SALT CREEK

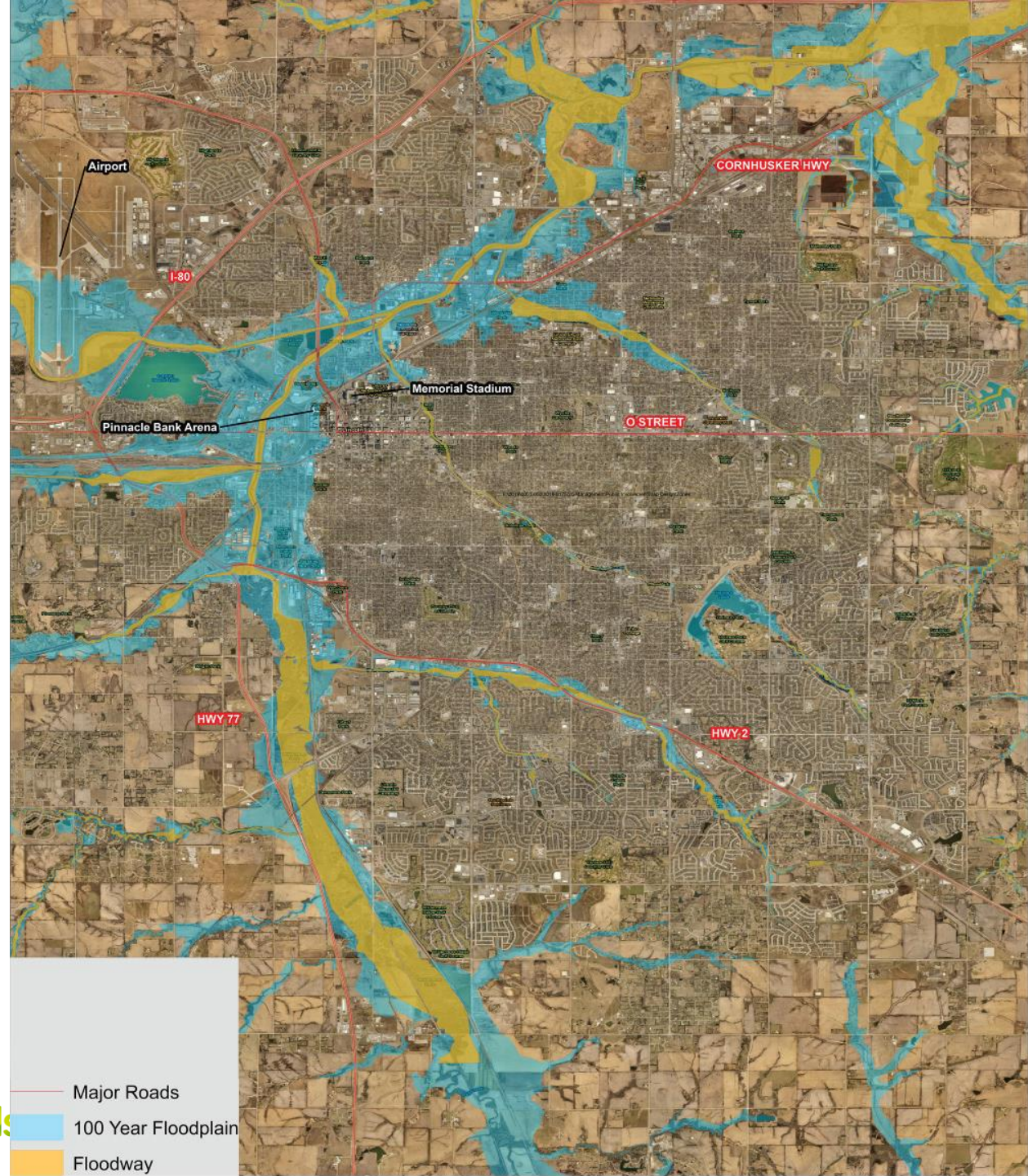
FLOODPLAIN RESILIENCY STUDY

CITY OF LINCOLN NEBRASKA | LOWER PLATTE SOUTH natural resources district | olsson | Michael Baker INTERNATIONAL | SK SEACREST & KALKOWSKI, PC, LLO

Welcome

Agenda

1. Stakeholder Meeting 1 Review
   - Review sheet
2. Salt Creek Floodplain Resiliency Study
   - Floodplain Best Management Practices
   - Best Management Practices Resources
3. Climate data and evaluation
   - Climate Evaluation summary sheet
4. Non- Structural Floodplain Measures
   - Summary Sheet
5. Structural Floodplain Measures
6. Funding Information
   - Summary Sheet
7. Wrap-up



Goal of the salt creek resiliency study

Evaluate adverse impacts from flooding to life and property from existing and future flood events.

Stakeholder Meeting 1

Summary

- Study
- Floodplain
- Precipitation
- Streamflow
- Levees
- Reservoirs
- Detention

Best Management Practices BMPs

What is floodplain management?

What are “Non-structural” floodplain management measures?

What are “Structural” floodplain management measures?

How can I get more information about BMPs?

BMP Resources

SALT CREEK FLOODPLAIN RESILIENCY STUDY

PUBLIC OUTREACH AND EDUCATION

Source: Federal Emergency Management Agency and Army Corps of Engineers

Topic: **Levee**

Resources:

- What is a Levee
- So, You Live Behind A Levee
- Living with Levees: Ideas Effective Outreach
- National Levee Database

Reason: According to the National Levee Database, Salt Creek levee systems are associated with 1,229 structures at risk, 5,912 people at risk, and $847 million in property value. Effective outreach to residents affected by these levee systems could significantly improve flood preparedness and resiliency.

Opportunity: Lincoln could develop its own fact sheet that is specifically tailored to the Salt Creek levee systems.

Source: National Oceanic and Atmospheric Administration (NOAA)

Topic: **Disaster Preparedness**

Resources:

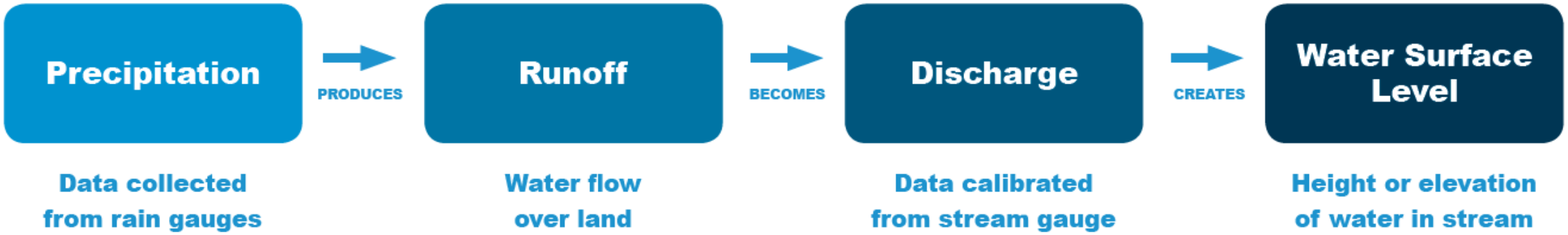
- Weather Ready Nation Website
- National Weather Service Flood Related Products
- Weather Ready Nation Ambassadors: In Their Own Words
- NOAA National Weather Service Flood Safety Tips and Resources
- Preparation Before a Flood
- Informed Response During a Flood
- Proper Action After a Flood

Reason: Preparation and awareness are critical before, during, and after a disaster.

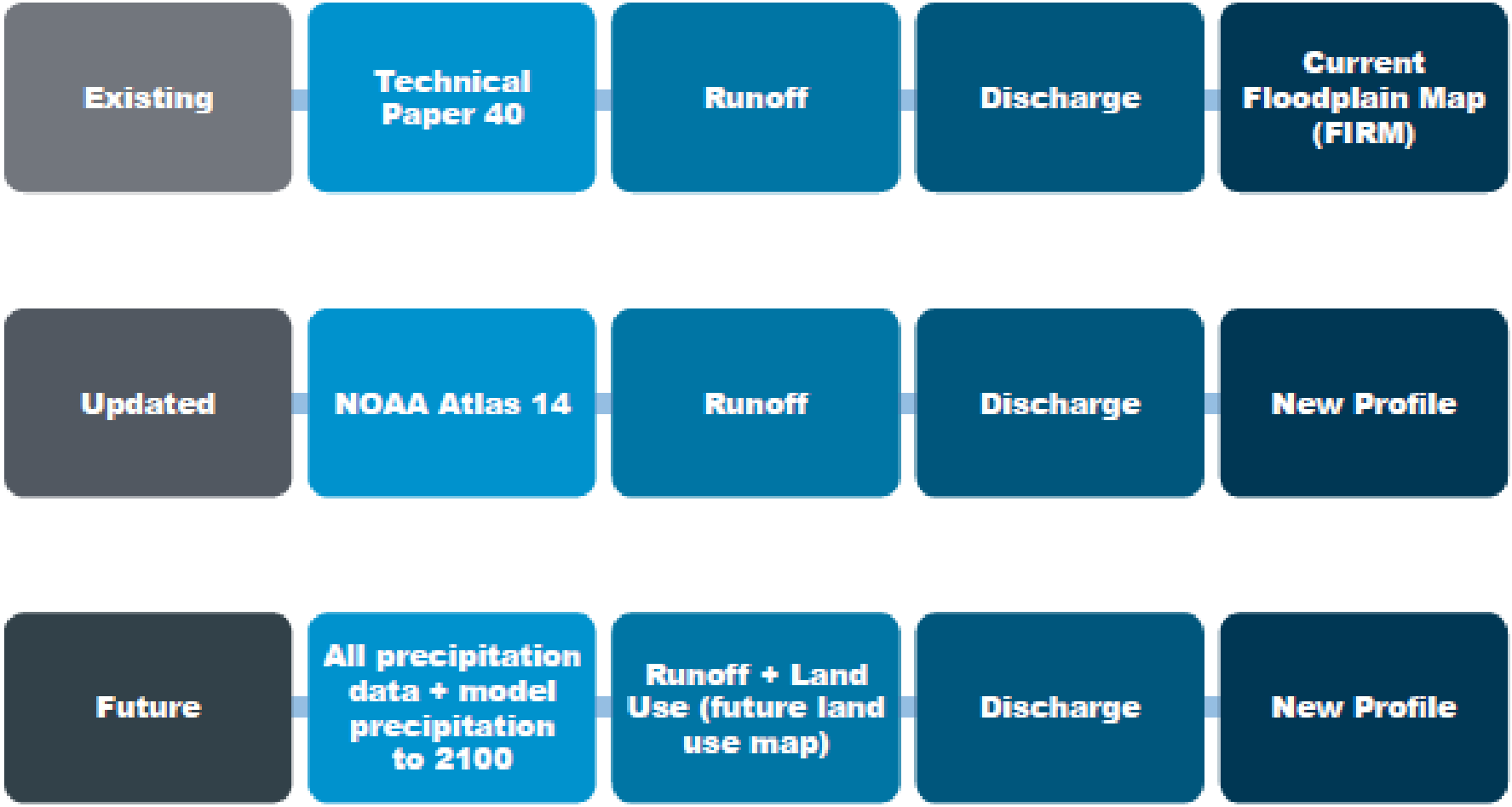
Opportunity: Institutionalizing NOAA's Weather Ready Nation principles can help the City of Lincoln increase its resilience to extreme weather and flooding.

How are floodplain maps created?

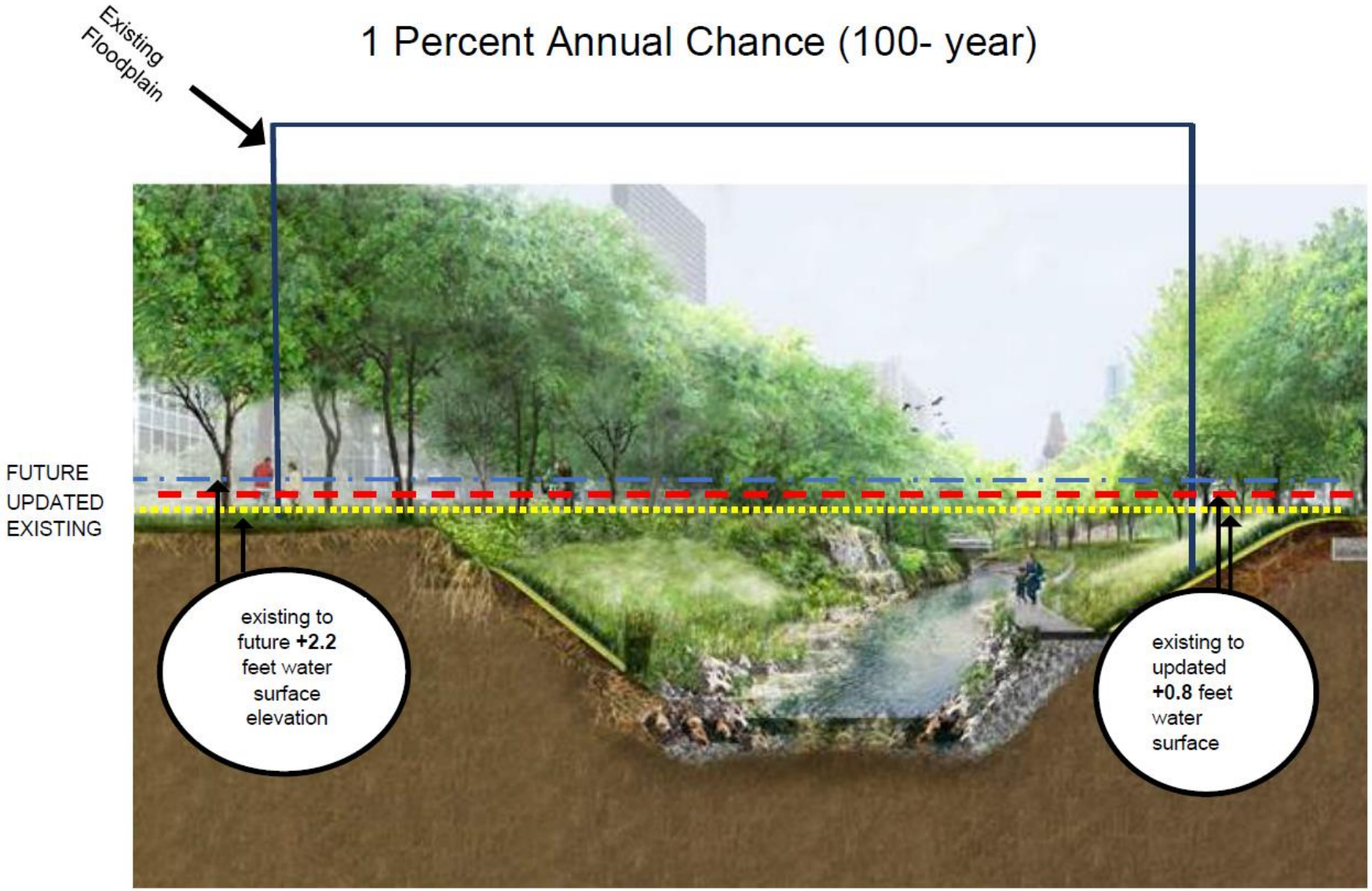
Hydrology and Hydraulic Analysis



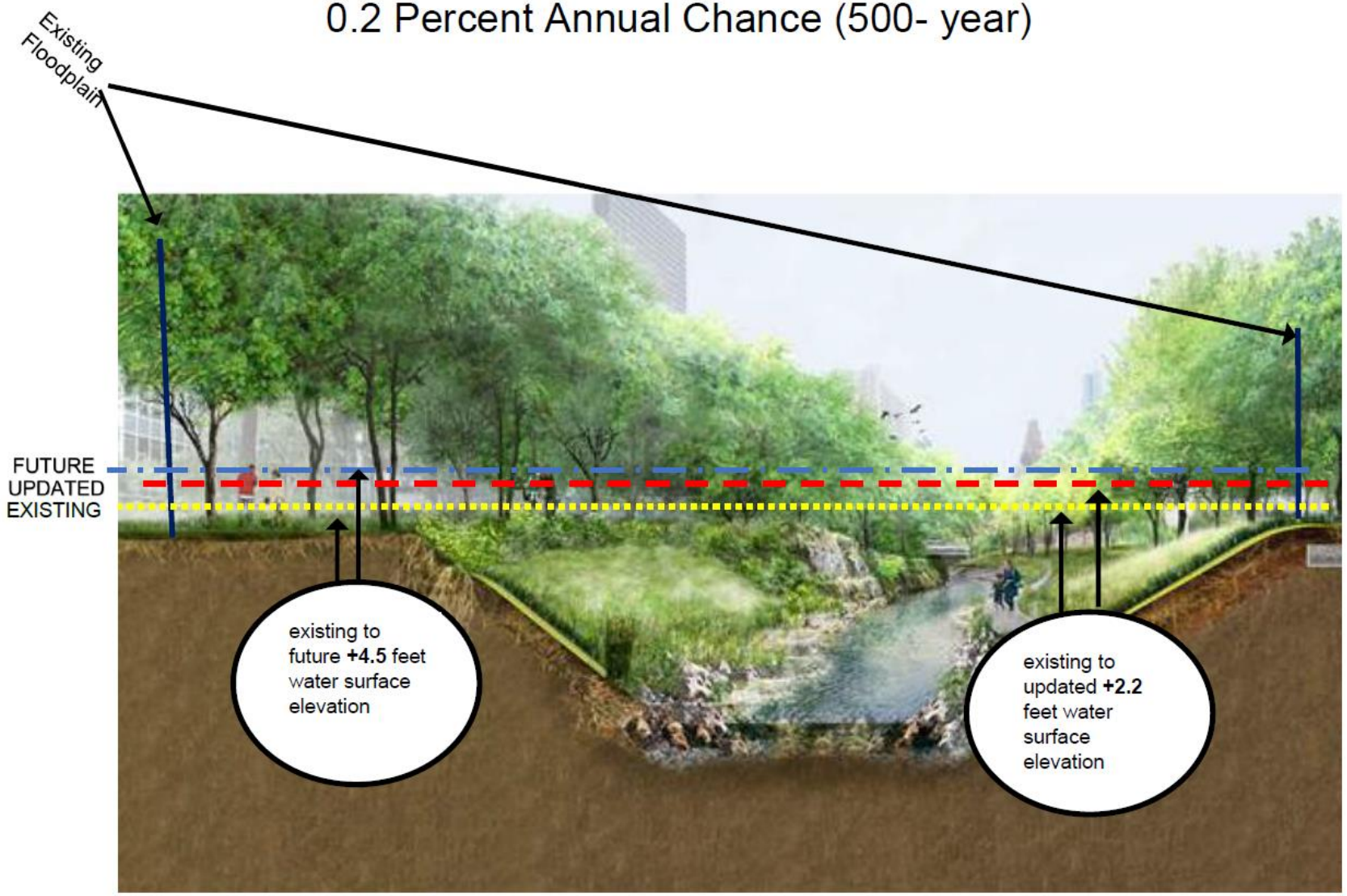
Floodplain Models



1 Percent Annual Chance (100- year)



0.2 Percent Annual Chance (500- year)



What is the difference between the **existing** and **updated** floodplain conditions?

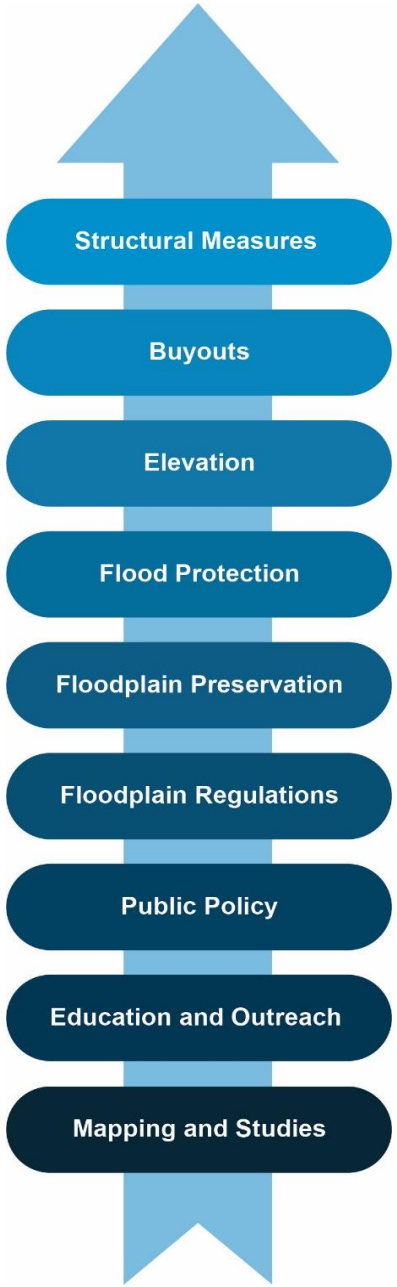
When compared to the **“existing” floodplain condition:**

- **“updated”** conditions shows that discharges are approximately 12% higher for the one percent (100-year) annual chance flood
- **“updated”** conditions shows that discharges are approximately 27% higher for the .2 percent (500-year) annual chance flood

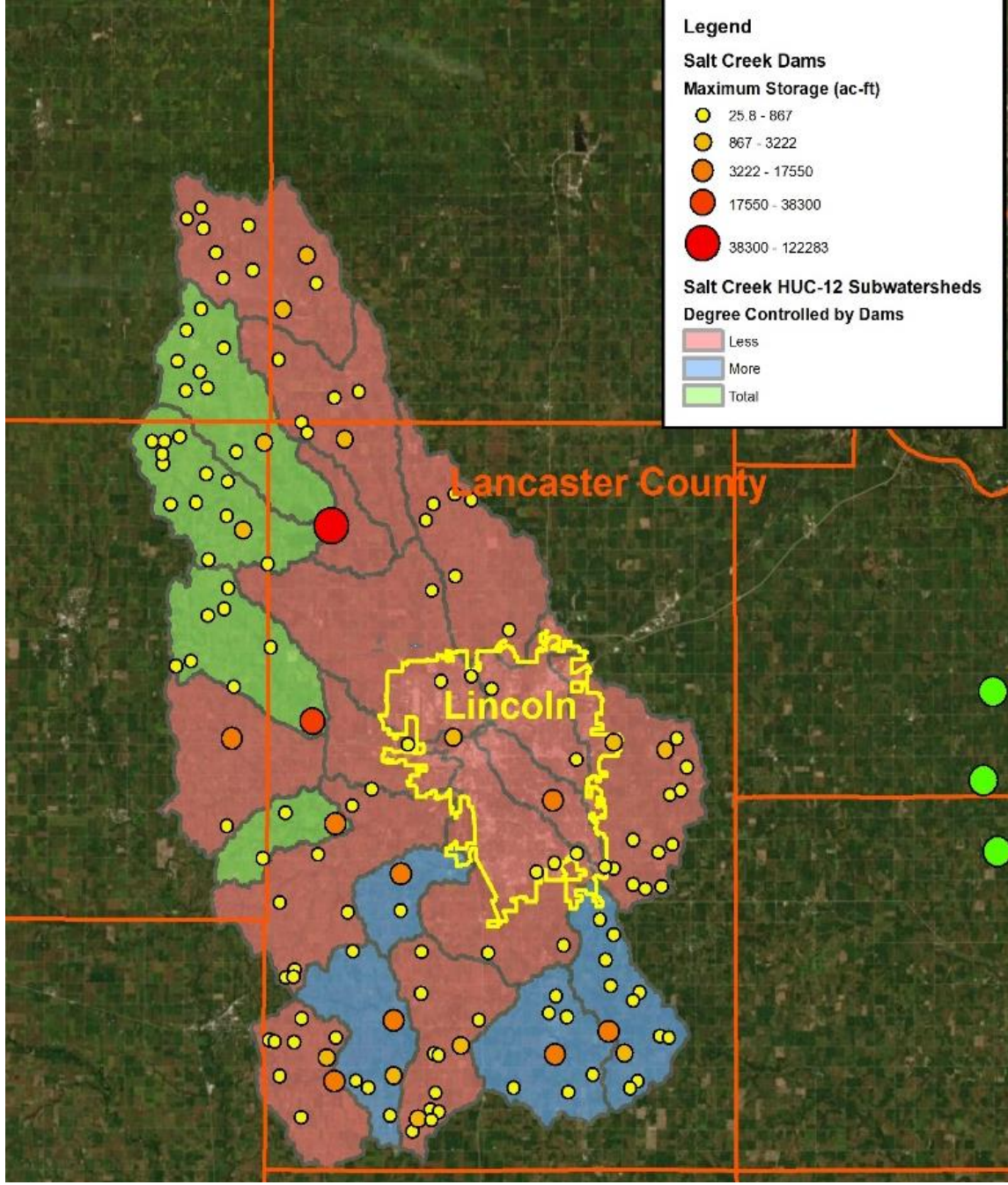

Questions

Non-Structural Recommendations

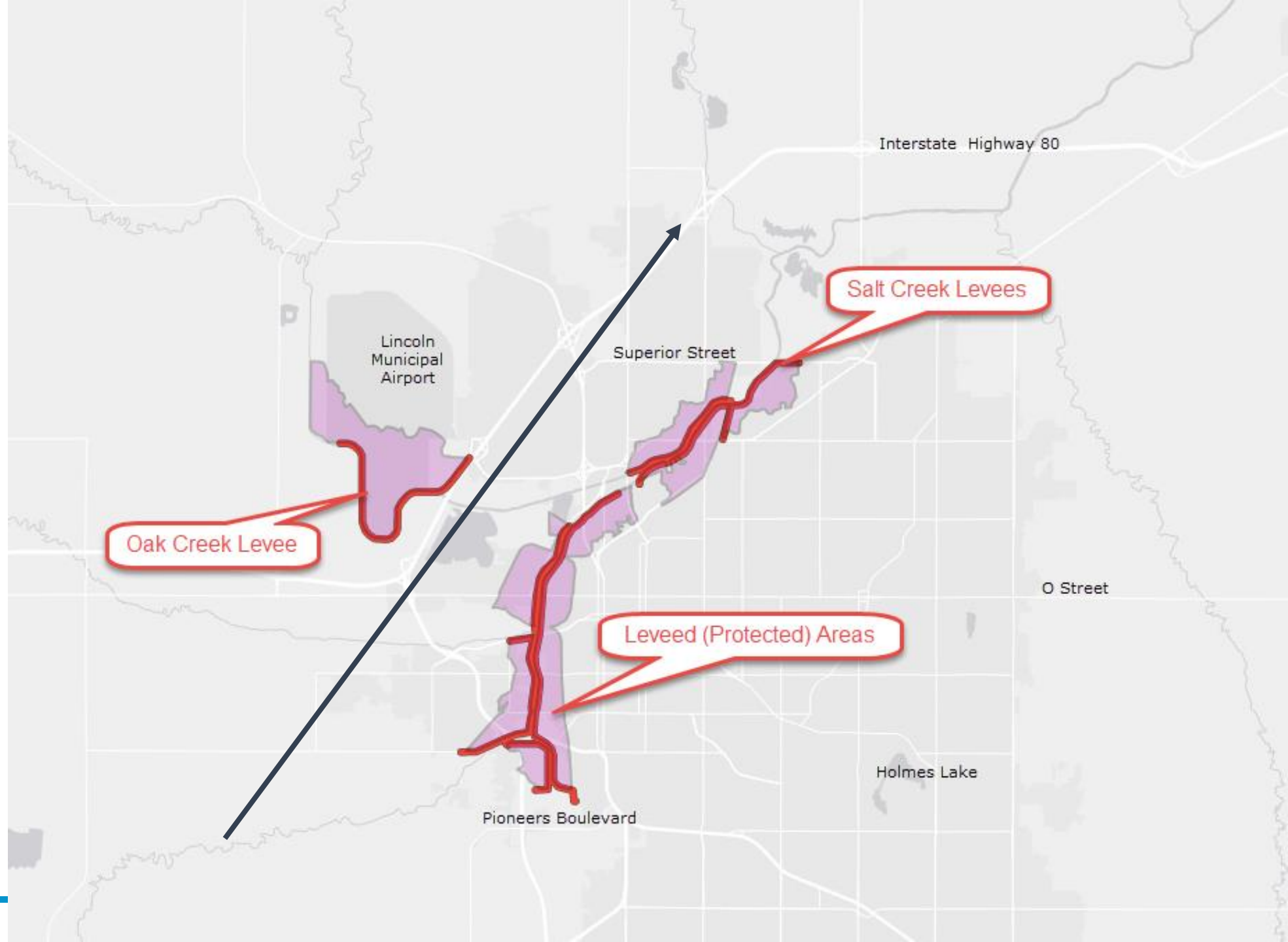
- Voluntary Buyout Program
- Setbacks and Riparian Preservation
- Cluster Subdivisions
- Overlay Zoning District
- Low Impact Development Regulations
- Higher Floodplain Management Standards



Existing Structural Measures



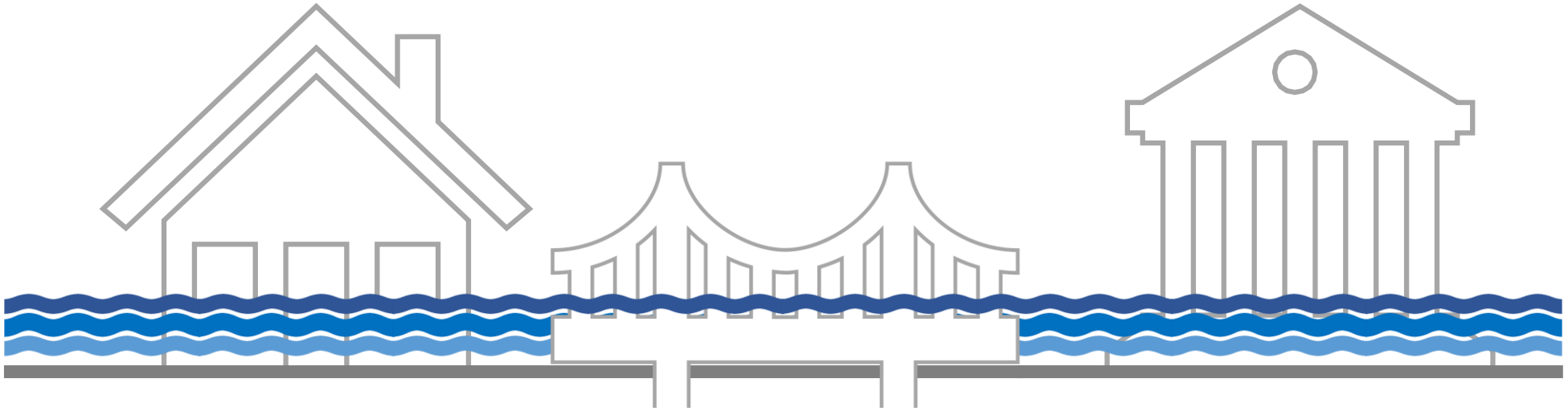
Salt Creek Floodplain Study Results



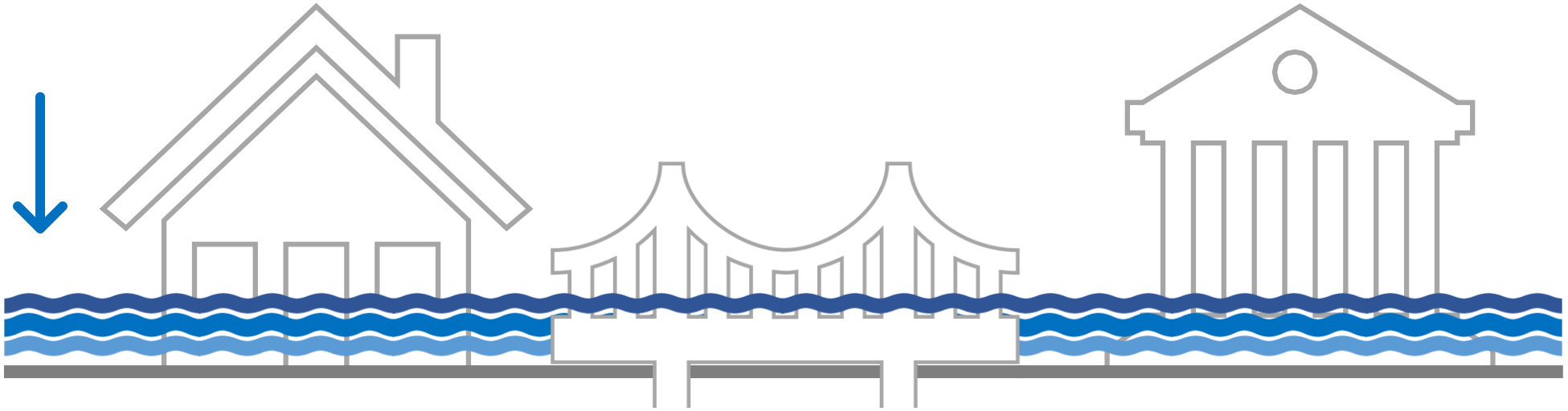
Streamflow south to north

EXISTING FLOODPLAIN

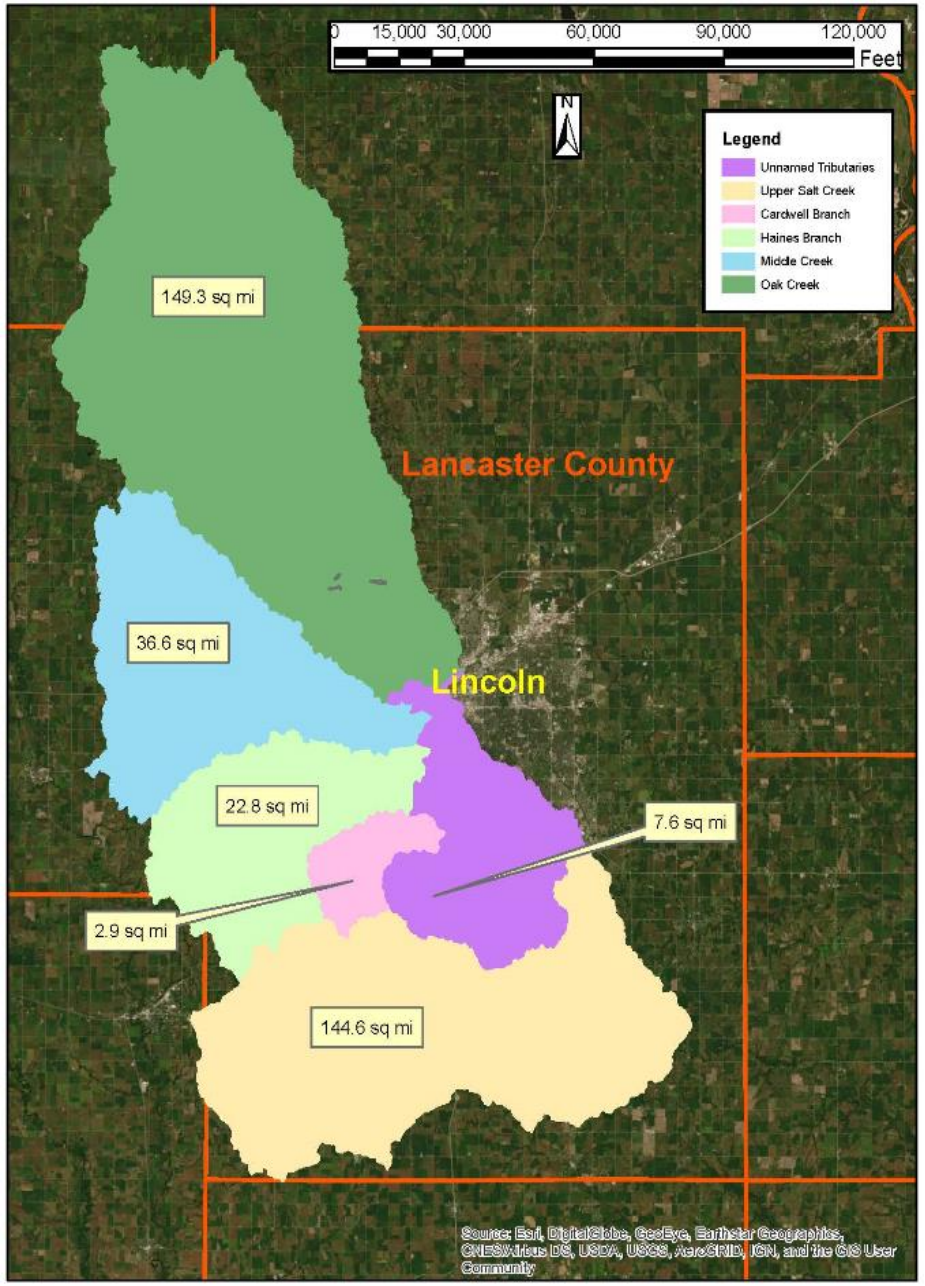
EXISTING FLOODPLAIN
UPDATED FLOODPLAIN

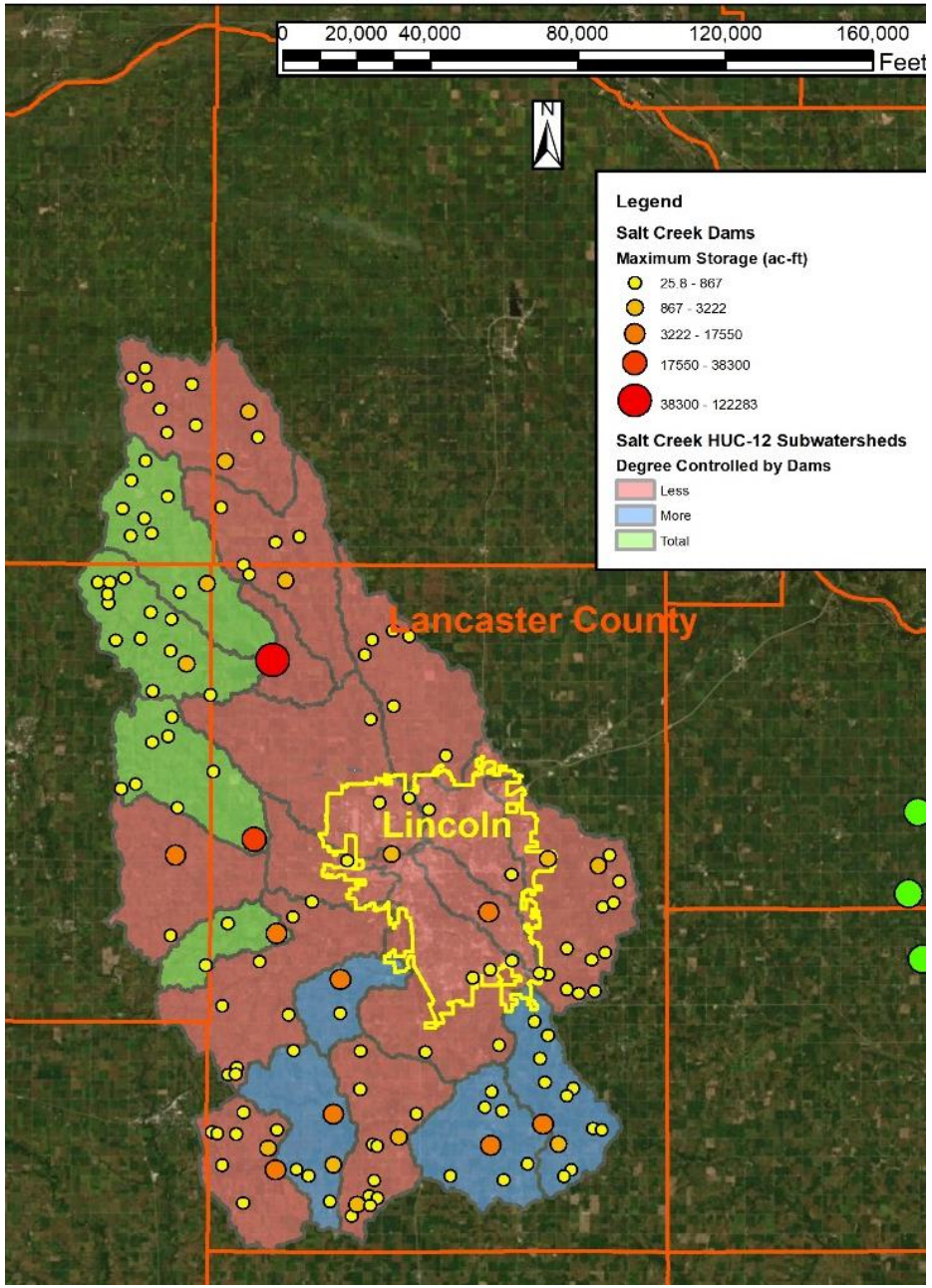


EXISTING FLOODPLAIN
UPDATED FLOODPLAIN
FUTURE FLOODPLAIN



To preserve the updated condition, 16 flood control structures in the Salt Creek basin were conceptually analyzed.


0 15,000 30,000 60,000 90,000 120,000
Feet
N
Legend
Unnamed Tributaries
Upper Salt Creek
Cardwell Branch
Haines Branch
Middle Creek
Oak Creek
149.3 sq mi
Lancaster County
36.6 sq mi
Lincoln
22.8 sq mi
7.6 sq mi
2.9 sq mi
144.6 sq mi
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


0 20,000 40,000 80,000 120,000 160,000
Feet
N
Legend
Salt Creek Dams
Maximum Storage (ac-ft)
25.8 - 867
867 - 3222
3222 - 17550
17550 - 38300
38300 - 122283
Salt Creek HUC-12 Subwatersheds
Degree Controlled by Dams
Less
More
Total
Lancaster County
Lincoln

Funding Opportunities

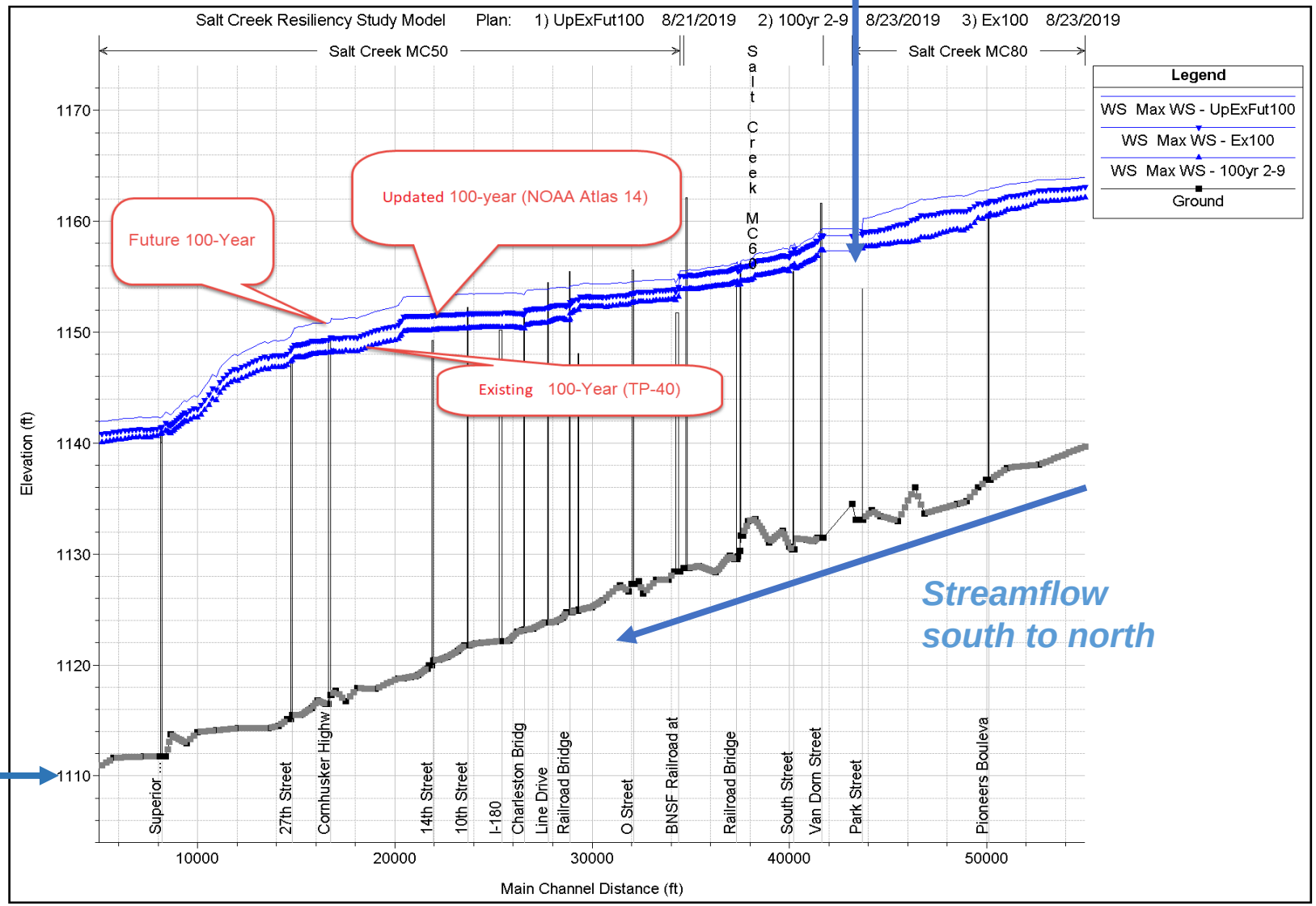
- Federal Emergency Management (FEMA)
- United States Army Corps of Engineers (USACE)
- Natural Resource Conservation Service (NRCS)
- Nebraska Natural Resource Commission (NRC)
- Nebraska Environmental Trust (NET)
- Nebraska Department of Environment and Energy (NDEE)


Questions

Salt Creek without Structural Flood Control

Flood profiles of Salt Creek Levee area 100 year (1%)

Salt Creek channel ground level

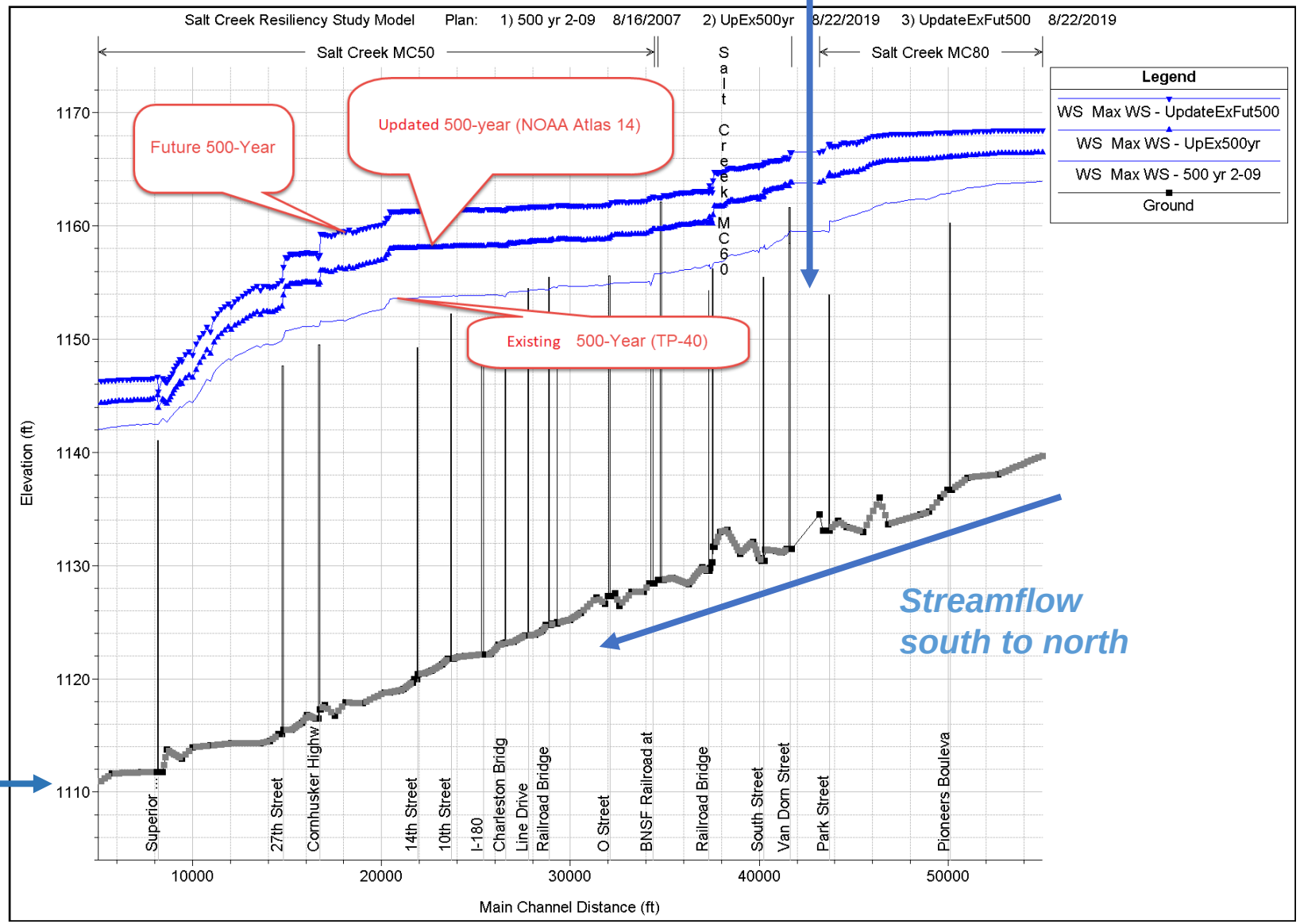


Salt Creek without Structural Flood Control

Flood profiles of Salt Creek Levee area 500 year (.2%)

Salt Creek channel ground level

Bridge height



Streamflow south to north