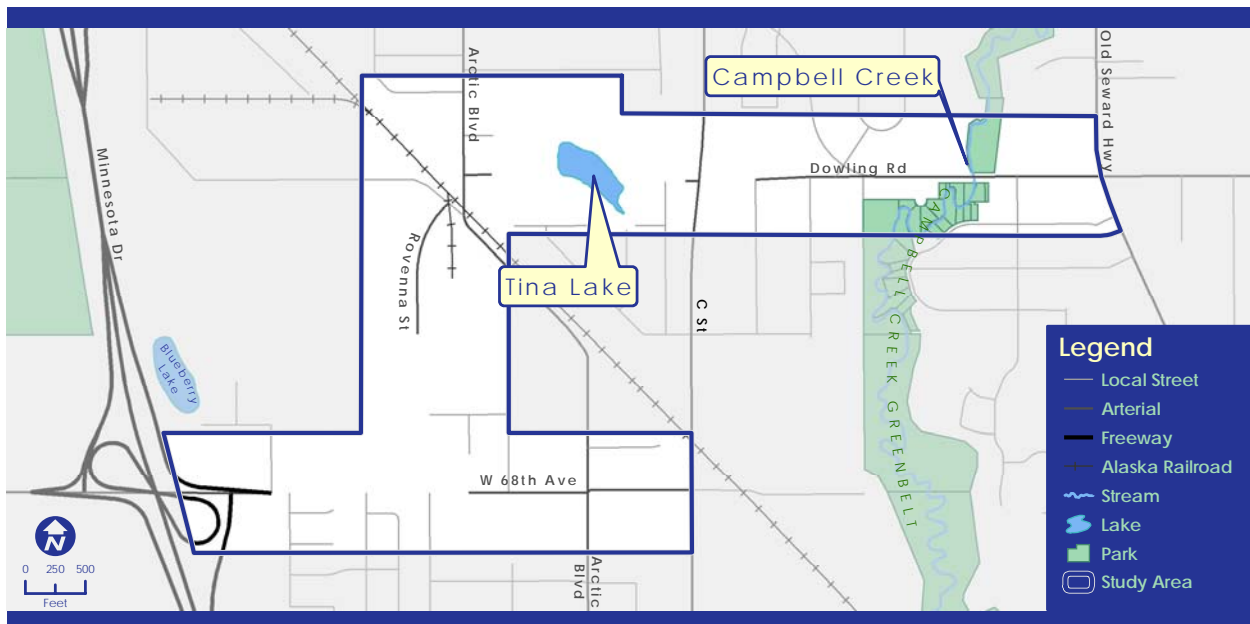


Figure 3.2 Water Bodies

Campbell Creek

Campbell Creek drains much of the front range of the Chugach Mountains immediately east of Anchorage, from Flattop Mountain on the south to Tanaina Peak on the north (See Figure 3.3). The basin ranges from 5,000-foot peaks to sea level. The upper basin of Campbell Creek, which is mountainous and undeveloped, encompasses the North Fork and the South Fork of Campbell Creek. The lower basin of Campbell Creek, downstream of the confluence of the North Fork and South Fork, is primarily urbanized lowlands. The Hydrology and Hydraulics Study for Campbell Creek is attached in Appendix D.



Figure 3.3 Campbell Creek

The flow regime of Campbell Creek has been described by the U.S. Geologic Survey (USGS) as being divided into three open-water flow regimes. In May, June, and early July, the predominant source of stream flow is the melting of the winter snow pack in the upper mountainous part of the basin. The snowmelt contribution declines, leading to lower base flows, in late July and early August. Rainfall typical of this period results in peaks from storm runoff superimposed on the lower base flows. Declining temperatures and freeze-up in the upper basin leads to a further reduction in base flow, but the largest rainstorms and corresponding highest peak flows of the year commonly occur during late August until the end of September.

An anadromous fish stream, Campbell Creek is discussed in Section 3.8, Fish and Essential Fish Habitat.

Tina Lake

Tina Lake is a small (approximately 3.2-acre) natural pond. **It is a special aquatic site regulated under Section 404 of the Clean Water Act.** Tina Lake is shallow; most of the lake is 18 inches or less in depth. The lake and adjacent wetlands are surrounded by industrial land. One side of Tina Lake appears to have been recently filled, and other minor incremental filling has occurred through the years. The ~~north west~~ side of these wetlands has recently been used as a snow dump. A rough estimate of the drainage basin of the lake is 25 acres. Inflows to the lake were found at two locations described below:

- At the west side, a ditch drains toward the wetlands.
- At the southwest corner, a 2-foot-diameter storm drain discharges water from the industrial properties to the west. There are no MOA records for this storm drain.

The outlet from Tina Lake and the adjacent wetlands is an 18-inch storm drain outlet with a short riser or standpipe (see Figure 3.4). This storm drain is located at the northwest corner of Tina



Figure 3.4 Approximate Location of the Tina Lake Storm Drain Outlet

Lake. Documentation of the standpipe has not been found, but research and field investigation indicate the standpipe was installed to address a local flooding problem by controlling the maximum water level in Tina Lake.

Although as-built information does not show the standpipe, field studies found that this storm drain runs northwest to connect to a storm drain that is located in the West 59th Avenue ROW. Water in this 18-inch storm drain flows west under 59th Avenue (Quadra Engineering 1985), then south in a 30-inch storm drain under Arctic Boulevard (Price Engineering 1980). From Arctic Boulevard, the storm drain continues south on Arctic Boulevard until it crosses under West Minnesota Drive and enters a sediment pond, from which it eventually flows into Campbell Creek **which flows into Knik Arm, a navigable, tidally influenced water body.**

Corrosion of the vertical standpipe has led to holes forming near the base of the pipe. Water is being drained from the lake through these holes, rather than at the top of the pipe, resulting in the water level being lower than intended.

Environmental Consequences

In the No Action Alternative, there would be no changes to the water bodies in the study area. The corroding storm drain in Tina Lake would not be repaired, ~~unless the MOA decided to maintain it, If the storm drain is not repaired, the lake level would be lower than intended.~~

No modifications to Campbell Creek are anticipated with the Proposed Action. The proposed bridge would completely span the creek. The removal of the existing bridge is not anticipated to affect the Creek.

The Proposed Action would permanently modify the northern shoreline of Tina Lake by the addition of fill needed for the road embankment. The Proposed Action would reduce the size of Tina Lake to approximately 2.4 acres of open water (see



Figure 3.5. The **approximate** ~~N~~new Tina Lake Boundary

Figure 3.5). The lake would be approximately 0.8 acres ~~are~~ smaller as a result of the project.

The Proposed Action would **relocate** ~~replace~~ the Tina Lake standpipe. The top of the standpipe **elevation would be set at the existing water level elevation to maintain the existing Lake elevation.** ~~be set at a higher elevation (106.0 ft) and would be expected to increase the water level in Tina Lake by approximately 4 feet.~~ This elevation is **below** the Base Flood Elevation established by the MOA in 1973. No long-term adverse impacts are associated with the Proposed Action. Property impacts are not anticipated **as a result of relocating and replacing the standpipe.** ~~as the lake level is being restored to a historical elevation.~~ Efforts to avoid water bodies and ~~the impacts associated with changing the lake elevation~~ **the associated wetlands** are discussed in Section 3.7, Wetlands.

Construction

~~Any~~ **e**Construction activity in Tina Lake would adhere to applicable state and federal permit conditions. **DOT&PF would develop an Erosion and Sediment Control Plan (ESCP) to provide the contractor with guidance to prevent erosion and sedimentation from affecting Tina Lake. The ESCP describes measures the contractor must follow during construction to prevent erosion and control sediment. The guidelines for the ESCP require consideration of the following:**

- **Plan the project to take advantage of the topography, soils, waterways, and natural vegetation.**
- **Expose the smallest practical area for the shortest possible time.**
- **Apply on-site erosion control measures to reduce the erosion from the site.**
- **Use sediment control measures to prevent off-site detrimental impacts whenever primary on-site erosion control measures are insufficient.**
- **Implement a thorough maintenance and follow-up program.**

Additionally, the contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) following the guidance of the ESCP. The SWPPP would contain the specific techniques that would be employed for Tina Lake. The SWPPP would typically employ previously approved BMPs to mitigate the potential for elevated pollutant levels associated with construction activities such as placing fill in the water. As Tina Lake is a relatively shallow water body, there are a number of BMPs that may be applicable. These include silt fence, straw bale barriers, and diversion berms. Another procedure the contractor may employ is placing fill during winter when the lake is frozen solid. All procedures will be evaluated for compliance with ESCP goals and permit stipulations prior to approval.

The NPDES Construction General Permit (CGP) will be complied with during construction.

Measures to protect water quality during construction are also discussed in Section 3.4 Water Quality.

A temporary diversion of Campbell Creek is not anticipated.

Mitigation and Authorizations

To mitigate the impact on Tina Lake, the standpipe would be replaced at a new location. ~~The new standpipe would increase the water level and would help keep water in the lake longer. Grasses~~ **It is anticipated that vegetation** would ~~also~~ be planted (or transplanted from the area being filled) along the new shoreline of Tina Lake. **In a January 2007 agency coordination meeting, multiple resource agencies including DNR-OHMP and the USACE expressed a desire to not use grasses for the new shoreline. At that meeting, the resources agencies did not reach a consensus about what embankment treatment**

should be used. During the design phase, there will be additional agency coordination to determine a suitable embankment treatment. These activities would mitigate impacts to Tina Lake and its adjacent wetlands. Wetland impacts are discussed further in Section 3.7.

The Campbell Creek crossing would not require a USCG Section 9 Bridge Permit.

A Section 404 Permit would be required to place fill in Tina Lake. The Section 404 Permit is discussed in greater detail in Section 3.7, Wetlands. That section also discusses the measures taken to avoid and minimize impacts to water bodies.