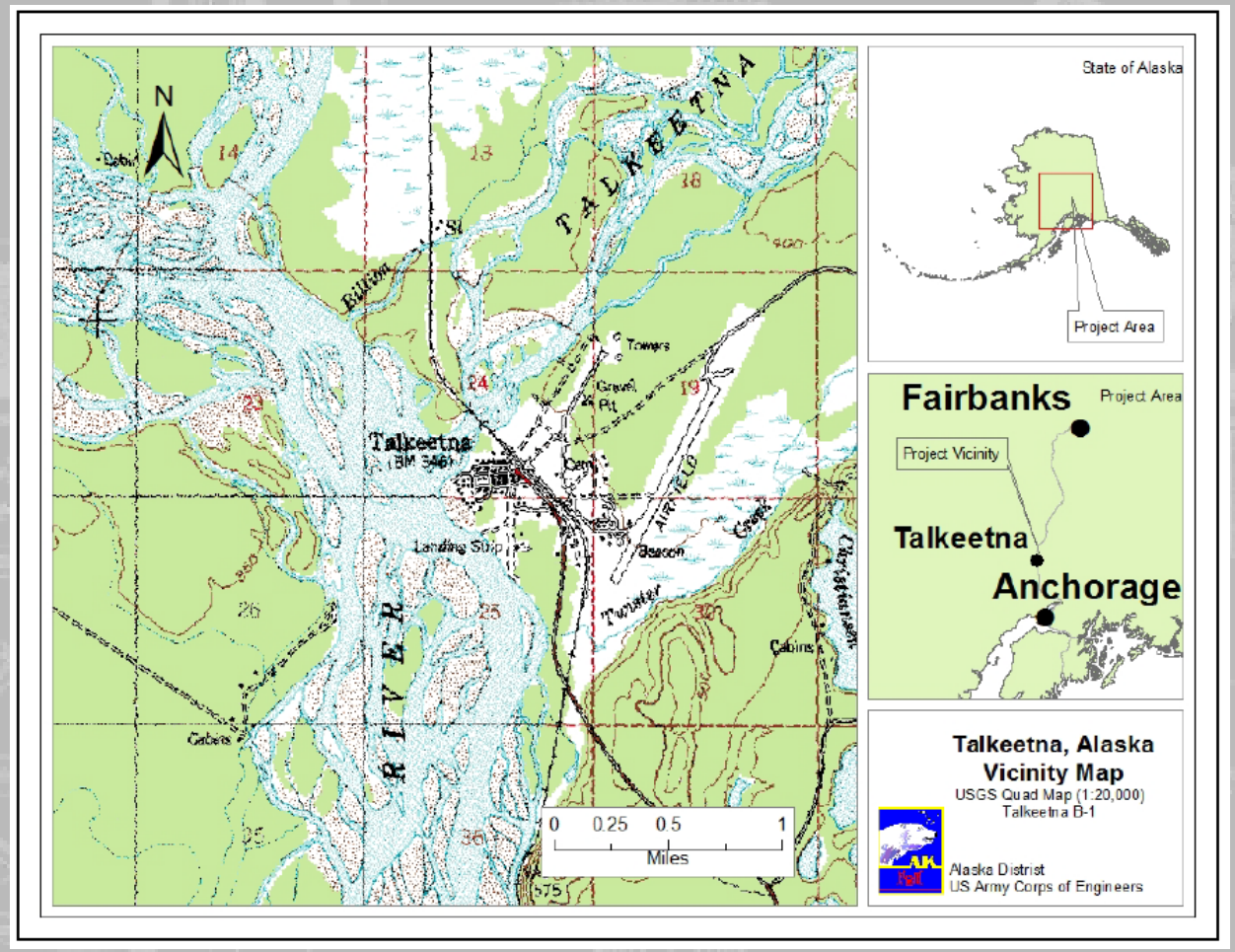
CONTINUING AUTHORITIES PROGRAM SECTION 205 TALKEETNA FLOOD RISK MANAGEMENT TALKEETNA, ALASKA

Public Participation – Session 1
Review of Progress and Status of Alternatives
Date:
Time:



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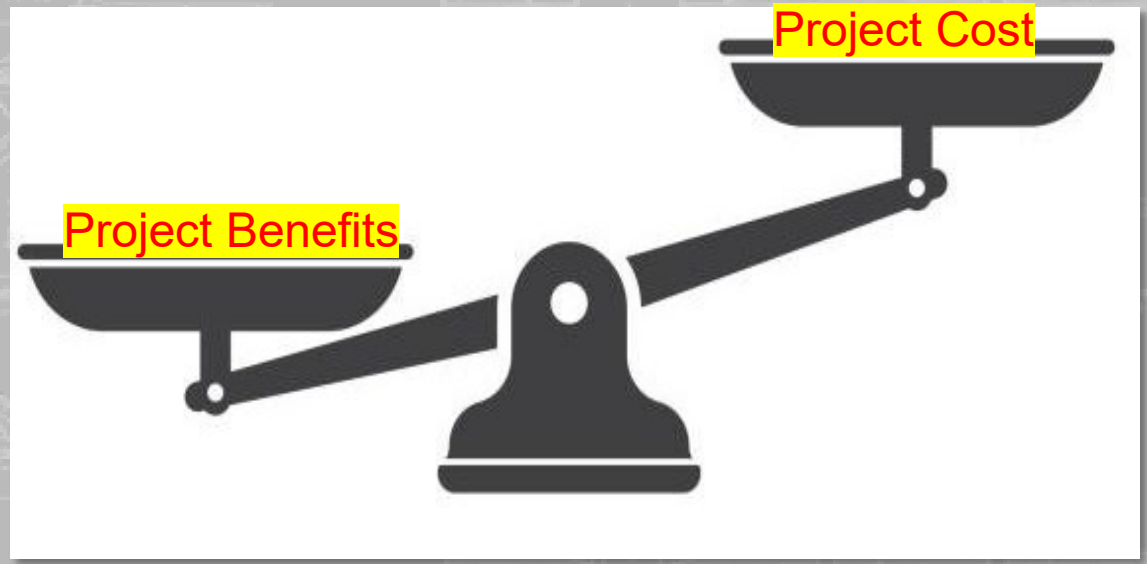
AUTHORITY AND LIMITS

- This study uses Section 205 of the Flood Control Act of 1948 as amended (33 U.S.C. 701s)
  - Maximum Federal Funds at any one locality are $10 million – so normally maximum Project + Design cost is $15 million
  - Total Project costs must be less than total project benefits for the economic life of the project.
  - Benefits come from flood risk reduction. Erosion protection is only allowed if it reduces the total cost of putting in and maintaining flood protection.



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DECIDING ON THE PROJECT THE GOVERNMENT WILL SUPPORT

- Maximize net benefits within the authority (National Economic Development)
- Also includes assessment of non-monetary benefits
- Project must be supported by the local sponsor – but Federal dollars for a locally- preferred project will be limited to the amount the Federally-defined best-value project would cost
- The locality of the project can be defined as a portion of a flood district if various stand-alone projects can be built based on their own benefits and costs – one at a time going through the process of study, design and construction.
  - If we notice this as we continue the study, we will identify that potential within the study.

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PROBLEM AND OBJECTIVES

Fluvial flooding in Talkeetna threatens critical infrastructure including the railroad bridges, public businesses, private residences, electrical facilities and other utilities, and historic properties, and creates hazards including impassable roads and the inability for emergency services to reach residents, placing the health and safety of the community in jeopardy within the 1% annual exceedance probability flood zone (100-year flood zone.)

Study Objectives:

- Reduce flood risk to health and safety for the community of Talkeetna for residents and tourists over the 50-year period of analysis.
- Reduce flood risk to critical infrastructure, private residences, and historic properties in the community of Talkeetna over the 50-year period of analysis.

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STUDY TIMELINE

Agreement Signed	July 2020 ✓
Scoping Meetings	Sep – Nov 2020 ✓
Initial Measures and Alternatives	Nov – Dec 2020 ✓
Model Results with Existing Data	February 2021 ✓
1st Public Participation Meeting	Mar – April 2021
Detail and Assess Alternatives	April – July 2021
Obtain new Survey and Data	May – July 2021
I.D. Tentatively Selected Plan	July 2021
2nd Public Participation Meeting	July 2021
Corps' Approval of "TSP"	August 2021
Review New Survey and Data	September 2021
Draft Report for Review	Oct – Nov 2021
3rd Public Participation Meeting	November 2021
Decide on changes to Report	November 2021
Rewrite Report	Nov 2021 – Jan 2022
4th Public Participation Meeting	December 2021
Final Report Corps Approved	April/May 2022

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Next: To get to Design and Implementation

PROJECT IMPLEMENTATION

When Study Looks Positive – Start Looking for Funding Sources to Maximize your Capability for Maximum Project Size ($15.38 million) Local funds required are about $5.38 million to maximize the program capability ($10 million maximum Federal expenditure.) Be ready to provide information on your ability to obtain the real estate required for the project.

When Study is Approved by Corps Division – Be ready to sign an Implementation Agreement and Certify that you have the funds to pay the local cost-share (35%) and can acquire the required property rights. Usually within 1-year after a positive report. Can be faster if sponsor is capable.

Design usually takes 12 – 24 months depending on the new data required.

Contract acquisition and Construction usually takes 18 -30 months (depending on when the contract is signed and the size of the project.) This follows directly after design if the sponsor has the funding for the cost-share and the lands have been acquired during the design work

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WHAT HAVE WE FOUND

- There are three separable locations
  - Downtown Talkeetna
  - East Talkeetna
  - Talkeetna River Subdivision
- There are floods that get all three locations wet
- There are structural solutions to prevent flooding
  - We do not have the costs for each of the alternatives yet
  - We do not have the estimated benefits for each alternative yet

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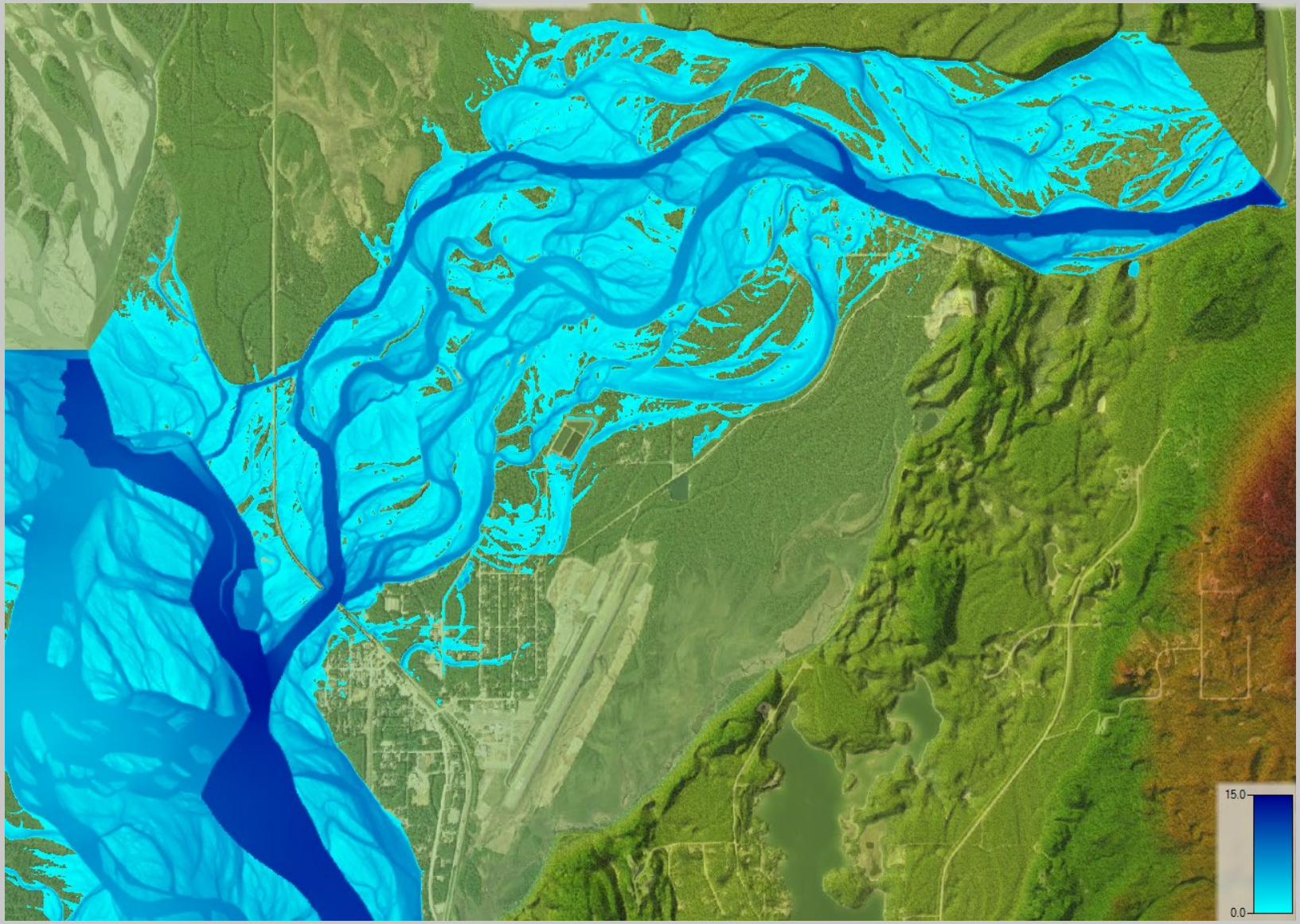
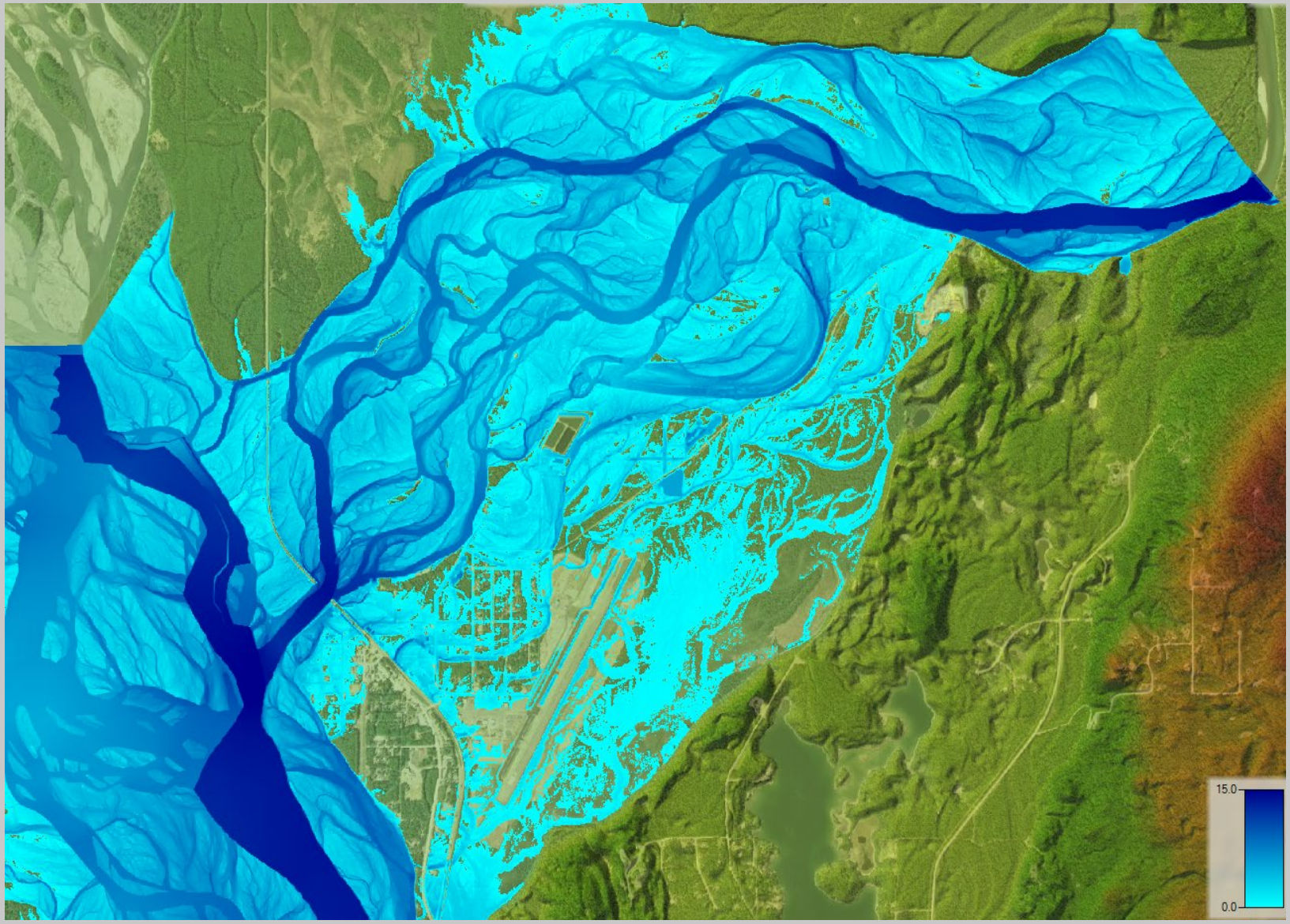
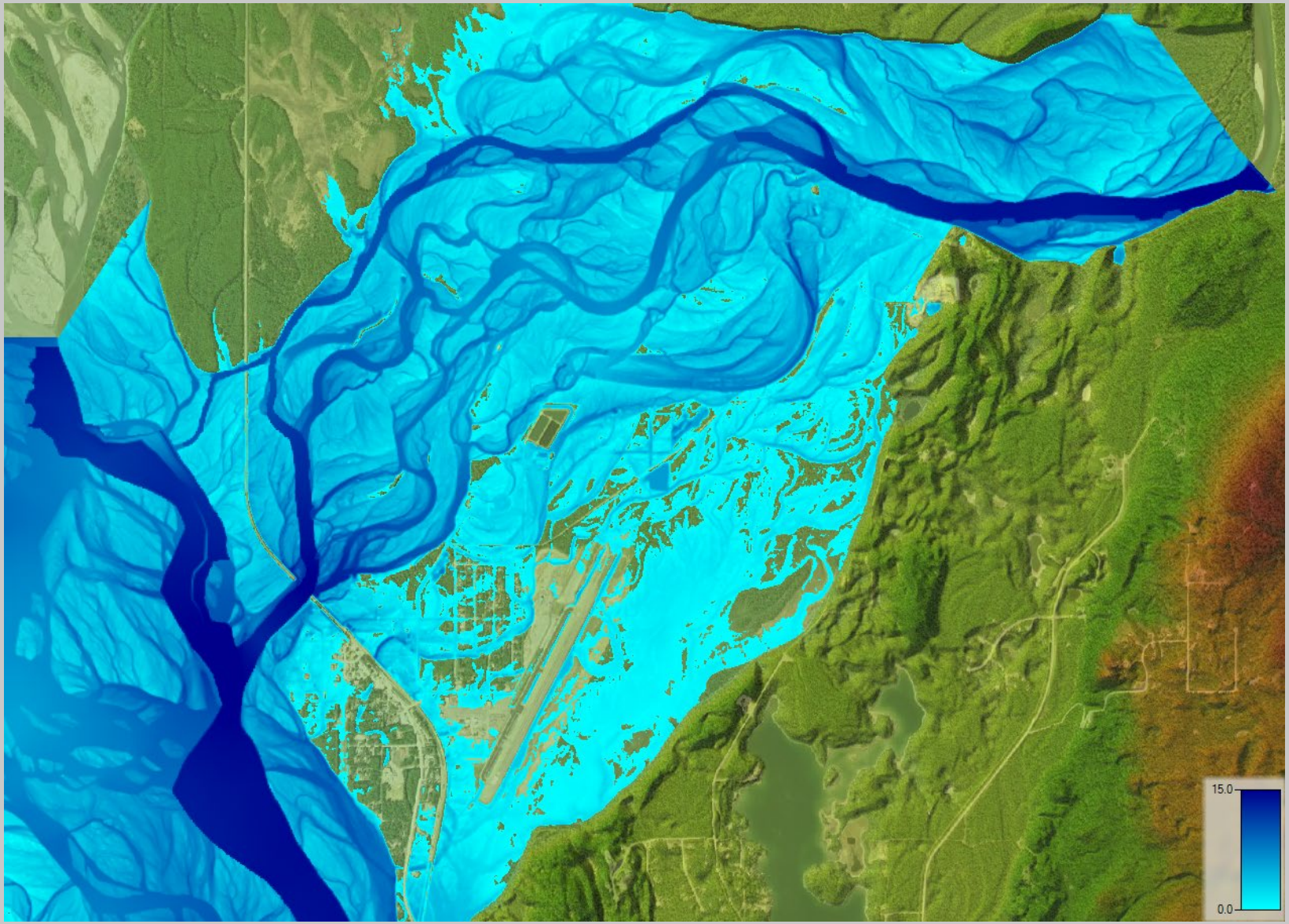
FLOOD INUNDATION IN TALKEETNA
10% ANNUAL EXCEEDANCE PROBABILITY



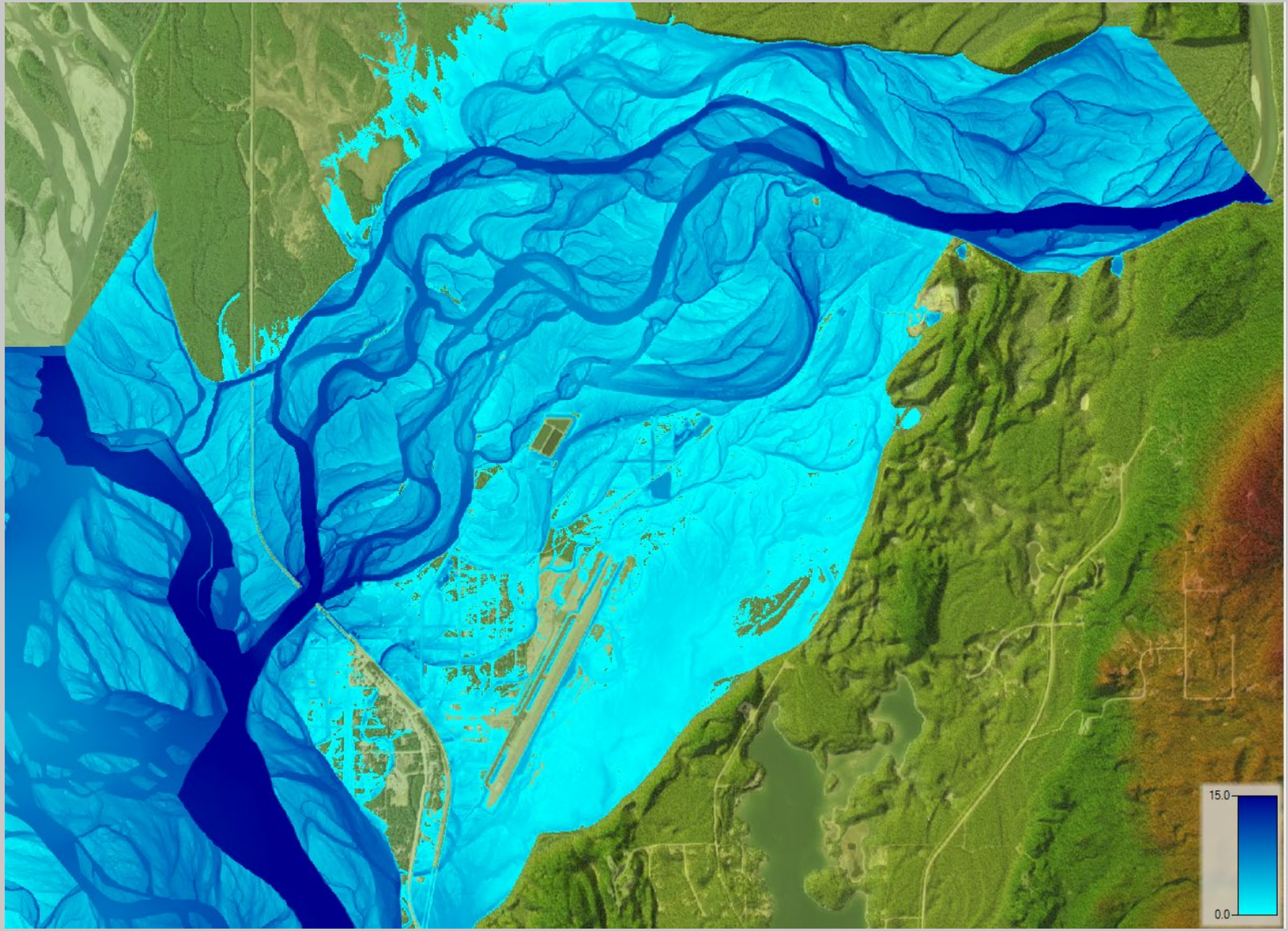
FLOOD INUNDATION IN TALKEETNA
2% ANNUAL EXCEEDANCE PROBABILITY



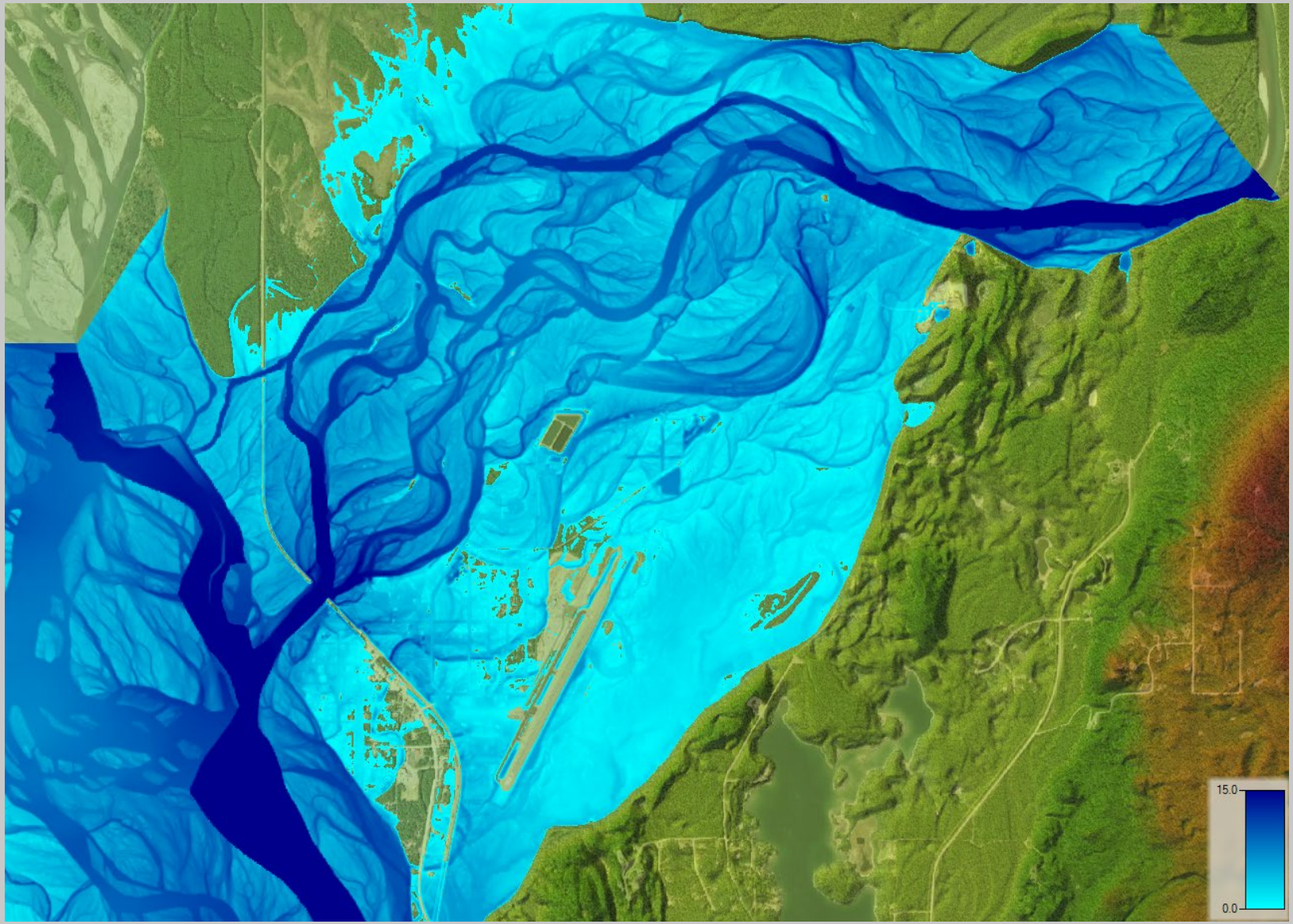
FLOOD INUNDATION IN TALKEETNA
1% ANNUAL EXCEEDANCE PROBABILITY



FLOOD INUNDATION IN TALKEETNA
0.5% ANNUAL EXCEEDANCE PROBABILITY



FLOOD INUNDATION IN TALKEETNA
0.2% ANNUAL EXCEEDANCE PROBABILITY



ENVIRONMENTAL RESOURCES

National Environmental Policy Act and Public Engagement

Throughout the Feasibility Study

It is important that the Corps continues to receive information about (and remains aware of): public concerns on issues; public opinion of value, cost of, and environmental concerns regarding the examined alternatives; and unexamined alternatives that should be studied.

- U.S. Army Corps of Engineers Procedures for Implementing NEPA 33 CFR 230.

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MEASURES DEVELOPMENT

- Twenty-eight measures were identified during the charrette
- Seven non-structural measures were considered and four are being carried forward
- Twenty-one structural measures were considered and four are being carried forward

Measures Carried Forward	Description
Buy-out flood prone properties	Non-Structural
Relocate portions of the Talkeetna River Subdivision (TRS)	Non-Structural
Flood-proof structures	Non-Structural
Zoning	Non-Structural
Levee	Structural
Ring Levee	Structural
Raise Existing Dike	Structural
Flood wall	Structural
Extend the existing dike	Structural

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ALTERNATIVES DEVELOPMENT

- Fourteen alternatives were developed during the charrette along with the no-action or future without-project condition.

- Four alternatives are being carried forward along with the no-action plan for further evaluation.

Alternatives Carried Forward	Description
No-Action	N/A
Non-Structural	Buyout/relocations, flood proof/raise structures to 2 ft above the base flood elevation
Levee and Non-Structural at Talkeetna River Subdivision (TRS)	Levee, raise the existing dike, flood-proof, buy-out/relocation of a portion of the TRS, zoning
Levee and Flood Wall at TRS	Levee, raise the existing dike, flood wall
Ring Levee and Non-structural at TRS	Ring levee around downtown Talkeetna, flood-proof, buy-out/relocation of a portion of the TRS, zoning
Non-structural in Downtown Talkeetna and Flood Wall at TRS	Flood wall at TRS, flood-proof, buy-out/relocation, zoning in Downtown Talkeetna

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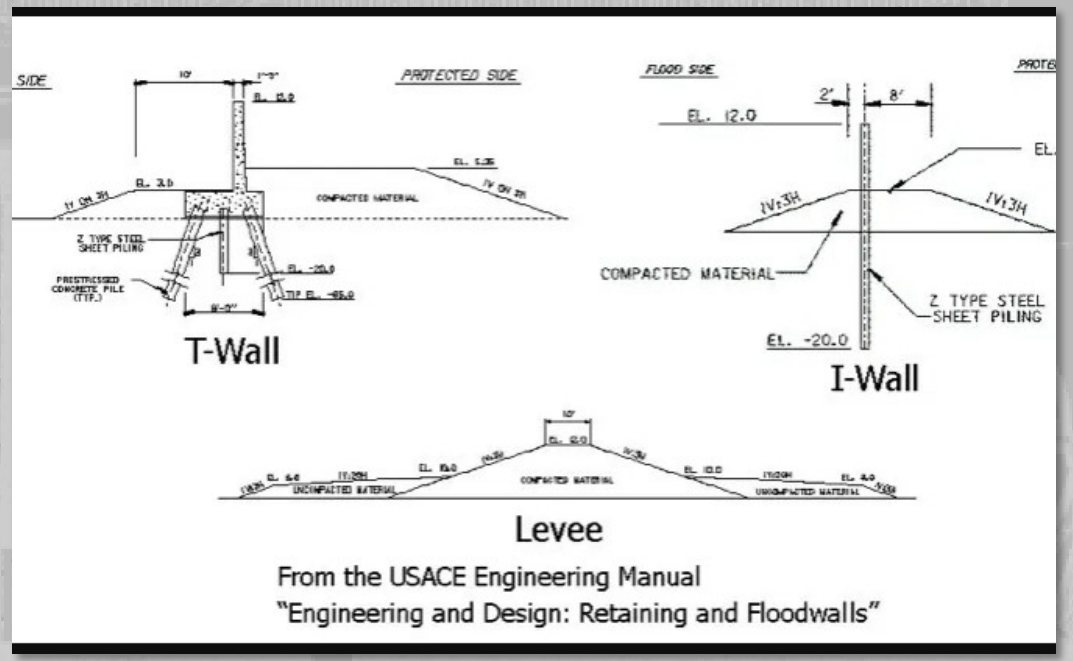
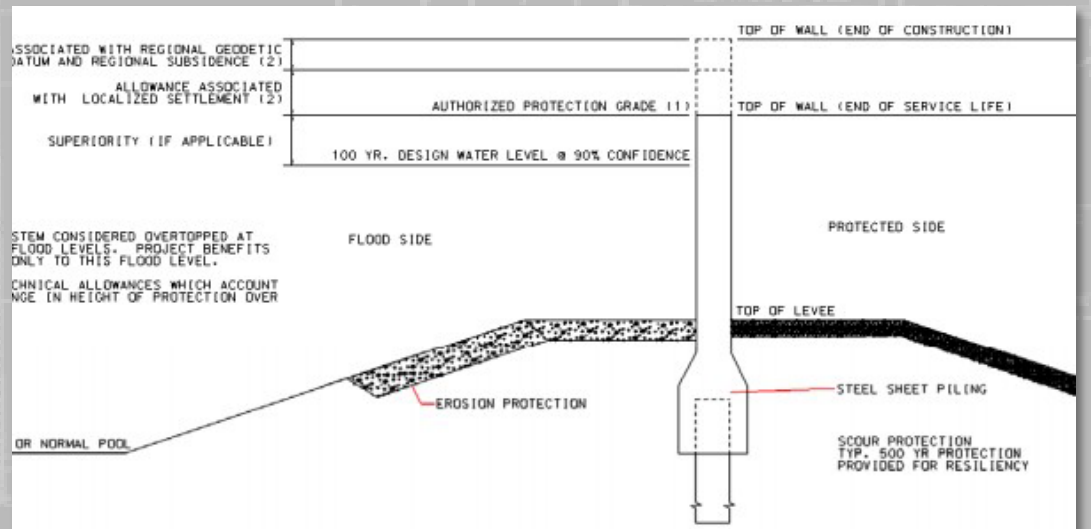
DESIGN OF PROTECTIVE WORKS

- Levees or dikes may be protected against erosion on the side that has the river flooding against it and may be protected on the inside also to prevent erosion from torrential rains or overtopping during floods.
- Floodwalls also need to be protected against erosion on the river side to prevent erosion from removing the soils that allow it to stand up against the pressure of the floodwater. They also need a splash pad on the inside in case of overtopping to prevent the falling water from excavating a hole on the inside and letting the wall collapse.
- All protective works need access for flood fighting and repairs.



From the USACE Engineering Manual
"Engineering and Design: Retaining and Floodwalls"



CROSS SECTION OF LEVEE/FLOODWALL
USING RISK BASED CONCEPTS

100 YR I-WALL (INLAND)

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PROTECTIVE WORKS

We also modelled the effect of placing a floodwall, levee, or dike designed to protect against the 1% event. The next few slides will show how that impacts flooding in Downtown Talkeetna, East Talkeetna and the Talkeetna River Subdivision.

Protective works are planned to develop the maximum net benefits, so they are not built higher than the highest flood level that continues to add more benefits above the incremental cost of protection. This means there will always be a risk from flood damages, even with flood protective works in place. That is why you will still need flood insurance after protective works are constructed, but it will cost less because the risk of damage is much lower.

Flood-proofing and relocation are individual actions that can be done to reduce the risk of flood damages to specific homes or business locations. These are usually more cost-effective when the flood depths are less than 3-feet and the density of structures is low (smaller number of houses per 1,000 feet of levee.)

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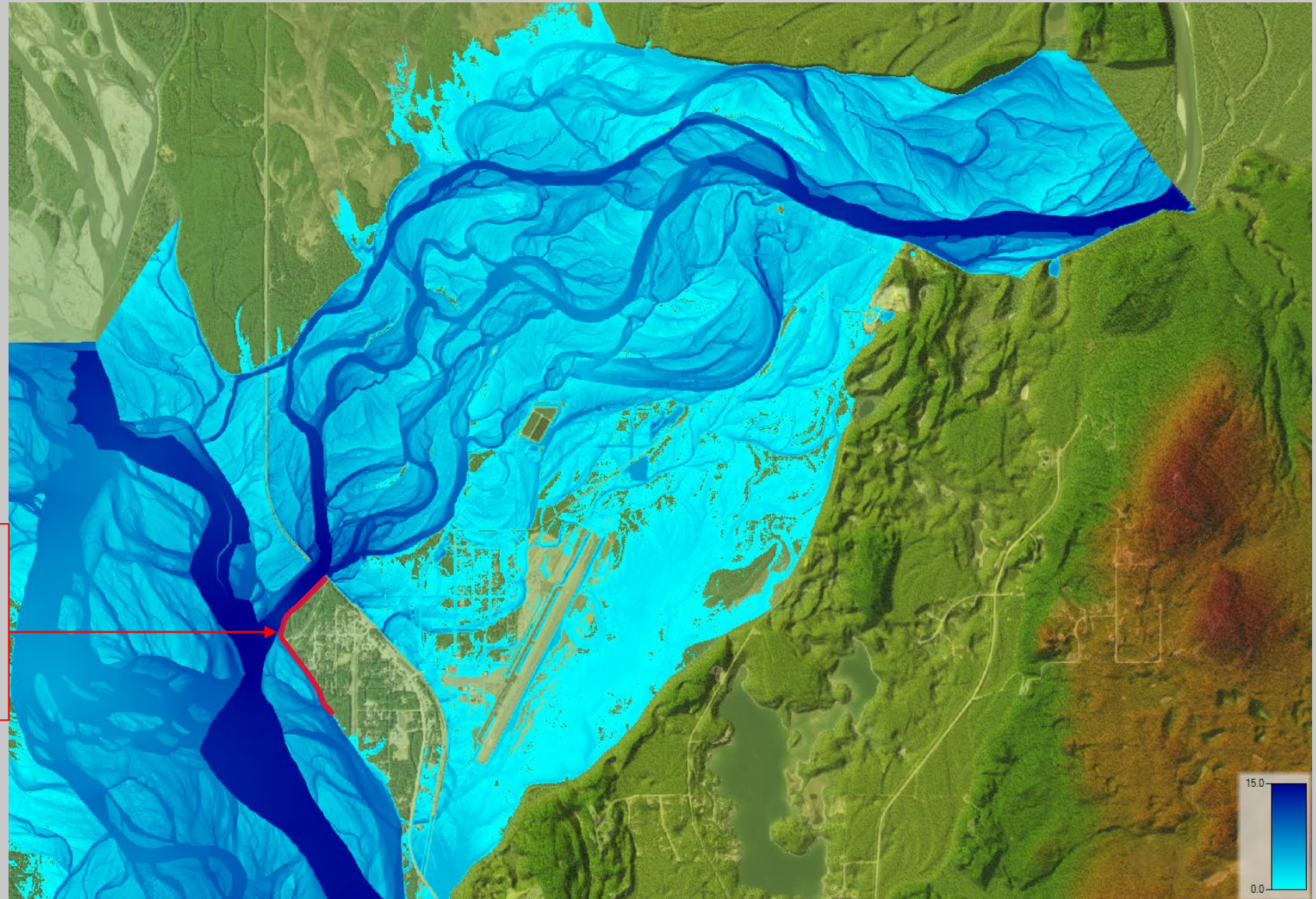
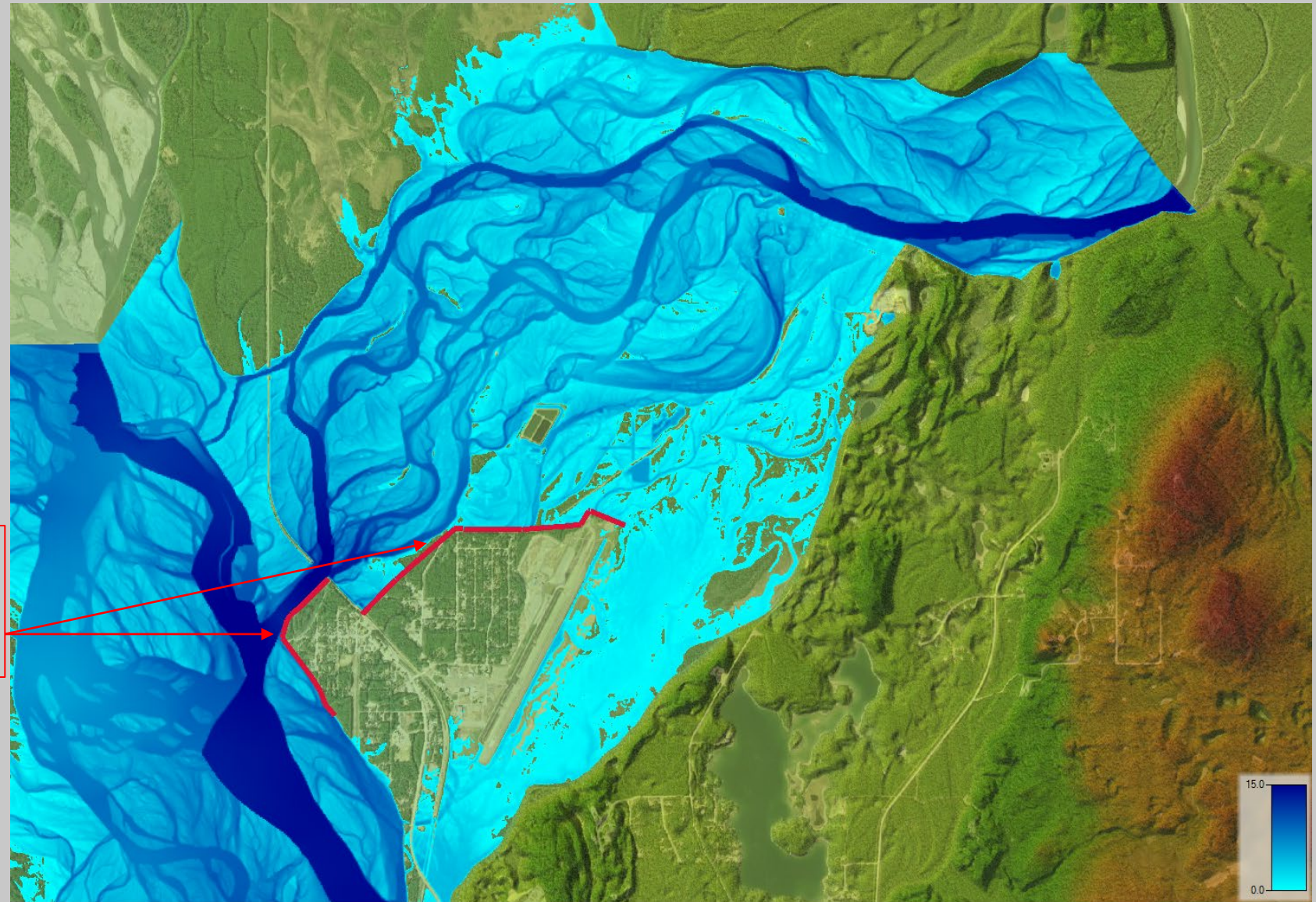
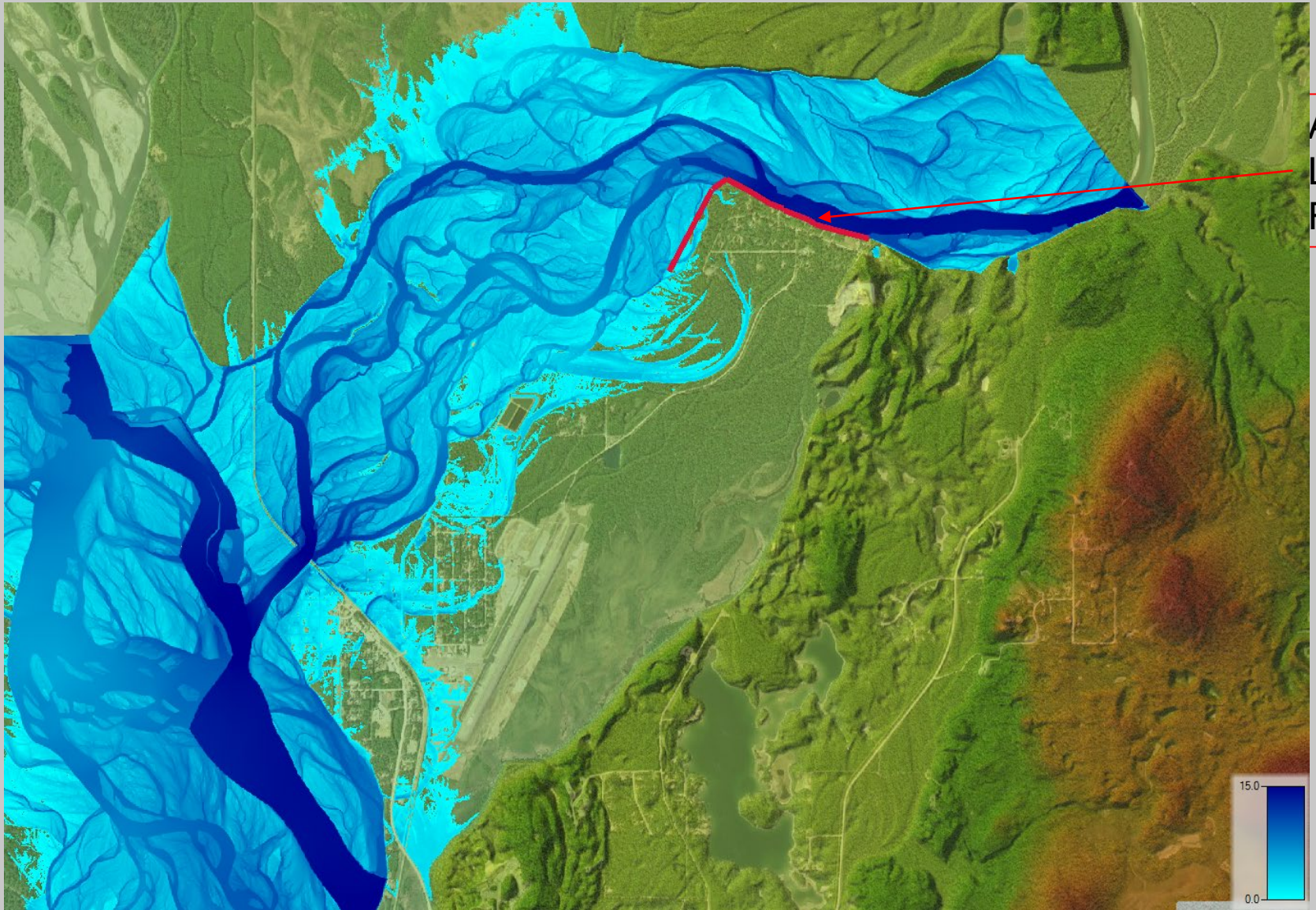
FLOOD INUNDATION IN TALKEETNA
1% ANNUAL EXCEEDANCE PROBABILITY
DOWNTOWN LEVEE



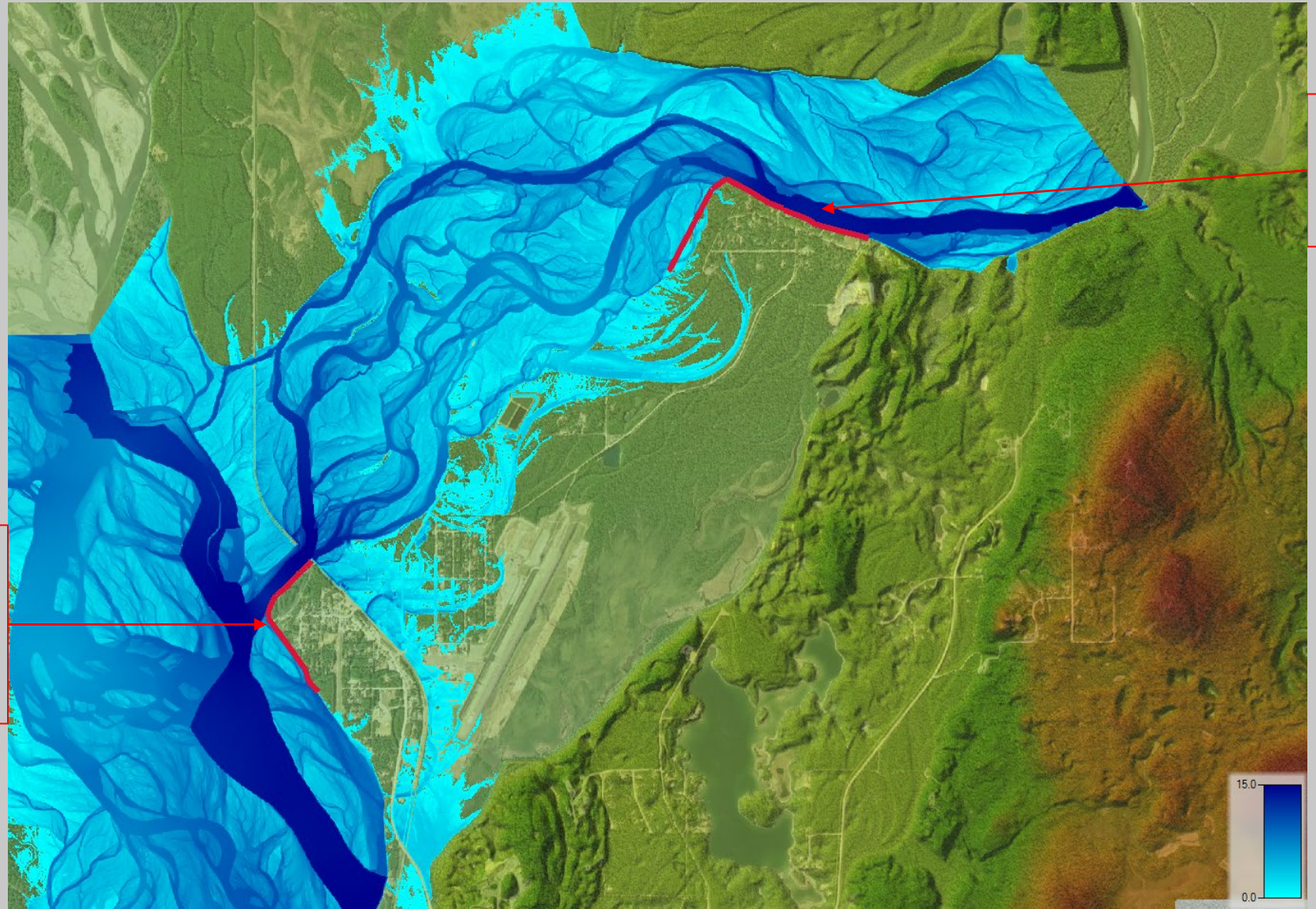
FLOOD INUNDATION IN TALKEETNA
1% ANNUAL EXCEEDANCE PROBABILITY
RING LEVEE



FLOOD INUNDATION IN TALKEETNA
1% ANNUAL EXCEEDANCE PROBABILITY
TALKEETNA RIVER SUBDIVISION (TRS) FLOODWALL

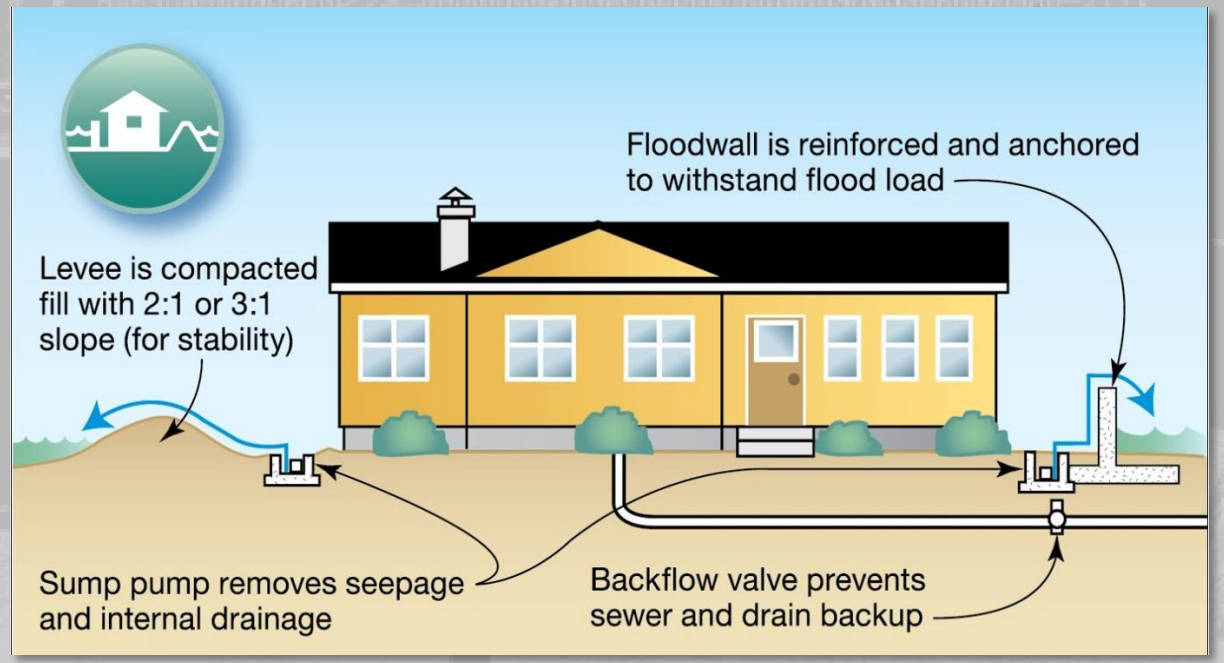


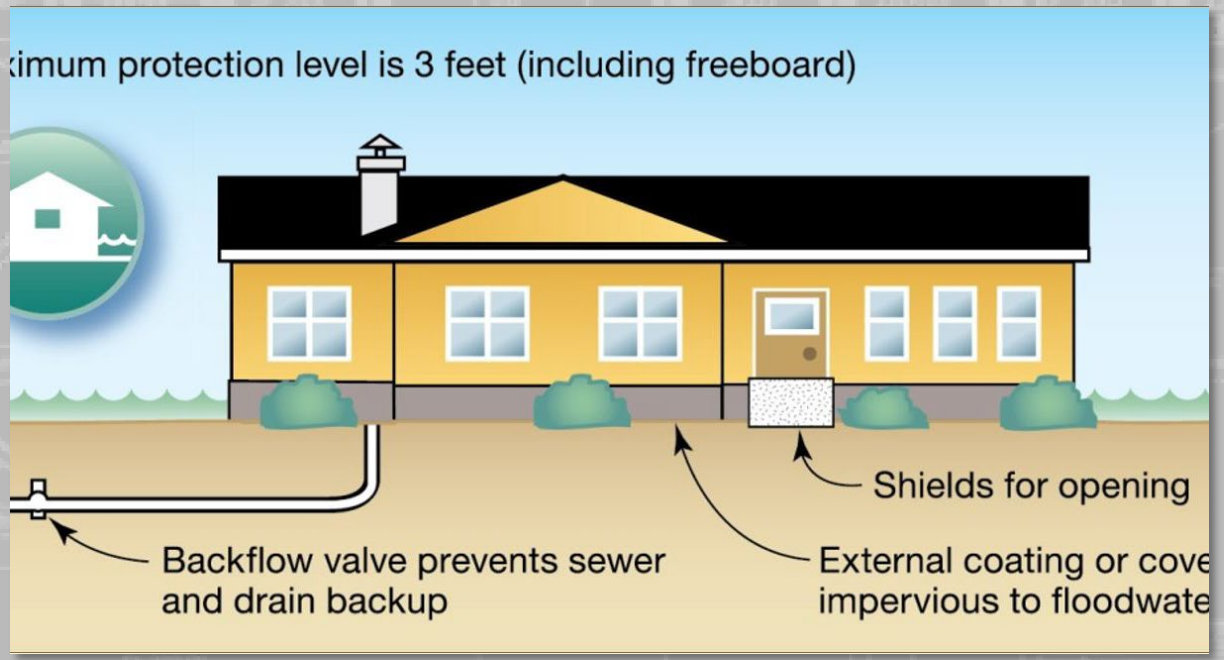
FLOOD INUNDATION IN TALKEETNA
1% ANNUAL EXCEEDANCE PROBABILITY
DOWNTOWN LEVEE AND TRS FLOODWALL



NON-STRUCTURAL SOLUTIONS

- Floodproofing: These are house by house solutions to flooding. The actions can include raising the elevation of the first floor, protecting the structure by a floodwall or dike around the house, or making the lower walls of the house waterproof and making sure they are strong enough for the anticipated flood levels
- Relocation: This is moving the structure to a new locations that is not subject to flooding. This is difficult in a community that is built on a flood plain





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QUESTIONS / COMMENTS

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