

Interim NEPA Assignment Program Guidance on Addressing Floodplain Impacts and Documenting Compliance with E.O. 11988

I. Introduction

The Memorandum of Understanding (MOU) between the Federal Highway Administration (FHWA) Alaska Division and the Alaska Department of Transportation and Public Facilities (DOT&PF) concerning the State of Alaska' Participation in the Surface Transportation Project Delivery Program pursuant to 23 U.S.C. 327 dated November 3, 2017 assigned to the State the FHWA's responsibility for complying with Executive Order (E.O.) 11988 – *Floodplain Management*. This guidance describes DOT&PF's procedures for documenting compliance with 23 CFR 650 and E.O. 11988 in the environmental documentation for federally-funded projects assigned to the state under the NEPA Assignment Program MOU.

E.O. 11988 was signed May, 24, 1977, establishing a general policy and cites specific requirements for federal agencies regarding floodplain management. It directs all federal agencies to avoid the long-and short-term adverse impacts associated with the modification of floodplains; avoid direct or indirect support of floodplain development wherever there is a practicable alternative; reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

Currently, implementation of E.O. 11988 in transportation projects is addressed by DOT Order 5650.2 (Floodplain Management and Protection) and 23 CFR 650 Subpart A (Location and Hydraulic Design of Encroachment on Floodplains). This interim guidance is based on current FHWA regulations and guidance.

This interim guidance is intended for environmental staff for the purposes of improving collaboration with the Hydraulics staff and the quality of environmental documentation. These interim procedures are effective immediately and will remain in effect until superseded by a revision of this guidance or approval of an Environmental Procedures Manual chapter addressing floodplain impacts.

II. General Procedures

Early in the environmental process, the Environmental Impact Analyst (Analyst) determines whether the proposed project is within the limits of a base floodplain and/or regulatory floodway. As needed, the Analyst may consult with the Hydraulics Engineer¹, local floodplain manager, or qualified hydraulics engineer serving as a project consultant to make this determination in mapped floodplains. Consultation with the Hydraulics Engineer is required in areas where National Flood Insurance Program Maps (NFIP) are not available or where projects extend beyond the NFIP boundaries. This determination should be made prior to submitting the *Class of Action (COA) Consultation Form*, when possible, as it will affect the

¹ For the purposes of this guidance, the title "Hydraulics Engineer" will be used to refer to both the Regional and Statewide Hydraulics Engineer. However, each position is responsible for different types of projects. When in doubt, first consult the Regional Hydraulics Engineer.

COA determination (see Section VI). More detailed guidance on identifying base floodplains, regulatory floodways, and encroachments is provided in Section III of this document.

A project determined to encroach in the base floodplain or regulatory floodway requires a:

- public notice (described in Section IV) and a
- Location Hydraulic Study (LHS) (described in Section V).

When a LHS is required, the Analyst works with the Hydraulics Engineer to assess the floodplain impacts and determine the level of documentation needed for the LHS. The LHS must be approved by the Hydraulics Engineer.

The Analyst documents the information related to floodplain impacts and compliance with E.O. 11988 in the environmental document. This includes summarizing the public involvement and the LHS. The Regional Environmental Manager (REM) should confirm all requirements have been met and are appropriately documented prior to either signing the *CE Documentation Form* or submitting the Draft EA or Draft EIS to the Statewide Environmental Office (SEO) for approval for circulation.

Where the environmental document is being completed by a consultant, the consultant may complete tasks that would normally be completed by the Analyst. Qualified hydraulics engineers working as project consultants may complete the LHS as described in Section V. Consultant work should be reviewed and approved by DOT&PF staff in accordance with Department policies and procedures.

Exemptions: E.O. 11988 and DOT Order 5650.2 allow for FHWA to develop exemptions to the requirements of the E.O. and DOT Order. The only exemption in FHWA regulations is “repairs made with Federal-aid emergency funds (23 CFR 668) during or immediately following a disaster” [23 CFR 650.107].

III. Identifying Base Floodplains, Regulatory Floodways and Encroachments

The following section provides guidance in identifying base floodplains and regulatory floodways and determining whether a project involves an encroachment. Guidance for unmapped areas is provided in Section VI.

Base floodplains are defined as the area inundated by a flood or tide having a one percent (1%) chance of being exceeded in any given year (100-year flood) [see definitions in 23 CFR 650.105(b) and (c)]. Therefore, base floodplains for both marine and freshwater should be identified as appropriate. The FHWA’s regulations require identifying the base floodplain using 1) maps generated by the Federal Emergency Management Agency (FEMA) under the NFIP or 2) using the best available data, where base floodplains are not identified on the NFIP maps or where such maps are unavailable (refer to Section VI). Information on the NFIP Flood Insurance Rate Maps (FIRMs) shall be used where available. On the FIRMs, the base floodplains are identified as a Special Flood Hazard Area (SFHA), which are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30.

Regulatory floodway is defined as a floodplain area that is reserved in an open manner by federal, state or local requirements, i.e., unconfined or unobstructed either horizontally or vertically, to provide for the discharge of the base flood so that the cumulative increase in water surface elevation is no more than a designated amount (not to exceed 1 foot as established by FEMA for administering the NFIP) [see

the definition in 23 CFR 650.105(m)). Regulatory floodways and other floodplain management information are shown on the FIRMs available from FEMA, and are indicated on the map by cross-hatches.

An **encroachment** is any action (highway construction, reconstruction, rehabilitation, repair or improvement) within the limits of the base floodplain [see definitions in 23 CFR 650.105(a) and (e)]. The term encroachment, therefore, is simply a locational reference and does not have any implication in regards to the effects of the action. If the project is located within the limits of a base floodplain or regulatory floodway then it is an encroachment and the project becomes subject to the requirements of E.O. 11988 and 23 CFR 650. For the purposes of identifying encroachments, DOT&PF interprets “action” to mean construction of any permanent feature or structure, not those that are temporary.

There are two specific types of encroachments that have additional considerations in the context of floodplain impact analysis in the environmental document and the LHS:

Longitudinal encroachment: An encroachment that is parallel to the direction of flow. *Example: A highway that runs along the edge of a river is usually considered a longitudinal encroachment.*

Significant Encroachment [23 CFR 650.105(q)] - A highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction- or flood-related impacts:

- A significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.
- A significant risk [to life or property].
- A significant adverse impact on natural and beneficial floodplain values.

As needed, the Analyst may consult with the Hydraulics Engineer, local floodplain manager or qualified hydraulics engineer working as a project consultant as needed to determine whether a project encroaches on a mapped base floodplain or regulatory floodway, but must consult with the Hydraulics Engineer in areas where NFIP maps are not available or where projects extend beyond the NFIP map boundaries. Determining there is a significant encroachment should be a collaboration between the Hydraulics Engineer, the Analyst, and the REM where the Engineer provides an assessment from an engineering and hydrologic context and the environmental staff provide an assessment of the natural and beneficial floodplain values [defined under 23 CFR 650.105(i)], including impacts to fish, wildlife, plants, and other environmental concerns. Note that projects with significant encroachments require an Environmental Impact Statement (EIS) (see Section VII).

Sources of information for floodplains in Alaska:

- FEMA Flood Map Service Center, <https://msc.fema.gov/portal>
- U.S. Army Corps of Engineers Floodplain Data and Mapping, http://206.174.16.211/usace_disclaimer.html
- Alaska Department of Commerce, Community and Economic Development (DCCED), Floodplain Management, <https://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/FloodplainManagement.aspx>

- NFIP participating communities, a list of participating Alaskan communities can be found on the DCCED Floodplain Management Website, shown above
- Other reputable agency or source (e.g. local, state, and federal water resource and floodplain management agencies)

When maps from different sources have conflicting information, consult with the Hydraulics Engineer to determine which source to use. Guidance on this is provided in the *Alaska Highway Drainage Manual*.

IV. Public Notice

When proposed actions encroach in a floodplain the public must be given the opportunity for early review and comment [23 CFR 650.109]. This noticing may be integrated with public noticing implemented under the NEPA process by including the appropriate information. The public notice must explain the proposed action, the potential floodplain involvement (i.e., extent, type, etc.), and reference E.O. 11988.

To comply with the E.O. public noticing requirement, public involvement must include members of the general public, government agencies, and any interested parties or stakeholders. The Analyst may prepare, or assist in preparing, the public notice, which must be approved by the REM prior to publication.

V. Location Hydraulic Study

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. The LHS occurs during the environmental phase of a project and 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 offers a pledge on how the DOT&PF *will* address risks and floodplain-related design objectives. Development of the LHS is described in the *Alaska Highway Pre-Construction Manual* (HPCM, Chapter 11, Section 1120.5.6, Item I) and the *Alaska Highway Drainage Manual* (AHDM, Chapter 4, Section 4.5.2, Item 9).

The LHS is usually completed by the Hydraulics Engineer. Qualified hydraulics engineers serving as project consultants may prepare the LHS, but the consultant’s product must be reviewed by the DOT&PF Hydraulics Engineer in accordance with the HPCM and AHDM.

The development of the LHS may be a collaboration between the preparing Engineer and the Analyst, where the Engineer provides an assessment from an engineering and hydrologic context and the Analyst provides an assessment from an environmental context. Specifically, Analysts may assess impacts to natural and beneficial floodplain values [defined under 23 CFR 650.105(i)], including fish, wildlife, plants, and other such environmental concerns. Analysts should coordinate with the Hydraulics Engineer early in the environmental process to determine the content and level of documentation required. The content and level of documentation for the LHS may be commensurate with the significance of the risk or environmental impacts, but must satisfy the requirements of 23 CFR 650.111. For example, the LHS for projects with multiple alternatives must address each alternative containing encroachments [23 CFR 650.111(c)].

The DOT&PF does not have a required format for the LHS. Therefore, it could be an email from the Hydraulics Engineer with all the required information or a separate document on the findings. The appropriate level of documentation, content and format for compliance with 23 CFR 650.111 will be determined by the Hydraulics Engineer, as they are ultimately responsible for the LHS per the HPCM and the AHDM. To assist in preparation of a collaborative LHS, the Statewide Environmental Office (SEO) website has an optional *Floodplain Consultation and Location Hydraulic Study Form* that the Analyst can complete and provide to the Hydraulics Engineer. The Hydraulics Engineer may either use this information in preparing the LHS or make any necessary revisions to the form before approving it as the LHS.

The LHS must be summarized in the NEPA document and attached. Where the LHS is collaborative, the Analyst's assessment of natural and beneficial floodplain values can be provided in the NEPA document itself or attached. If attached, it may be in the same document as the Engineer's assessment of the engineering and hydrologic risks. It is the Analyst's responsibility to include the appropriate information in the NEPA document.

Please note that the Hydrologic and Hydraulic (H&H) Reports cannot be used in lieu of the LHS. The H&H Reports are typically completed after NEPA to document the engineering considerations associated with the final project design, as required under 23 CFR 650.117.

VI. Unmapped Areas

FHWA regulations in 23 CFR 650 apply to encroachments in all base floodplains, not just those that are mapped and regulated by FEMA under the NFIP. Unmapped base floodplains are often called unregulated floodplains. Note that regulatory floodways are always mapped; therefore, an unmapped area would never have a regulatory floodway. The best available information must be used to identify whether a project encroaches into an unregulated floodplain and to develop the LHS. The information sources used should be provided in the LHS. For unmapped areas, the DOT&PF will rely on the best professional judgement of the Statewide or Regional Hydraulics Engineer to make this determination based on their knowledge of the area and assessment of available information. Analysts must consult with the Hydraulics Engineer in areas where NFIP maps are not available or where projects extend beyond the NFIP map boundaries. Otherwise, the procedures do not change for unmapped areas.

VII. NEPA Documentation

Class of Action

Floodplain involvement influences a project's Class of Action (COA) determination. Therefore, determining whether the project involves an encroachment into a base floodplain or regulatory floodway should be done early in the environmental process, prior to submitting a COA when possible. An example of when it may not be possible to make this determination prior to submitting a COA includes broadly scoped projects where specific work locations are not available at the time of the COA (e.g. areawide projects) or when projects occur in areas where the base floodplain is not mapped.

A project with a floodplain encroachment cannot be classified as a CE under 23 CFR 771.117(c)(26), (27) or (28) if the encroachment is not for a functionally dependent use or for facilitating open space uses, as specified in the condition in 23 CFR 771.117(e)(6). Otherwise the project may be classified as a CE under

23 CFR 771.117(d)(13). Projects with significant encroachments require an EIS (see FHWA’s Significant Encroachments Memo from April 2, 1985).

In 23 CFR 771.117(e)(6), a functionally dependent use is intended to follow the FEMA definition in 44 CFR 59.1, which is a “use which cannot perform its intended purpose unless it is located or carried out in close proximity to water.” Examples may include bridges, culverts, ferry terminals, docks, harbors, and wetland mitigation projects. Facilitation of open space use is intended to capture projects that do not lead to additional base floodplain development and are compatible with the restoration and preservation of natural and beneficial floodplain values. Examples may include recreational trails and bicycle and pedestrian facilities.

When submitting a COA under 23 CFR 771.117(c)(26), (27) or (28), the REM should ensure that the form includes a statement as to whether an encroachment is anticipated and, if so, describe how the encroachment is for a functionally dependent use or to facilitate open space uses. The COA should be based on the best available information at that time, with the understanding that, as the project progresses, a new COA may be required if new information results in a change in the project’s level of encroachment or its ability to meet the condition in 23 CFR 771.117(e)(6).

To avoid changes in the COA and provide more time to assess potential floodplain encroachments, the REM may select the “Class of Action Unknown” on the Project Information Document to advance projects through the Environmental Document phase and allow the Analyst to begin working with the Hydraulics Engineer.

NEPA Documentation

Floodplain impacts must be described in the NEPA document in a manner that addresses the requirements of E.O. 11988 and 23 CFR 650. EAs and EISs will need to address floodplain impacts within the “Affected Environment” and “Environmental Consequences” sections as appropriate. Typically, this can be a summary of the LHS, which should be completed for inclusion in the Draft EA or Draft EIS.

For CEs, the requirements are addressed in Section II.M. *Floodplain Impacts* through a series of questions with prompts to attach or provide further information as necessary for compliance. In Section II.M. *Floodplain Impacts*, the first question is intended to identify whether the proposed project encroaches on a base floodplain. Therefore, only select “yes” to this question if the project occurs within the limits of a base floodplain, including an unregulated base floodplain. When selected, the project will require public noticing and a LHS, both of which must be attached to the CE as indicated on the form. Where the LHS is collaborative, both the Engineer’s and the Analyst’s component of the assessment must be included. The remaining questions (a – d) address other circumstances that may involve potentially adverse impacts (e.g. significant encroachments).

If the project is categorized as a CE under 23 CFR 771.117(c)(26), (27) or (28), ensure that the *CE Documentation Form* or the attached *23 CFR 771.117(e) Form* clearly describes how the encroachment is for a functionally dependent use or to facilitate open space uses when the project involves an encroachment.

Floodplain involvement determines whether a CE can be approved by the REM or if it must be approved by a NEPA Program Manager. Floodplain involvement is addressed under the Programmatic CE General Programmatic Approval Condition (n): No actions encroaching on a regulatory floodway or work

affecting the base floodplain (100 year flood) elevation of a watercourse or lake, pursuant to Executive Order 11988 and 23 CFR 650 Subpart A. DOT&PF interprets “work affecting the base floodplain elevation” as work that results in a cumulative increase in base flood elevations of one foot or greater than the water surface elevation for the 100-year flood provided in the NFIP maps or as calculated by the hydraulic engineer for unmapped areas; however, where local ordinances are more stringent (e.g. require “no rise”), then “work affecting the base floodplain elevation” is work that does not conform to local ordinances.

The H&H Reports, which are more detailed than the LHS and are often used as part of the permitting process (e.g. USACE permits and floodplain permits), could result in additional information that may necessitate a re-evaluation or a new or supplemental NEPA document prior to construction. For more information regarding circumstances requiring re-evaluations or new NEPA document, see the *NEPA Assignment Program Environmental Procedures Manual*, Chapter 6.

VIII. Resources

Executive Orders

- Executive Order (E.O.) 11988 – *Floodplain Management*
- E.O. 13690 – *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*

State Administrative Orders

- Administrative Order No. 175, <http://www.gov.state.ak.us/admin-orders/175.html>

Policy

- DOT Order 5650.2 *Floodplain Management and Protection*. April 23, 1979.
<http://www.fhwa.dot.gov/engineering/hydraulics/policymemo/order56502.pdf>

Guidance

- U.S. Water Resources Council, *Floodplain Management Guidelines for Implementing E.O. 11988*, February 10, 1978.
https://portal.hud.gov/hudportal/documents/huddoc?id=DOC_14216.pdf
- U.S. Water Resources Council, *Guidelines for Implementing E.O. 11988 and E.O. 13690*, October 8, 2015.
http://www.fhwa.dot.gov/engineering/hydraulics/policymemo/eo11988_13690_ig.pdf
- FHWA Technical Advisory T6640.8A, “Floodplain Impacts,” *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, October 30, 1987.
<https://www.environment.fhwa.dot.gov/projdev/impTA6640.asp>
- FHWA Memo: *Significant Encroachments*, April 2, 1985.
https://www.environment.fhwa.dot.gov/strmlng/PDFs/Significant_Encroachments.pdf
- FHWA. “Floodplains,” *Environmental Guidebook*.
<https://www.environment.fhwa.dot.gov/guidebook/index.asp>
- FHWA. “Floodplains,” Bridges and Structures website.
<http://www.fhwa.dot.gov/engineering/hydraulics/hydrology/floodplains.cfm>

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- DOT&PF. *Alaska Highway Drainage Manual*, June 13, 2006.
http://www.dot.state.ak.us/stwddes/desbridge/pop_hwydrnman.shtml
- DOT&PF. *Alaska Highway Preconstruction Manual*.
<http://www.dot.state.ak.us/stwddes/dcsprecon/preconmanual.shtml>

Additional Information

- U.S. Army Corps of Engineers. Floodplain Management Services Website
<http://www.poa.usace.army.mil/About/Offices/Engineering/FloodplainManagement.aspx>

Training

How to read a FIRM Webinar

Sponsor: FEMA Cost: FREE

Link: https://www.fema.gov/media/fhm/firm/ot_firm.htm

Note: a PDF file can be found at

https://www.fema.gov/media-library-data/20130726-1550-20490-1950/ot_firm.pdf