MEMORANDUM

State of Alaska
Department of Transportation & Public Facilities
Northern Region Materials

TO: Thomas Benjamin
Environmental Impact Analyst III
Northern Region

DATE: June 24, 2020

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FROM: Jeff Stutzke, P.E.
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SUBJECT: South Fairbanks Industrial Roads Resurfacing
NFHWY00435
Location Hydraulics Study

Introduction

This Location Hydraulics Study (LHS) was prepared to assess the impacts from the proposed South Fairbanks Industrial Roads Resurfacing project.. The proposed work for this project has been determined to encroach onto a mapped 100-year floodplain. If a proposed action involves an encroachment, the impacts must be assessed in a location hydraulic study (LHS), as required under 23 CFR 650.111. An encroachment is any action (highway construction, reconstruction, rehabilitation, repair or improvement) within the limits of the base floodplain. The LHS is an assessment of floodplain hazards that usually does not require extensive engineering analysis. The LHS identifies and describes the floodplain context of the project and describes how the ADOT&PF will address risks and floodplain-related design objectives.

Project Description

The Alaska Department of Transportation and Public Facilities (DOT&PF) is proposing to perform work to conduct roadway surface maintenance. The project will enhance roadway safety, performance and reduce annual maintenance costs. The proposed project work includes:

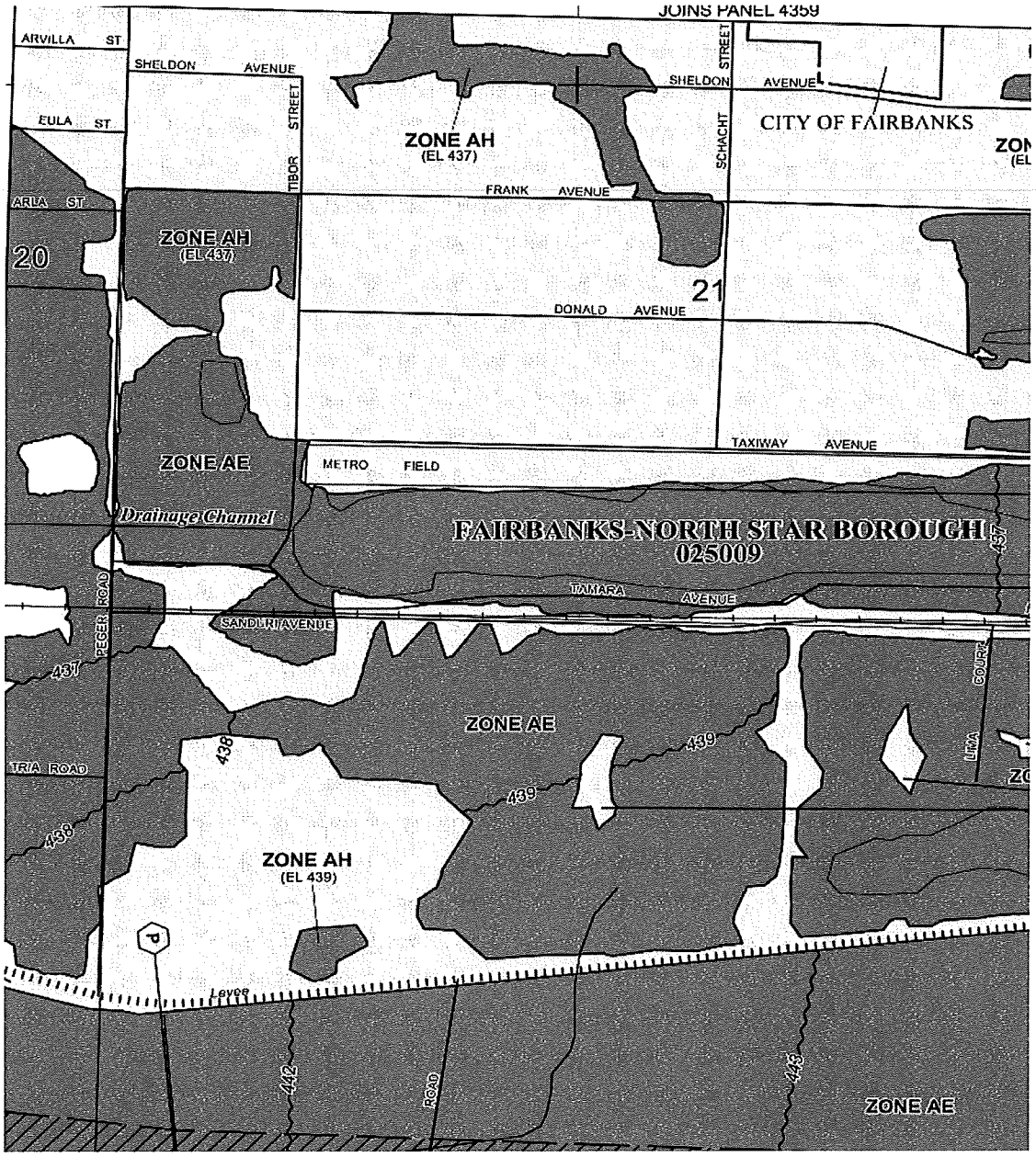
- Roadway sub-grade maintenance
- Roadway resurfacing.
- Storm drainage maintenance
- Upgrade roadside hardware

Floodplains

Federal Highway Administration (FHWA) regulations in 23 CFR 650 apply to encroachments in all base floodplains (1% annual chance flood hazard), not just those that are mapped and regulated by the Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program (NFIP). Unmapped base floodplains are often called unregulated floodplains. The South Faribanks Industrial Roads Resurfacing project occurs in areas that have regulated (mapped) floodplains.

The FEMA Flood Insurance Rate Maps, dated 3/17/2014, shows a portion of the project is located in a Special Flood Hazard Area Zone AE (Peger Road portion), and the rest of the project is in Zone X; areas protected by Levee from 1% annual chance flood. No project impacts are anticipated in Zone X.

The culvert crossing on Peger Rd. that traverses over Channel A in Zone AE (Chena River Lakes Project drainage channel), will not be altered and the existing culvert banks will remain in place.



Map Panel 02090C4367J, Revised 3/17/14, Peger Rd. portion in Zone AE.

Risks Associated with the Implementation of the Action

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by DOT&PF pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated November 3, 2017 and executed by FHWA and DOT&PF.

The risks associated with this project are low. In this context, "risk" means the consequences associated with the probability of flooding attributable to the encroachment. Resurfacing work will result in minor grade raises and culverts and ditches will be cleaned, and proposed work will improve or maintain existing drainage conveyance. Construction work to stabilize the road will be within the existing highway embankment, and will match roadway line and grade. Work will be performed without raising the base flood elevation minimizing risk of significant damage or hazard to people and property for conditions up to the design flood. Complete avoidance of the floodplain is not possible due to the large extents of the floodplain around and adjacent to the project area, therefore no practicable alternatives exist that would avoid or further minimize impacts to the floodplain.

Impacts on Natural and Beneficial Flood Plain Values

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. This project should not significantly affect the natural and beneficial floodplain values. The design will minimize the footprint of the project to the extent practicable. Riparian vegetation will be preserved or established and roadway drainage will be improved.. The proposed project should preserve, and may even enhance, the natural and beneficial floodplain values.

Measures to Minimize Flood Plain Impacts Associated with the Action

Measures to minimize floodplain impacts will be incorporated into the design and construction of this project. They include the following:

- Maintain the existing flow distributions to the extent practicable.
- Minimize the footprint of the project to the extent practicable.
- Erosion and sediment control measures will be implemented during construction.

The project will not involve significant encroachments and should not support incompatible floodplain development. Proposed work will improve water conveyance and no adverse flood plain impacts are anticipated.

Support of Probable Incompatible Floodplain Development

"Support of base floodplain development" means to encourage, allow, serve, or otherwise facilitate additional base floodplain development. Direct support results from an encroachment, while indirect support results from the action out of the base floodplain.

This project is subject to local, state, and federal floodplain regulations. The project is located within a NFIP regulated floodplain. Other non-DOT&PF projects within the Fairbanks North Star Borough jurisdictional boundary are also subject to the FNSB floodplain ordinance. Hence, it is improbable that incompatible floodplain development would receive support from this project.

Consistency with existing watershed and flood plain management programs.

DOT&PF will contact the FNSB Flood Plain Administrator to fulfill any submittal requirements if necessary and will be consistent with local flood plain management interests. The project will not involve significant encroachments and as discussed above, should not support incompatible flood plain development. Work will be within existing right-of-way and roadway geometric constraints. No significant grade changes are proposed for this project. There will be no loss of flow conveyance to carry base flood and storage capacity will not be affected by proposed improvements in this project's final condition.

If you have questions I am available to discuss.

Jeff P. Stutzke, P.E.
Regional Hydraulics Engineer
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