



# Guide to Floodplain Development

**June 13, 2023**





# Agenda

- **Floodplain Guide**
  - **Get a Zoning Permit**
  - **Get a Building Permit**
  - **Get Construction Inspections**
  - **Policy Changes or Clarifications**
- 

# Floodplain Guide – Where to find

[SERVICES ▾](#)[PROGRAMS & INITIATIVES](#)[NEWS & EVENTS](#)[PUBLICATIONS & FORMS](#)

## Flood protection forms

Flood protection forms must be submitted with all zoning and building permit applications in the Special Flood Hazard Area (SFHA) or floodplain. The documents on this page include flood protection forms, instructions, and information related to flood protection.

Zoning and building permits are issued by the [Department of Licenses and Inspections](#) (L&I).



Name ▾	Description	Released ▾	Format
<a href="#">A guide for development in the floodplain</a>	An L&I guide for development in the floodplain.	October 14, 2021	PDF
<a href="#">City data to NGVD 29 conversion chart</a>	This chart shows the conversion from City data to NGVD 29.	July 15, 2019	PDF
<a href="#">Flood protection key terms</a>	Definitions for terms found in floodplain protection forms.	May 27, 2020	PDF
<a href="#">Flood protection scoping meeting Information Sheet</a>	Use this information sheet for details about the mandatory flood protection scoping meeting.	May 27, 2020	PDF
<a href="#">Flood protection form - Existing (FP-EX)</a>	Use this form for renovations, alterations and/or additions to existing building(s) in the special flood hazard area. This form determines whether the development will constitute a substantial improvement, and which floodplain regulations apply.	October 14, 2021	PDF

<https://www.phila.gov/documents/flood-protection-forms/>



## GUIDE FOR DEVELOPMENT IN THE FLOODPLAIN

This document was developed by the Department of Licenses and Inspections as a guide for development in the floodplain.



# Floodplain Guide – Contents


## Section 1: Flowcharts

Illustration of permitting steps required for:

- Alterations
- Floodway Encroachments
- Construction requiring a FEMA Map Change
- All other Construction in SFHA
- Federal and State Approvals Only

## Section 2: Process Steps

Submission requirements for:

- Zoning Permit
  - Building Permit
  - Construction Inspections
  - FEMA Community Letter of Acknowledgement or PA DEP Consistency Letter
- 



# Floodplain Guide – Contents (*cont.*)

## **Section 3: Supplemental Information**

Additional submission requirements if your project includes or requires:

- An Engineering Analysis
- Fill to Elevate above regulatory BFE
- Watercourse Alteration

## **Appendix A: Resources**

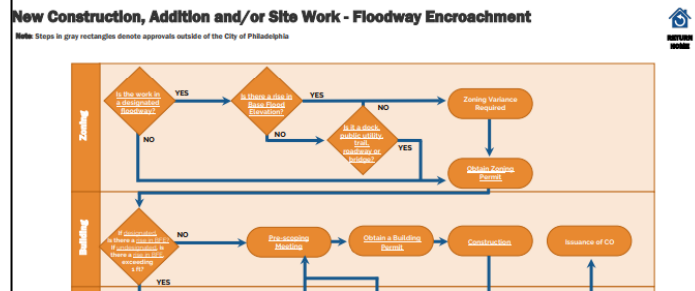
Tools to assist in determining level of impact of your project, including:

- Substantial Improvement
  - FIRM Applicability
  - Regulatory Floodway
  - Waterfront Setback
  - FEMA LOMC
  - State approvals
- 

## Federal and State Approvals Only \_\_\_\_\_ 8

Use the Table of Contents to navigate directly to a section or page.

Links provided within the flowcharts to navigate to relevant sections of the Guide


Nanyang Technological University

Click on hyperlinks within the text to navigate to relevant external resources



# Get a Zoning Permit

## When is a Zoning Permit required for floodplain development?


- Any work (development) or change in use that occurs within the Special Flood Hazard Areas (SFHA) within property lines.
- Development includes any construction, reconstruction, modification, or extension of structures, filling, dredging, mining, grading, paving, excavation, drilling operations, or storage of equipment or materials, land excavation, land clearing, land improvement, or any construction thereof.
- Standard exceptions under the Zoning Code, Chapter 3 of the Philadelphia Administrative Code, regulation or code Bulletins may not apply to floodplain development.
  - **L&I does NOT require a Zoning Permit for grading or alteration constituting substantial improvement, unless required by other sections of the Code.**





# Get a Zoning Permit *(cont.)*

## What is required for my submission?

- Site Plan - additional requirements for work in the floodplain may apply:
    - Floodplain boundaries, including floodways, SFHA designations BFE elevations and all datum info.
    - Lowest floor elevation for new construction and substantially improved (if known) structures.
    - Site topography (existing and proposed).
    - Waterfront Setback related “top-of-bank” delineation prepared by PA licensed surveyor
      - This will apply to all development is within 75 ft of a body of water
  - Flood Protection Form – Zoning (FP-Z Form) - captures basic information and is intended to bring awareness of additional requirements that will apply throughout development.
  - Engineering Analysis Implications
    - NOT required to be submitted with the zoning permit application but commitment on plans required
    - Designer must perform an analysis to determine effect on BFE
- 





# Get a Building Permit

## When is a Building Permit required for floodplain development?

- Essentially applies to ANY “man-made” change to a site
- Per 2018 International Building Code (IBC) Appendix G, “development” is defined as:
  - **DEVELOPMENT.** *Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land-disturbing activities.*
- Standard exceptions under Chapter 3 of the Philadelphia Administrative Code, regulation or code Bulletins may not apply to floodplain development
  - For example, a project for less than 5,000 sqft. of earth disturbance is usually exempt from Permitting.
  - If such earth disturbance is in a special flood hazard area, then a Permit IS required





# Get a Building Permit (*cont.*)

## What is required for my submission?

- Must comply with standard building permit application requirements and may require additional documentation specific to floodplain regulations, including:
  - Site Plan, including floodplain boundaries, topography, and elevations with clear datum information
  - Flood Protection Scoping Meeting Summary Form (FP-PS Form)
  - Flood Protection Form – General or Existing Building (FP-G or FP-EX Form)
  - FEMA Elevation Certificate
    - See Section C1 of Elevation Certificate and checkbox for “Construction Drawings”
  - Floodproofing Certification for Engineered flood vent openings & Dry Floodproofing Measures
  - Engineering Analysis, as applicable
  - Copies of all FEMA or PA DEP approvals.





# Get Construction Inspections

## What documentation is required?

- Two construction milestones require the submission of a FEMA Elevation Certificate
  - Completion of the lowest floor (including basement)
    - See Section C1 of Elevation Certificate and checkbox for “Building Under Construction”
  - Prior to final inspection
    - See Section C1 of Elevation Certificate and checkbox for “Finished Construction”
- Floodproofing Certificate
  - Dry-floodproofing requires a FEMA Floodproofing Certificate for non-residential structures
  - Wet floodproofed areas require certification of engineered flood vent openings
- Final FEMA Letter of Map Change (i.e. LOMR-F or LOMR)
  - **No CO or TCO will be issued until all required documents are provided.**






# Policy Changes or Clarifications

## RESIDENTIAL VS NON-RESIDENTIAL


	Effective until April 1, 2022 (FEMA Technical Bulletin 0)	Effective after April 1, 2022 (44 CFR )
Residential	<i>A building designated for habitation. Ancillary areas of residential buildings that serve only residents are residential ancillary areas.</i>	<i>A noncommercial building designed for habitation by one or more families or a mixed-use building that qualifies as a single-family, two-to-four family, or other residential building.</i>
Other Residential	N/A	<i>A residential building that is designed for use as a residential space for 5 or more families or a mixed-use building in which the total floor area devoted to non-residential uses is less than 25 percent of the total floor area within the building.</i>
Non-Residential	<i>A building that has a commercial or other nonresidential use.</i>	<i>A commercial or mixed-use building where the primary use is commercial or non-habitational</i>
Mixed Use	<i>A building that has both residential and commercial or other non-residential uses. The term does not include multi-family residential buildings that have ancillary areas but no non-residential uses</i>	<i>A building that has both residential and non-residential uses.</i>
Ancillary	<i>A common area such as a lobby, foyer, office used by building management, exercise space and meeting room.</i>	N/A





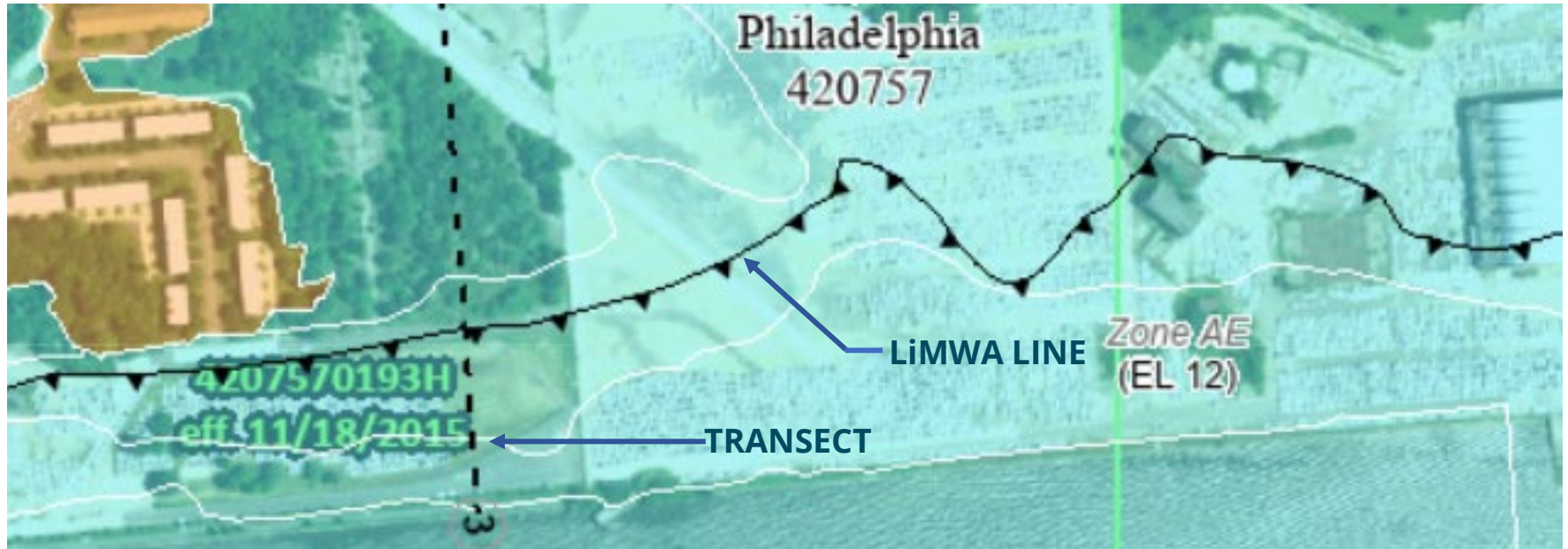
# Policy Changes or Clarifications (*cont.*)

## ENGINEERING ANALYSIS REQUIREMENTS

- Engineering Analysis is required for the following situations:
    - Development within regulatory floodway – shown on the FEMA FIRM through hatching
    - Cumulative development within riverine flood hazard areas w/ no regulatory floodway
      - Very rare but is identified on the FIRM with a cross-section that has no floodway identified
    - Development in coastal areas that affects dune-like structures (i.e. seawalls, closed piers)
      - Delaware River is a coastal floodplain and any project that alters structures that define LiMWA lines required analysis
    - Watercourse alterations
    - As required by the ZBA or BBS
  - Detailed information on submission requirements are contained within the Supplemental Information section of the Floodplain Management Guide
- 

# Policy Changes or Clarifications (*cont.*)

COASTAL FLOODPLAIN (i.e. NOT RIVERINE)





# Policy Changes or Clarifications (*cont.*)

## COASTAL FLOODPLAIN (i.e. NOT RIVERINE) (*cont.*)

- Identified on FIRM through a LiMWA line and/or transects instead of cross sections
- Area seaward of LIMWA line and landward of any 'V' Zone is Coastal A Zone
- Area seaward of any 'V' Zone is Coastal High Hazard
- ASCE 24-14 regulate Coastal A Zones and Coastal High Hazard Zones effectively the same
  - This is an “above code” regulation that exists within any Community which adopts ASCE 24-14.
- In Philadelphia, most of the Coastal A Zones occur along the Delaware River due to the LiMWA line
- Important Coastal Zone-specific regulations:
  - New construction is prohibited landward of Mean High Tide based on NOAA tidal data
  - Structural fill is prohibited and non-structural fill is limited to minor grading
  - PA DEP Waterway Obstructions and Encroachments Permit is required.



# Policy Changes or Clarifications (*cont.*)

## FLOODPLAIN WITH & WITHOUT REGULATORY FLOODWAY

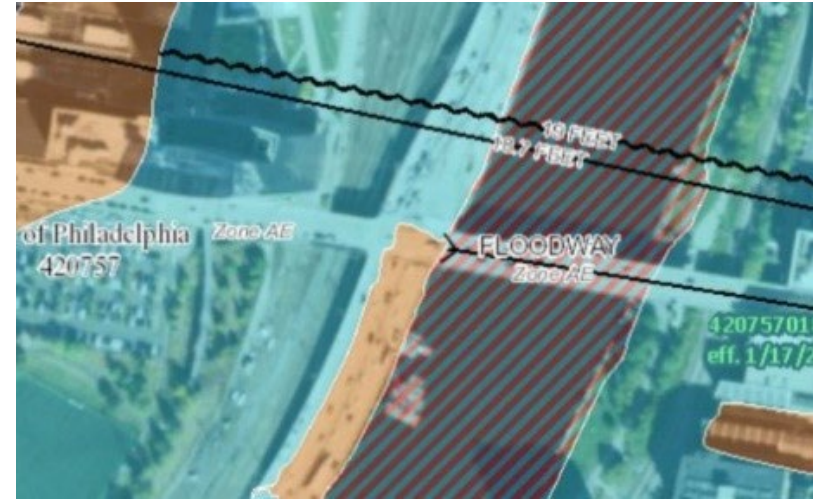



Image on left displays riverine with no floodway while image on right displays hatched floodway





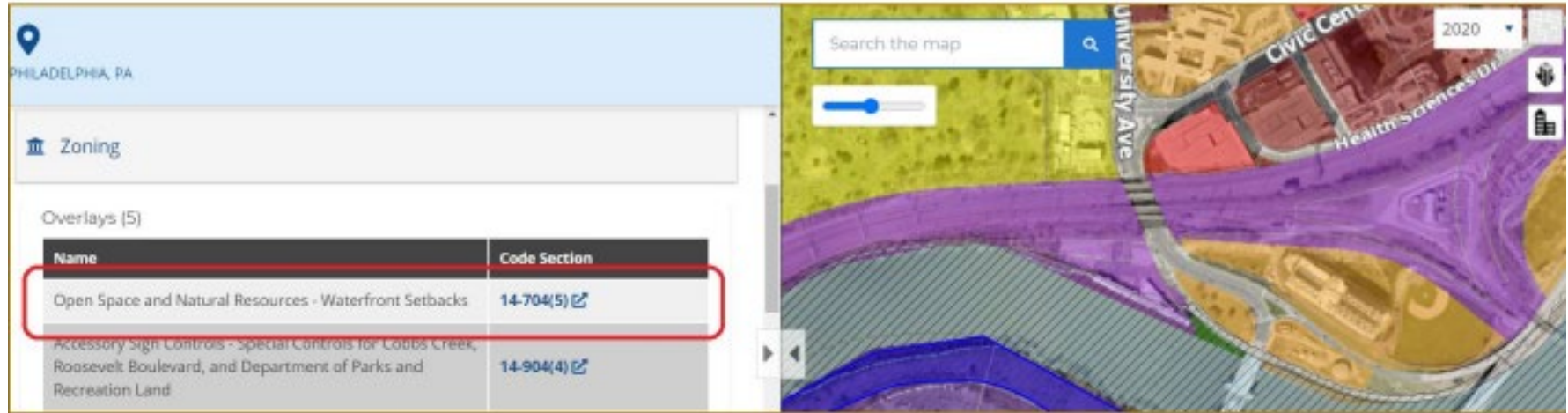
# Policy Changes or Clarifications (*cont.*)

## **FLOODPLAIN WITH & WITHOUT REGULATORY FLOODWAY (*cont.*)**

- Regulatory Floodway is highly regulated area that experience moving water during post-flood drainage
    - Only applicable to riverine flood hazards such as rivers and streams and are NOT tidal bodies of water
  - Development within a floodway requires Engineering Analysis to confirm “NO RISE” to floodplain
  - Development in a riverine floodplain with NO regulatory floodway is subject to modified requirements:
    - Provisions of the Zoning Code relating to a regulatory floodway do not apply.
    - PA DEP Ch 105 Waterway Obstructions and Encroachments Permit is required.
    - NO RISE analysis is changed to SOME RISE not to exceed 1.00 ft
      - This analysis is required to be based on cumulative development but, until such that the City amasses required records, L&I is only verifying development proposed under the application
  - See 2018 IBC and Appendix A of Guide to Floodplain Development for more information.
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# Policy Changes or Clarifications (*cont.*)

## WATERFRONT SETBACK




The screenshot displays the Philadelphia Zoning Map interface. On the left, a sidebar shows the 'Zoning' section with a list of 'Overlays (5)'. The first overlay, 'Open Space and Natural Resources - Waterfront Setbacks', is highlighted with a red border. This overlay is associated with Code Section 14-704(5). The second overlay, 'Accessory Sign Controls - Special Controls for Cobbs Creek, Roosevelt Boulevard, and Department of Parks and Recreation Land', is associated with Code Section 14-904(4). On the right, a map view shows the waterfront area with various colored overlays. A search bar at the top of the map area contains the text 'Search the map'. The map shows the waterfront area with various colored overlays, including purple and blue, indicating different zoning districts or setbacks. The map also shows the University Ave and Civic Center areas.

Name	Code Section
Open Space and Natural Resources - Waterfront Setbacks	14-704(5) <a href="#">↗</a>
Accessory Sign Controls - Special Controls for Cobbs Creek, Roosevelt Boulevard, and Department of Parks and Recreation Land	14-904(4) <a href="#">↗</a>



# Policy Changes or Clarifications (*cont.*)


## **WATERFRONT SETBACK (*cont.*)**

- Established per Philadelphia Zoning Code Section 14-704(5) to protect drainage of bodies of water
  - Development in the Waterfront Setback is subject to specific submission and code requirements:
    - A site plan identifying the limits of the 50' zone is required with building and zoning permit applications.
    - Where development occurs within 75 feet of the Top-of-Bank, the Site Plan must be prepared by a Commonwealth of PA Professional Land Surveyor.
  - The Zoning Code includes prohibitions on structures, parking lots, and storage within the setback.
  - If within a floodplain with no regulatory floodway (riverine or coastal), a PA DEP Ch 105 permit is required
  - See Appendix A of the Guide to Floodplain Development for more information.
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# Policy Changes or Clarifications (cont.)

## SUBSTANTIAL IMPROVEMENT (SI) AND SUBSTANTIAL DAMAGE (SD)

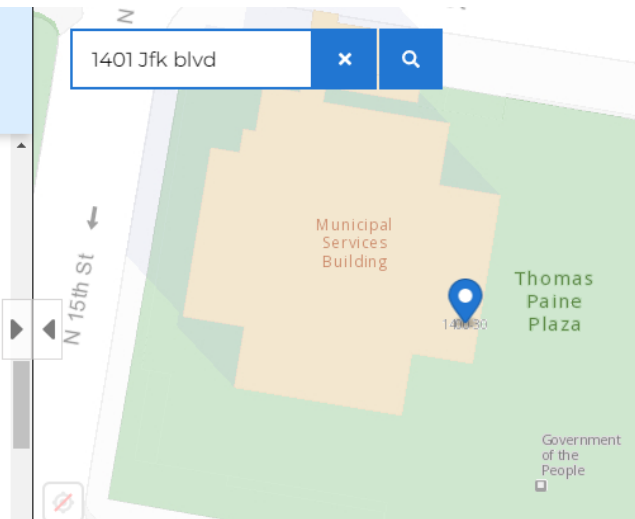
- Pre-Firm (constructed before June 15, 1979) buildings must be brought into full compliance with current floodplain requirements if the total cost of improvement exceeds 50% of the fair market value.
  - Market Value utilizes the OPA assessment, including taxable and exempt improvement values.
  - Alternate assessments may be submitted to the BBS for evaluation and decision.

 1400-30 ARCH ST  
PHILADELPHIA, PA 19102-1656

Valuation History (9)

Year	Market Value	Taxable Land	Taxable Improvement	Exempt Land	Exempt Improvement
2023	\$64,396,800	\$0	\$0	\$12,879,360	\$51,517,440
2022	\$60,183,900	\$0	\$0	\$22,268,043	\$37,915,857
2021	\$60,183,900	\$0	\$0	\$22,268,043	\$37,915,857
2020	\$60,183,900	\$0	\$0	\$22,268,043	\$37,915,857
2019	\$60,183,900	\$0	\$0	\$22,268,043	\$37,915,857

1401 Jfk blvd





# Policy Changes or Clarifications (*cont.*)

## SUBSTANTIAL IMPROVEMENT (SI) AND SUBSTANTIAL DAMAGE (SD) -- EXCLUSIONS

- Certain costs and work are excluded from substantial improvement determination, including:
  - Work to buildings identified as 'Historic' intended to preserve the designated portions
    - Refer to the Philadelphia Existing Building Code, Section EB-1201.4 where a Historical Building will continue to remain a Historical based on all proposed repair/alteration worksopes that constitute a Substantial Improvement
    - Refer to the Code Bulletin A-1702R for more details regarding registry requirements Historical Structure designations
  - Work required to correct a violation that will bring the building into compliance
    - Limited to the minimum scope of work necessary to assure safe living conditions
  - See L&I Code Bulletin A-1702R, Appendix for additional excluded costs based on worksopes





# Policy Changes or Clarifications (*cont.*)

## **SUBSTANTIAL IMPROVEMENT (SI) AND SUBSTANTIAL DAMAGE (SD) – ADDITIONS**

- Vertical and Horizontal Additions
  - Refer to Section EB-1103.3 for different conditions to consider for Additions & Foundations in the Flood Hazard Areas, to include:
    - Horizontal Additions that are structurally interconnected to an existing building
    - Horizontal Additions that are NOT structurally interconnected to an existing building
    - Vertical Additions
    - Raised/Extended foundation Work
  - Additional guidance around Additions can be reviewed under the FEMA Substantial Damage/Substantial Desk Reference





# Policy Changes or Clarifications (*cont.*)

## SUBSTANTIAL IMPROVEMENT (SI) AND SUBSTANTIAL DAMAGE (SD) -- WORKSCOPES

- SI includes all work occurring in a building under an open project or concurrent projects.
  - L&I considers a project to 'closed' upon issuance of CO or the COI of a parent building permit.
    - See L&I Code Bulletin A-1702R, Appendix for all included workscopes to be considered for open projects, including:
      - Structural Elements & Exterior Finishes (including foundations, joists, beams, bearing walls, trusses, attached decks & porches, etc.)
      - Interior Finish Elements (including floor/wall finishes, interior doors, insulation, hardware, etc.)
      - Utilities and Service Equipment (including HVAC equipment, plumbing fixtures, light fixtures, etc.)





# Policy Changes or Clarifications (*cont.*)

## FEMA LETTER OF MAP CHANGE (LOMC) EFFECT ON PERMITTING PROCESS

- FEMA Letter of Map Change (LOMC) required under several scenarios per 44 CFR
  - Development within a regulatory floodway where engineering analysis shows rise in BFE greater than 0.00 FT
  - Cumulative development within a riverine floodplain without a floodway where engineering analysis shows rise in BFE greater than 1.00 FT
  - Corrected or new map data required to be incorporated into development project design
  - Hydrological and/or hydraulic changes to floodplain warranting revised analysis of floodplain
    - Large scale regrading or deforestation or changing the course of a river or channel
  - Any changes to FEMA FIRM recognized boundary conditions
    - Changing location of LiMWA line, large scale topography changes, etc.








# Policy Changes or Clarifications (*cont.*)


## FEMA LETTER OF MAP CHANGE (LOMC) EFFECT ON PERMITTING PROCESS

- FEMA Letter of Map Revision (LOMR)
    - FEMA's modification to an effective Flood Insurance Rate Map (FIRM), or Flood Boundary and Floodway Map (FBFM), or both, based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA)
    - A LOMR may be mandatory prior to issuance of a Certificate of Occupancy (CO) if a project design has been based on proposed new or improved data modifications to the effective FIRM.
  - FEMA Conditional Letter of Map Revision (CLOMR)
    - Letter from FEMA commenting on whether a proposed project, if built as proposed, or proposed hydrology changes would meet minimum National Flood Insurance Program standards
    - A CLOMR may be mandatory to be submitted with your building permit application where changes to hydraulic or boundary conditions have been identified, which includes watercourse alterations, floodway revisions, or topographic changes to a site.
- 



# Policy Changes or Clarifications (*cont.*)


## FEMA LETTER OF MAP CHANGE (LOMC) EFFECT ON PERMITTING PROCESS

- FEMA Letter of Map Revision based on Fill (LOMR-F)
    - FEMA's modification of the Special Flood Hazard Area (SFHA) shown on the Flood Insurance Rate Map (FIRM) based on the placement of fill outside the existing regulatory floodway.
    - Note that a LOMR-F may be mandatory prior to building permit application filing if a project design has been based on new or improved data modifications to the effective FIRM due to placement of fill outside the existing regulatory floodway.
  - FEMA Conditional Letter of Map Revision based on Fill (CLOMR-F)
    - Letter from FEMA commenting on whether a proposed project, if built as proposed, or proposed hydrology changes would meet minimum National Flood Insurance Program standards based on the placement of fill outside the existing regulatory floodway
    - NOTE that a CLOMR-F may be mandatory prior to a site permit application filing if fill placement is being proposed under your workscope.
  - Letter of Map Amendment (LOMA)
    - LOMAs are usually issued because a property has been inadvertently mapped as being in the floodplain, but is actually on natural high ground above the base flood elevation.
- 



# Policy Changes or Clarifications (*cont.*)

## FEMA LETTER OF MAP CHANGE (LOMC) EFFECT ON PERMITTING PROCESS (*cont.*)

- If LOMC indicates development causes increase in flooding or flood damage potential
    - Typically results in BFE rise or expansion of boundary conditions thus encompassing more properties
    - All development within the areas affected by the LOMC must comply with the increased hazards
      - Building Permit Plan Review will enforce the increased hazards as outlined in the FEMA LOMC approvals
  - Conditional LOMC FEMA Approvals (i.e. CLOMR or CLOMR-F) required prior to Building Permit submission
    - Pre-Scoping Meeting required to establish LOMC requirements/determinations
  - FINAL LOMC FEMA Approvals (i.e. LOMR or LOMR-F) required prior to issuance of CO or Temporary CO
- 

## Policy Changes or Clarifications *(cont.)*

## FEMA Letter of Map Change Application Process

- Review FEMA MT-1 and MT-2 Applications requirements:
  - [MT-1 Application Forms and Instructions](#)
  - [MT-2 Application Forms and Instructions](#)
  - UPDATED without notice and most recent Application requirements will apply

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# Policy Changes or Clarifications (*cont.*)

## COMMUNITY ACKNOWLEDGEMENT FORM (FEMA)

- Required for FEMA MT-1 and MT-2 Application approval
  - Community Official determines compliance with local floodplain management regulations and concurs project is “reasonably safe from flooding”
  - A request for a consistency letter may be initiated through a floodplain scoping meeting.
    - Request for a Community Acknowledgment Form sign-off associated with an MT-1 or MT-2 Application filing will need to be made through eClipse under a Preliminary Project Review Application request





# Policy Changes or Clarifications (*cont.*)

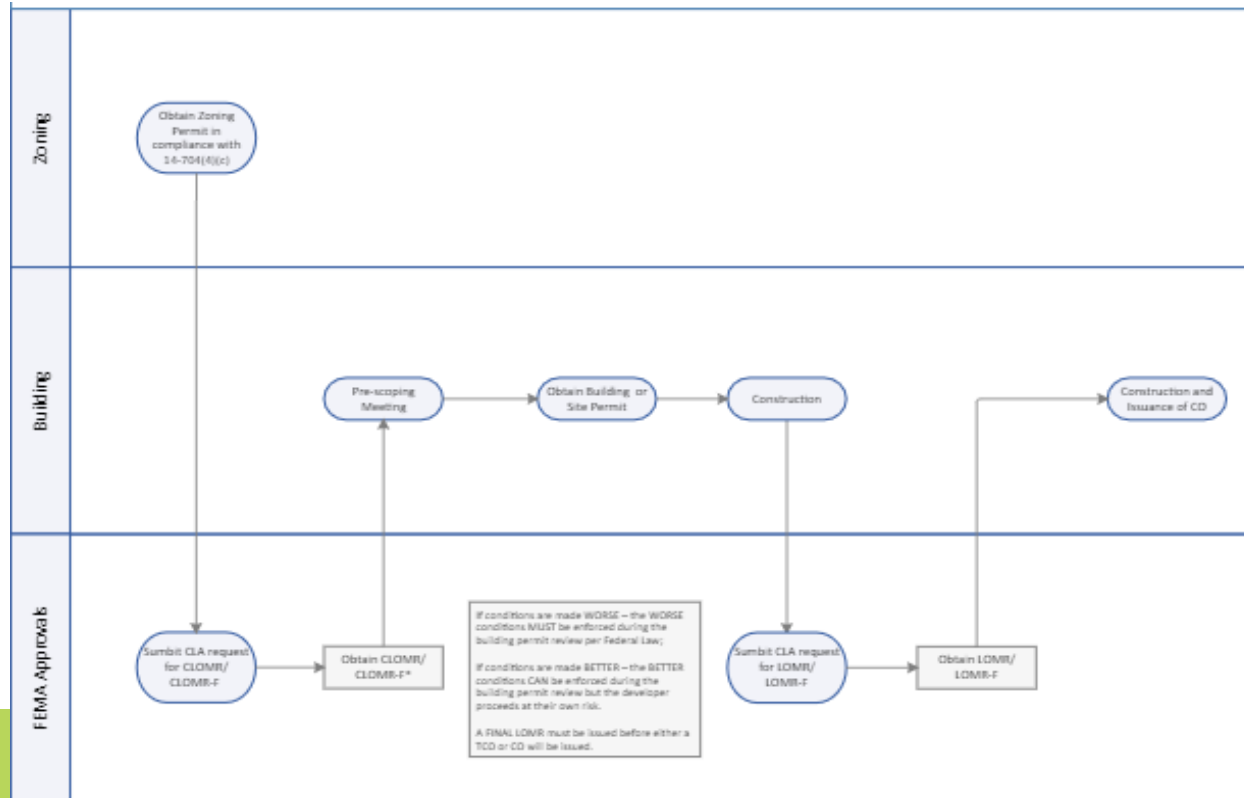
## COMMUNITY ACKNOWLEDGEMENT FORM (FEMA) (*cont'd*)

- Submission requirements to ensure Community Official review:
  - Building Permit Application materials necessary to confirm compliance with floodplain regulations, which may include engineering analysis, elevations, and floodproofing specifications.
  - *Environmental Species Act* (ESA) Compliance Documentation to be provided in the form of a current & valid *Pennsylvania Natural Diversity Inventory* (PNDI) environmental review approvals
  - As-built drawings (LOMR and LOMR-F only)
  - Proof of notice to adjacent property owner, where required by 44 CFR
  - Evidence that existing structures within impacted area are reasonably safe



# Policy Changes or Clarifications (*cont.*)

## FEMA LETTER OF MAP CHANGE (LOMC) EFFECT ON PERMITTING PROCESS (*cont.*)





# Policy Changes or Clarifications (*cont.*)

## FLOODPLAIN CONSISTENCY LETTER (PA DEP)

- Applicable when any PA DEP Permit Application occurs within a FEMA recognized floodplain, as established through the Pennsylvania Code, Title 25, including:
  - **Chapter 105 Permits**: Watercourse alterations and pier or wharf construction (i.e. “waterway encroachments”)
  - **Chapter 106 Permits**: City funded or sponsored development within the floodplain
- Local requirements to obtain PA DEP permit approvals as identified in the Title 14, Section 704(4)(g) & (h)
- PA DEP requires Local Floodplain Administrator to affirm project is consistent with local floodplain regulations through a Floodplain Consistency Letter Issuance







# Policy Changes or Clarifications (*cont.*)

## **FLOODPLAIN CONSISTENCY LETTER (PA DEP) (*cont'd*)**

- A request for a consistency letter may be initiated through a floodplain scoping meeting.
  - A Preliminary Project Review Application will be required to conduct analysis and confirm compliance.
- L&I Consistency Letter Submission requirements:
  - Zoning Permit must be issued to ensure compliance with local zoning code
  - Building Permit Application materials necessary to conform compliance with floodplain regulations including, but not limited to, engineering analysis, elevations, and floodproofing specifications.
    - May also require a FEMA LOMR be secured before PA DEP Consistency Letter can be issued.



# Preliminary Flood Protection Scoping Meetings

## MEETING REQUEST FORM

### Permits, violations & licenses

Apply for a permit +

Get construction approval  
and review

**Get approval for  
construction in the  
floodplain**

Request a preliminary  
review of construction  
projects

Get a project scoping  
meeting for a multi-phased  
project


Get a license +

### Get approval for construction in the floodplain

Construction projects in the Special Flood Hazard Area (SFHA) have special requirements. To determine if your project is in the floodplain, use the [floodplain map](#) .

View the recent [FEMA revisions to the Limit of Moderate Wave Action \(LiMWA\)](#) that may not yet appear on the FEMA Floodplain Map and a [list of affected parcels](#).

You must submit [flood protection documents](#) with all zoning or building permit applications for construction in the SFHA. Refer to the [code bulletin for development in special flood hazard areas](#) and [L&I guide for development in the floodplain](#).

If the cost for a project is \$50,000 or more, you must attend a [flood protection scoping meeting](#)  before submitting your building permit application. See the [information sheet about the mandatory scoping meeting](#) for more information.



Department of  
**Licenses and Inspections**  
CITY OF PHILADELPHIA

### Project Meeting Request

Please fill out the form below to register for a virtual appointment. The form administrator will send a confirmation email to finalize your appointment time.

Please select the type of Project Meeting to request \*

- ☒ Flood Protection Scoping Meeting
- ☐ Multi-Phased Project Scoping Meeting
- ☐ Examiner Appointment

NEXT

Link:

<https://www.phila.gov/services/permits-violations-licenses/get-construction-approval-and-review/get-approval-for-construction-in-the-floodplain/>

# Questions

# Thank You

E-mail Contact: [Floodplainmanager@phila.gov](mailto:Floodplainmanager@phila.gov)

Further Dept Resources on Flood Plain Development

[L+I: Get Approval for Construction in the Floodplain](#)

[L+I Code Bulletin: Development in Special Flood Hazard Areas](#)

[FEMA Technical Bulletins](#)

[FEMA Substantial Improvement/Damage Resources](#)

[PA DEP Stream & Wetland Restoration Program](#)