FEMA

Workmap Meeting

Franklin & Orleans Counties, VT
Lake Champlain Watershed
Otter Creek Watershed - Addison County only

Tuesday, April 8, 2025, at 9:00AM

Virtual Town Breakout Meetings: Thursday, April 10, 2025 and Wednesday, April 16, 2025

RiskMAP
Increasing Resilience Together

Introductions

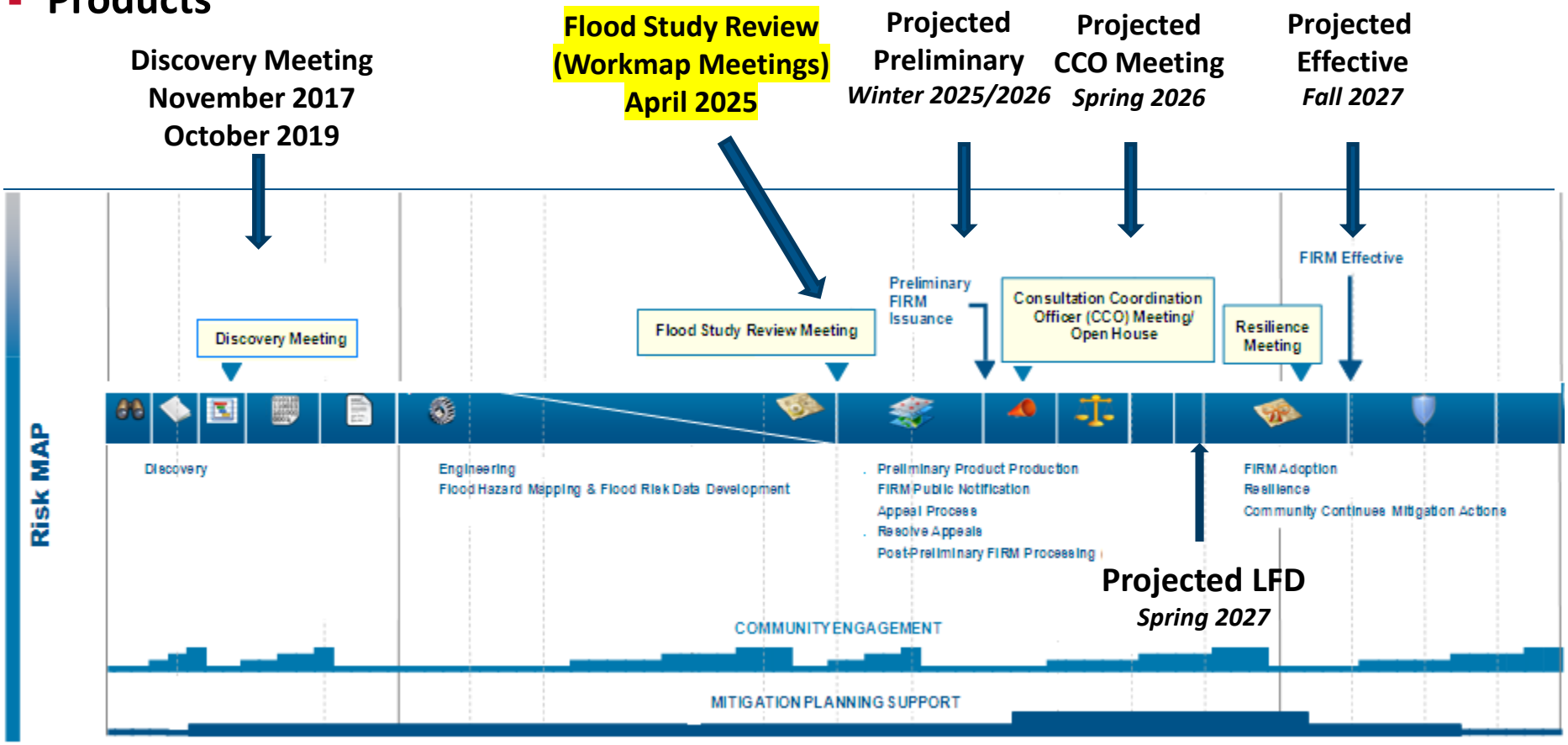
- Brief overview of study
- Why are we here?
  - Review work maps with communities
  - Breakout session with individual communities

Involvement from Communities

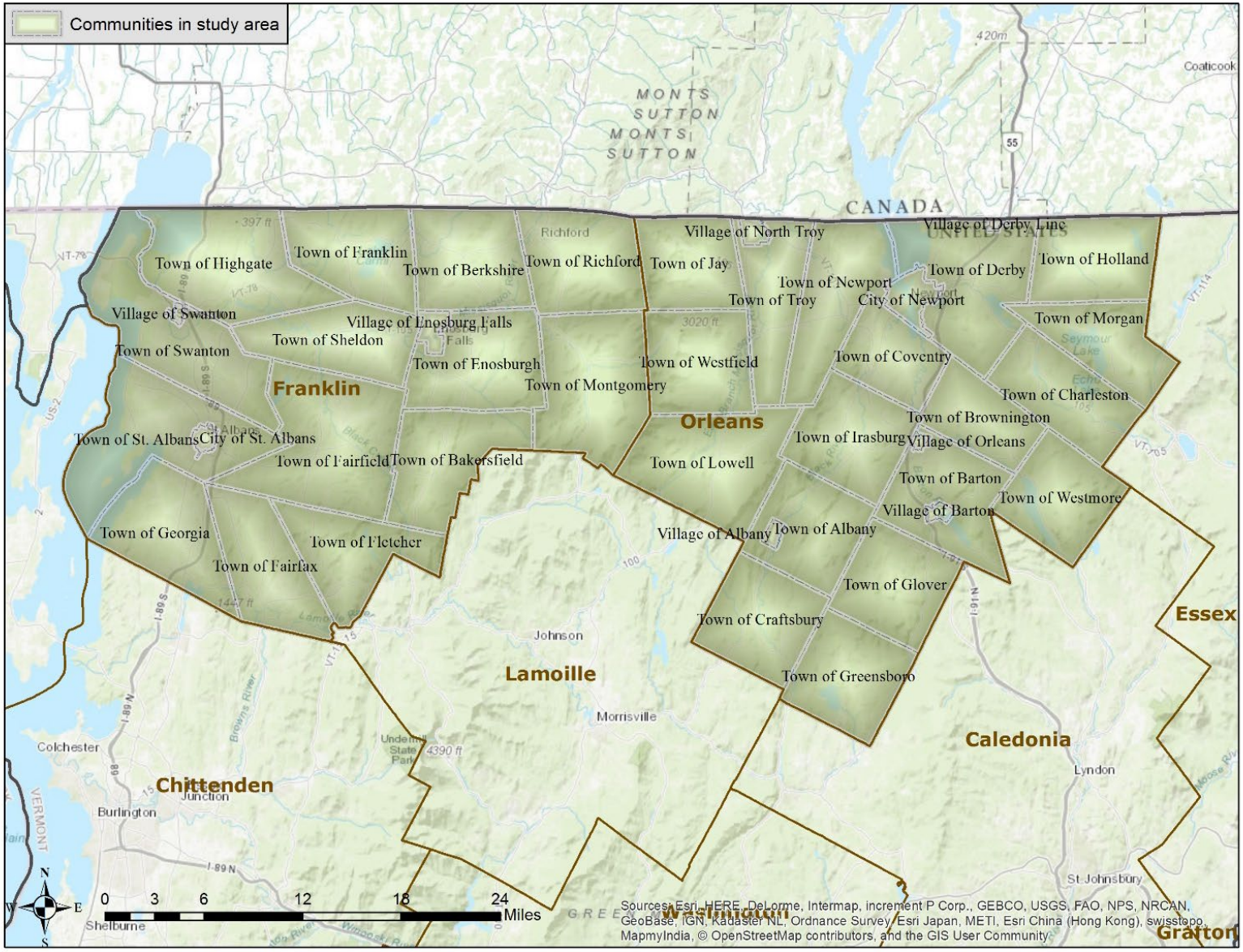
- Four meetings during the study when involvement from communities are needed:
  - *Discovery meeting*
  - ***Workmap meeting***
  - *CCO meeting*
  - *Open House / Resiliency meeting*

Study Timeline

- **Activities**
- **Project Timeline**
- **Products**

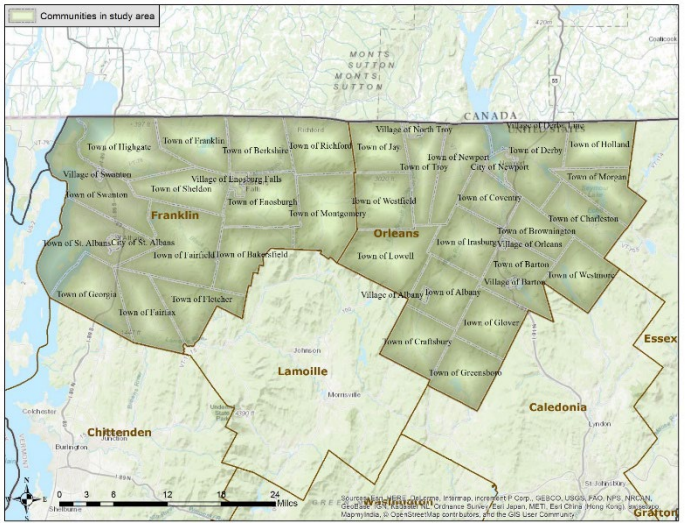


Franklin and Orleans Counties Study Area

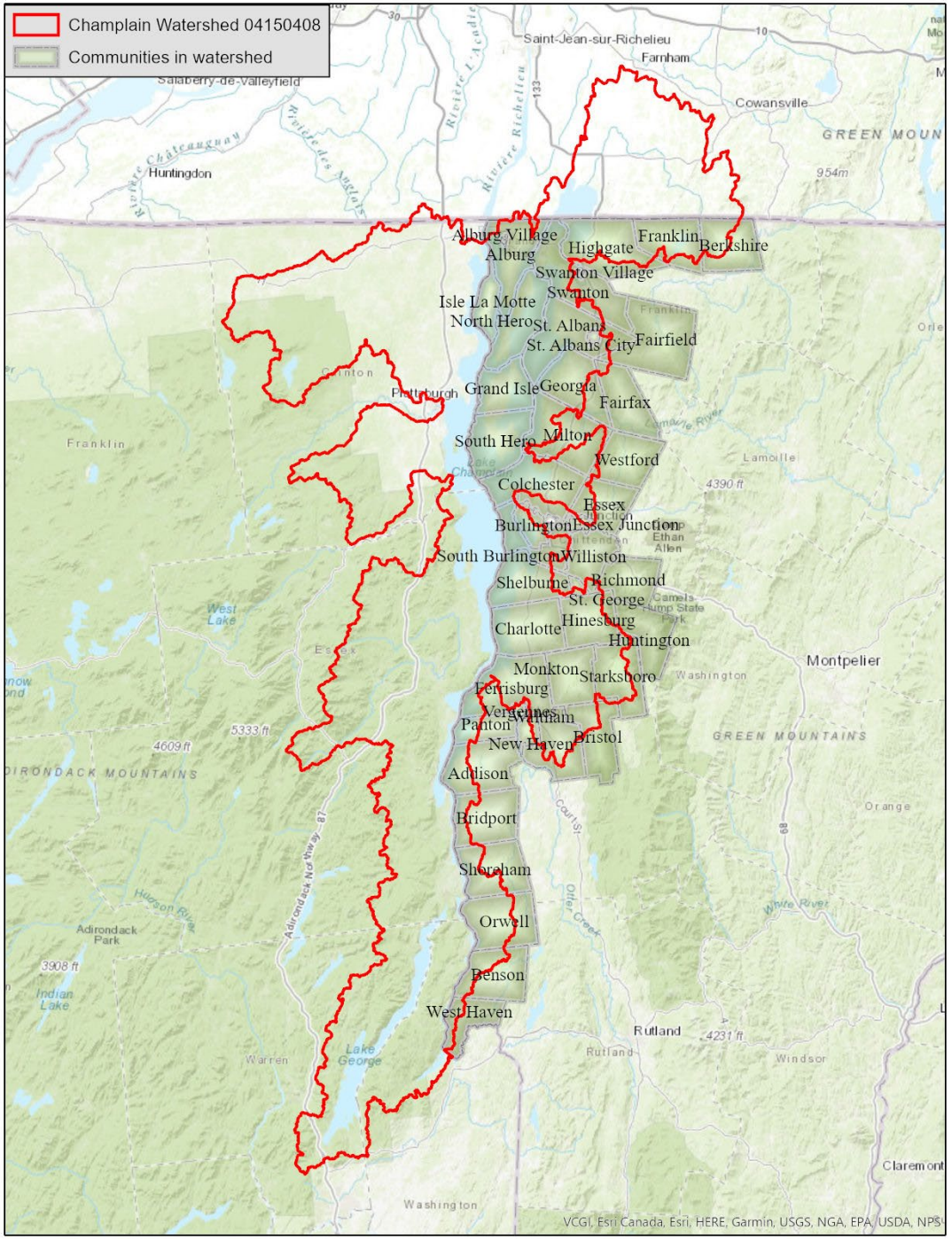


Franklin and Orleans Counties Statistics

- **Jurisdictions:**
  - 41 communities
- **1,411 square miles**
- **Estimated population (2010) of 74,977**
- **HUC8 Watersheds**
  - 04150408 Lake Champlain – 15%
  - 04150405 Lamoille River – 9%
  - 04150407 Missisquoi River – 42%
  - 01080102 Passumpsic River – 1%
  - 04150500 St. Francois River – 33%
- **3,905 catalogued river miles**
  - 971 miles of named reaches



Lake Champlain Watershed



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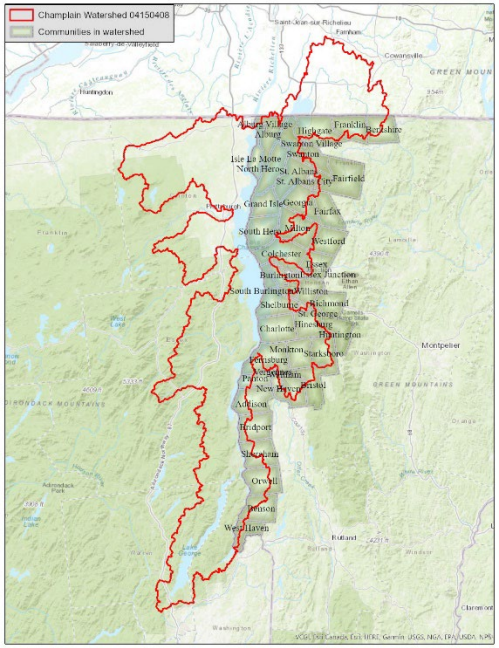
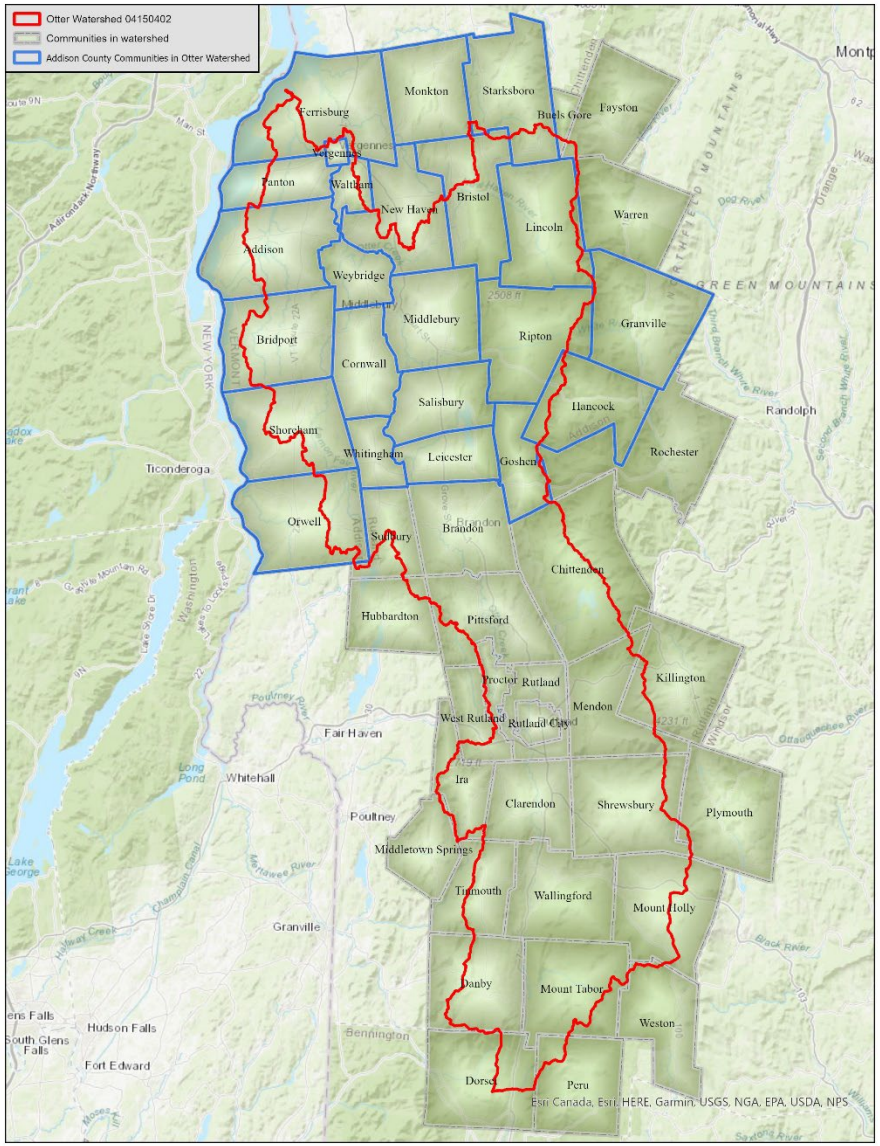
Lake Champlain Watershed Statistics

- **HUC 04150408**
- **Jurisdictions:**
  - 44 communities
  - 5 counties (Addison, Chittenden, Franklin, Grand Isle, Rutland)
  - 1 state (VT)
- **2,793 square miles (entire watershed)**
- **Estimated population (2010) of 204,575**
- **6,573 catalogued river miles (entire watershed)**
  - 1,577 miles of named reaches (entire watershed)



Otter Creek Watershed Map (Addison County, VT)



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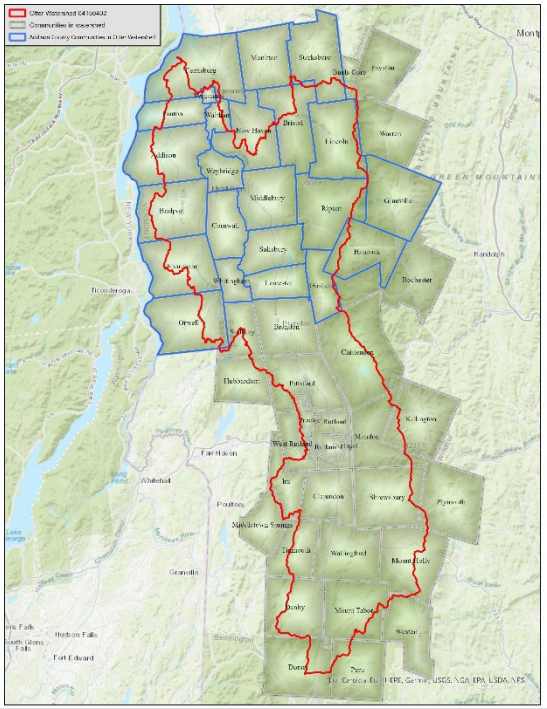
RiskMAP
Increasing Resilience Together

Otter Creek Watershed Statistics

- **HUC 04150402**
- **Jurisdictions:**
  - 51 communities (23 communities in Addison County)
  - 7 counties (Addison, Bennington, Chittenden, Rutland, Washington, Windham, Windsor)
  - 1 state (VT)
- **943 square miles**
- **Estimated population (2010) of 90,412**
- **3,023 catalogued river miles**
  - 708 miles of named reaches



Reaches Studied in Detail

Zone AE – areas that have 1% probability of flooding every year

Franklin and Orleans Counties

Missisquoi River – 64.5 miles from Mouth at Lake Champlain, Highgate, VT to Loop Road, Westfield, VT

Lake Champlain

No new study reaches

New or Updated DFIRMS (BFE's) and floodplain boundaries

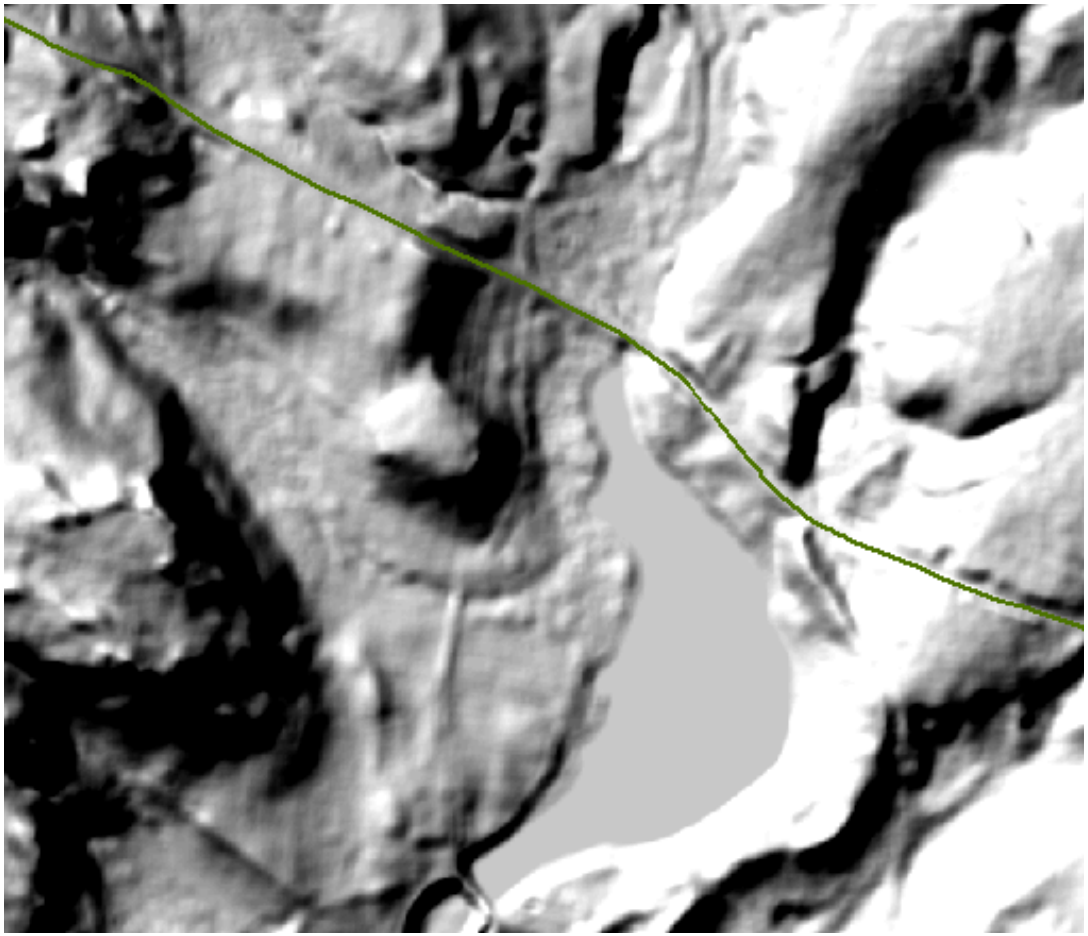
- About 64.5 miles of Detailed Studies (Zone AE)
- New data and analyses
  - Surveying - structures along the rivers (bridges, culverts, dams) and river cross-sections.
  - Hydrology - new annual exceedance probabilities
  - Hydraulic – new models
  - Mapping on high resolution elevation data

High-resolution elevation data

High-resolution elevation data collected in entire watershed

Vertical accuracy and point spacing vary by collection; info available

Used to create a digital elevation model (DEM)



New Hydrology

1% AEP Flow (cfs) Changes > 25% are highlighted

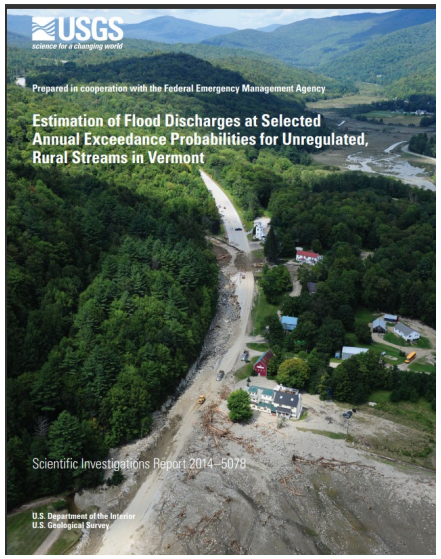
Missisquoi River Basin	New	Effective	(Chg in discharge)
▪ Above Jay Branch	9,890	7,800	+26.8%
▪ At Troy gaging station (0429300)	11,000	8,860	+24.2%
▪ At East Berkshire gaging station (0429350)	25,900	22,000	+17.7%
▪ At Enosburg Falls Dam	31,600	25,500	+23.9%
▪ Above Black Creek, town	35,900	28,200	+27.3%
▪ At Swanton gaging station (0429400)	45,100	33,800	+33.4%
▪ Mouth	45,200	34,000	+32.9%

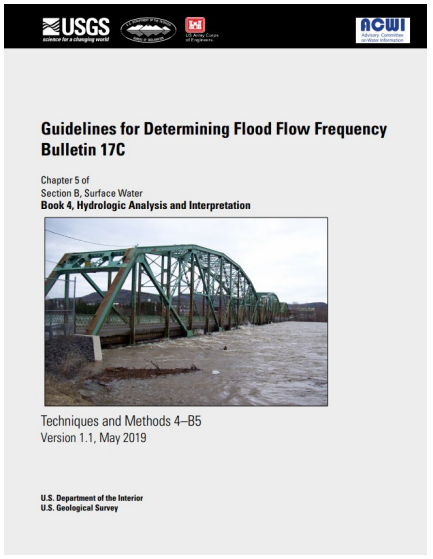
Additionally, a new ice jam analysis was complete. In several locations the 1% AEP elevations are a combination of ice jam analysis results and open water results.

New Hydrology

Based on:

- Peakflow analyses at streamgages using Bulletin 17C (England and others, 2018)
- Regional regression equations for “Estimation of flood discharges at selected annual exceedance probabilities for unregulated, rural streams in Vermont: U.S. Geological Survey Scientific Investigations Report” (Olson, S.A., 2014)
- http://dx.doi.org/10.3133/sir20145078



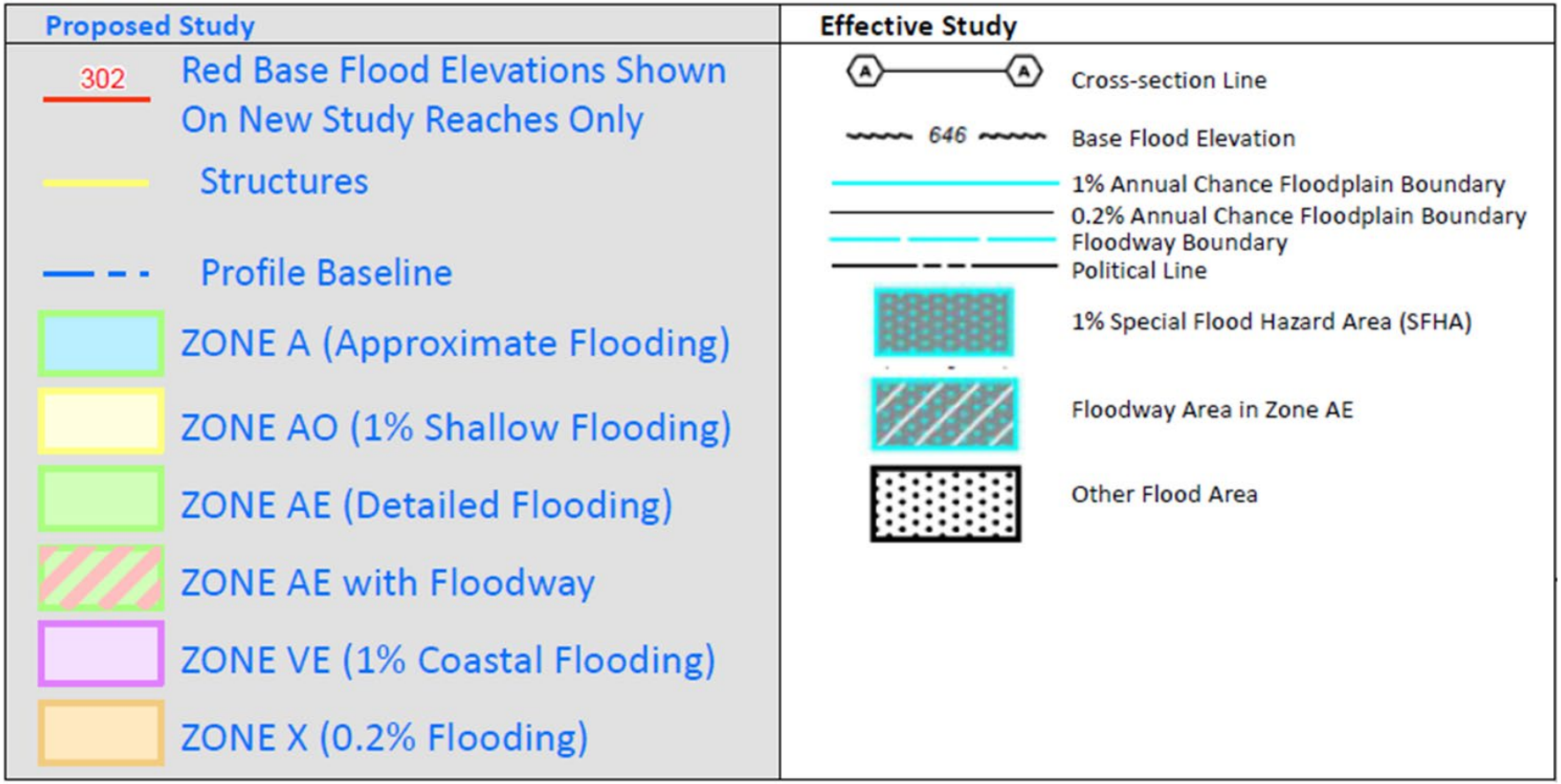


Workmap Content

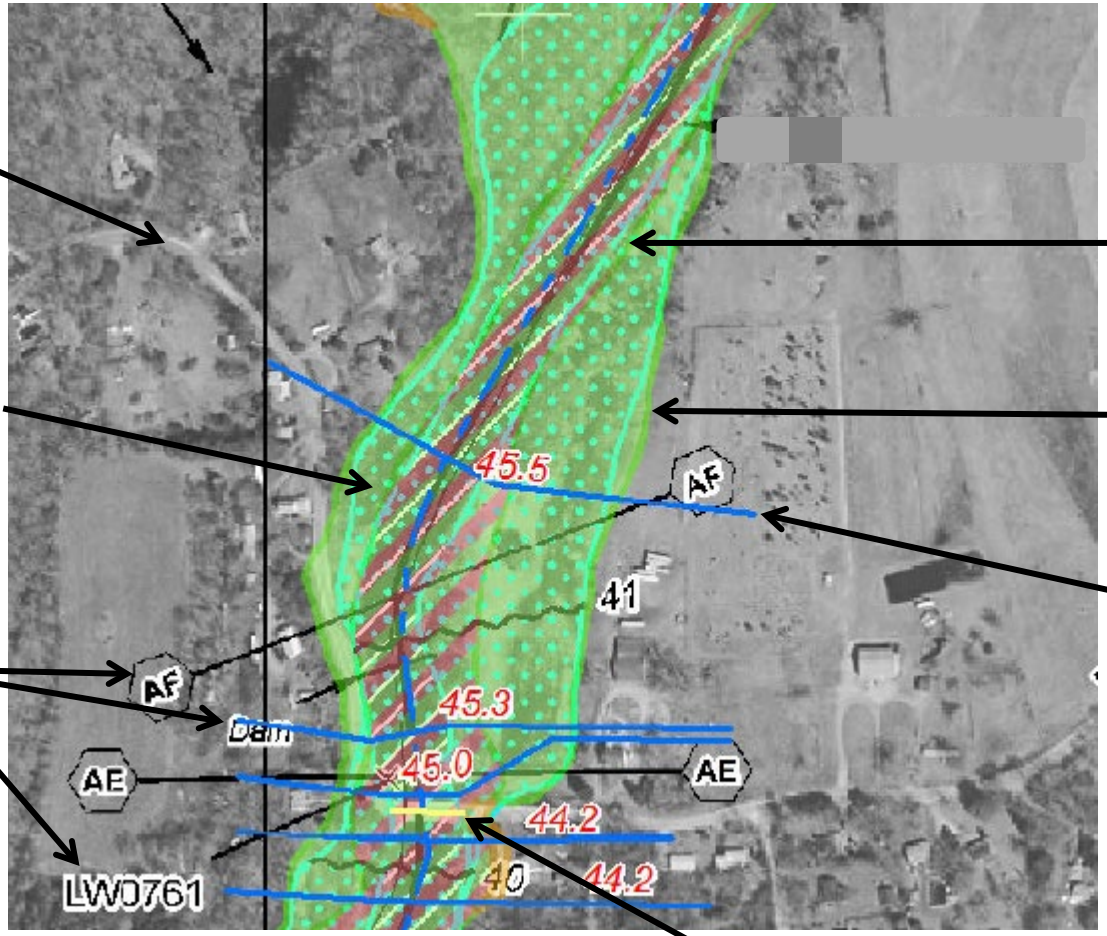
- **Basemap:** Static image of effective FIRM, including old imagery and all black labels; dot-filled effective floodplain
- **Data layers:** New transparent solid floodplains, cross-sections, profile baselines, structures, and red elevation labels; watershed boundary
  - No new imagery, roads, cross-section letters, or other labels
- **Compare effective floodplains and elevations against proposed new floodplains and elevations**

Workmap Content

LEGEND



Example: (New) Detailed Study Reach Zone AE



Effective basemap (2010)

Effective SFHA (blue dot fill)

Effective FIRM labels (2010)

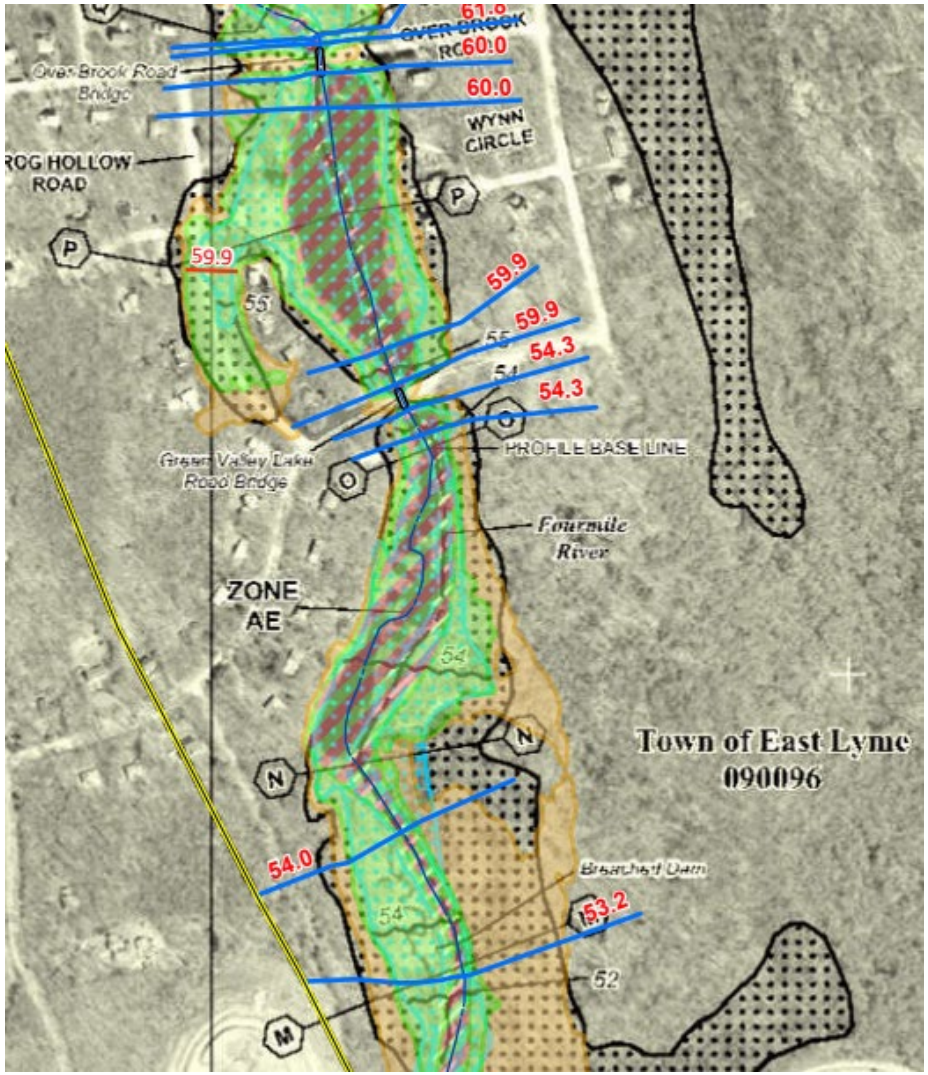
New SHFA with floodway (transparent green)

New SHFA (transparent green)

New cross-section and BFE

New structure

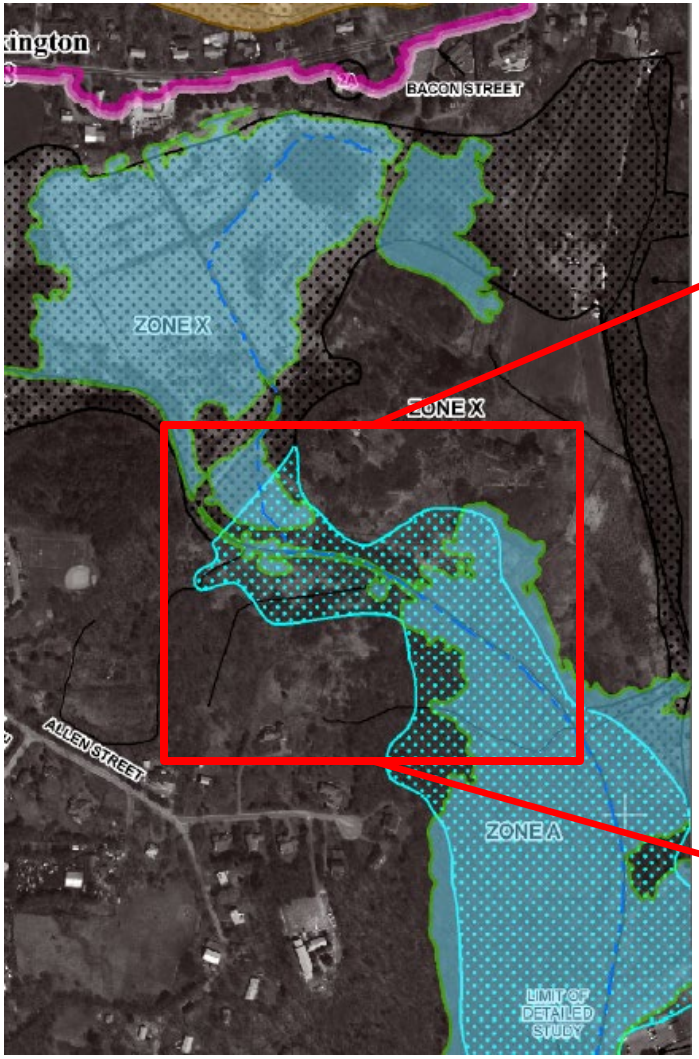
Example Workmap: Detailed Study Reach Zone AE



Zone A – flood zone is considered approximate (no BFE elevations)

- New Method: Base Level Engineering (BLE analysis)
- Perform approximate engineering analysis using current data and tools
  - Surveying – none; structures not considered
  - Hydrology – regression equations
  - Hydraulics – basic models
  - Mapping on high resolution elevation data
- Used for remapping of all Zones A within HUC8 watershed

Example: Approximate Study Reach Zone A



Redelineation

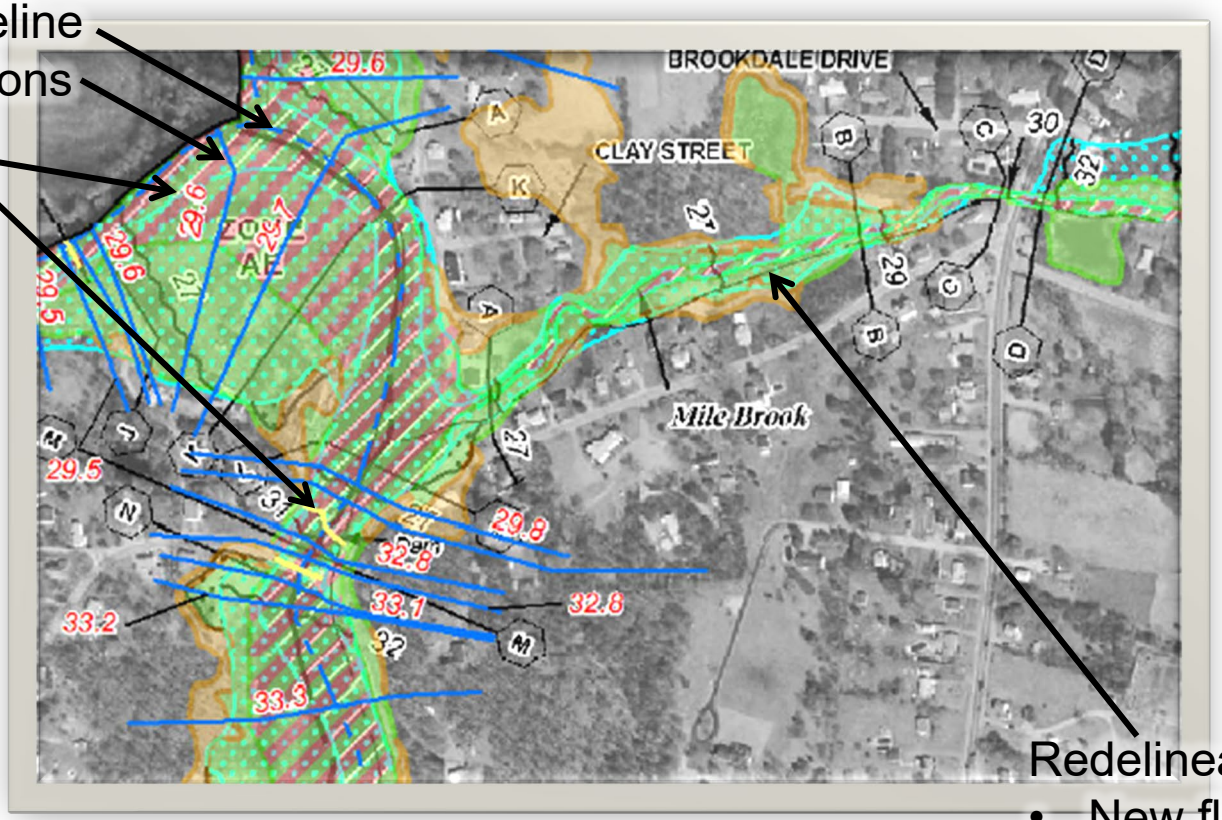
Previous Areas with Detailed Study Reach (Zone AE)

- No changes to Base Flood Elevation (BFE) or new engineering
- Floodplain is remapped using updated topography from lidar
- Used for:
  - All remaining effective Zones AE (not newly studied in detail) within the HUC 8 watershed

Different Methods: Zone AE

New detailed study reach:

- Profile baseline
- Cross-sections
- BFEs
- Structures



Redelineated reach:

- New floodplain only
- BFE does not change

Summary of Differences

Why the mapped floodplain may be different:

- New detailed studies (Zone AE):
  - Surveying & Hydraulics – new or modified structures, changes to stream channel
  - Hydrology – new data, improved methodology
  - Mapping – new topography, new imagery
- Redelineated reaches (Zones AE, A, or X):
  - Mapping – new topography, new imagery
- Zones A within HUC8 watershed:
  - Engineering – new and complete hydrology and hydraulic analysis
  - Mapping – new topography, new imagery

Summary of Differences

Areas of no change at all:

- Coastal AE, VE zones
- All features shown on neighboring, non-updated panels
- All features outside pink watershed boundary
  - Except where tie-in with other floodplains was required

FIRM Panels Updated

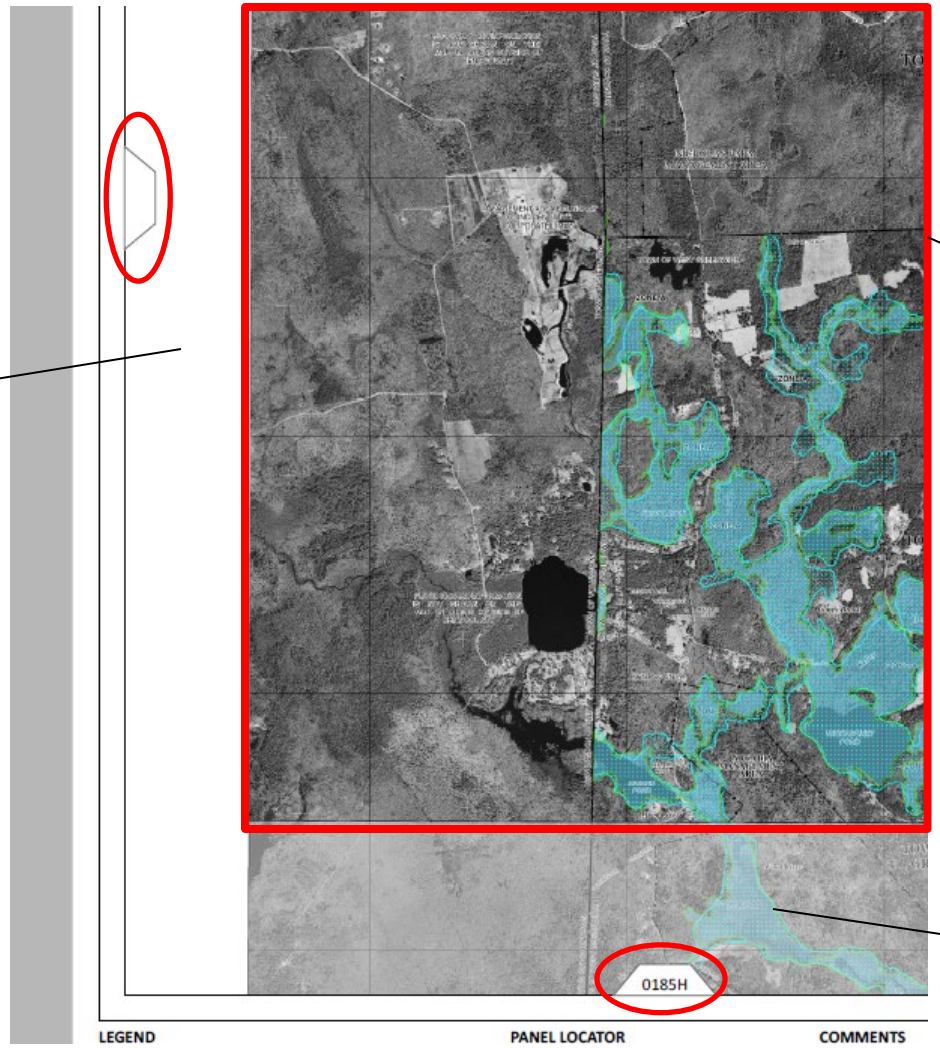
412 FIRM Panels in 6 Counties

- Addison – 113 panels
- Chittenden – 72 panels
- Franklin – 116 panels
- Grand Isle – 12 panels
- Orleans – 99 panels

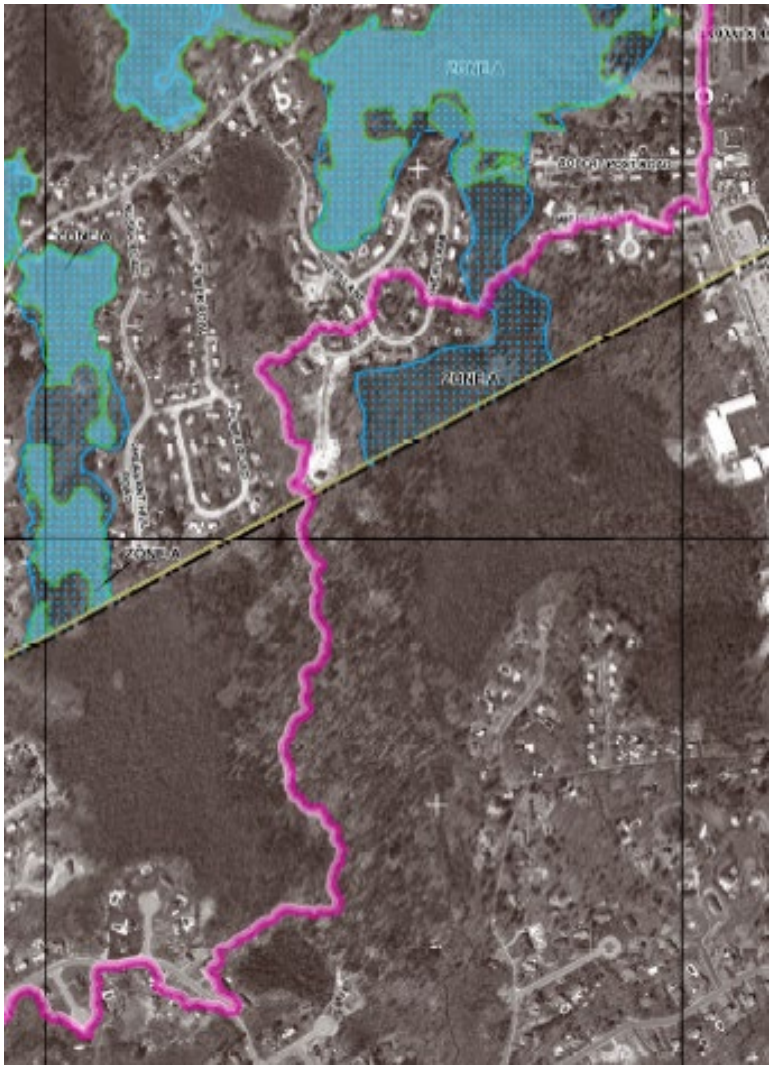
Other Workmap Nuances

- Adjacent panels are shown shaded on all four sides, if they exist
- All floodplains are cut off by county boundary
  - Other features (including basemap) also may not exist outside county
- Zones A that were terminated at community boundaries are now extended to natural breaks or confluences

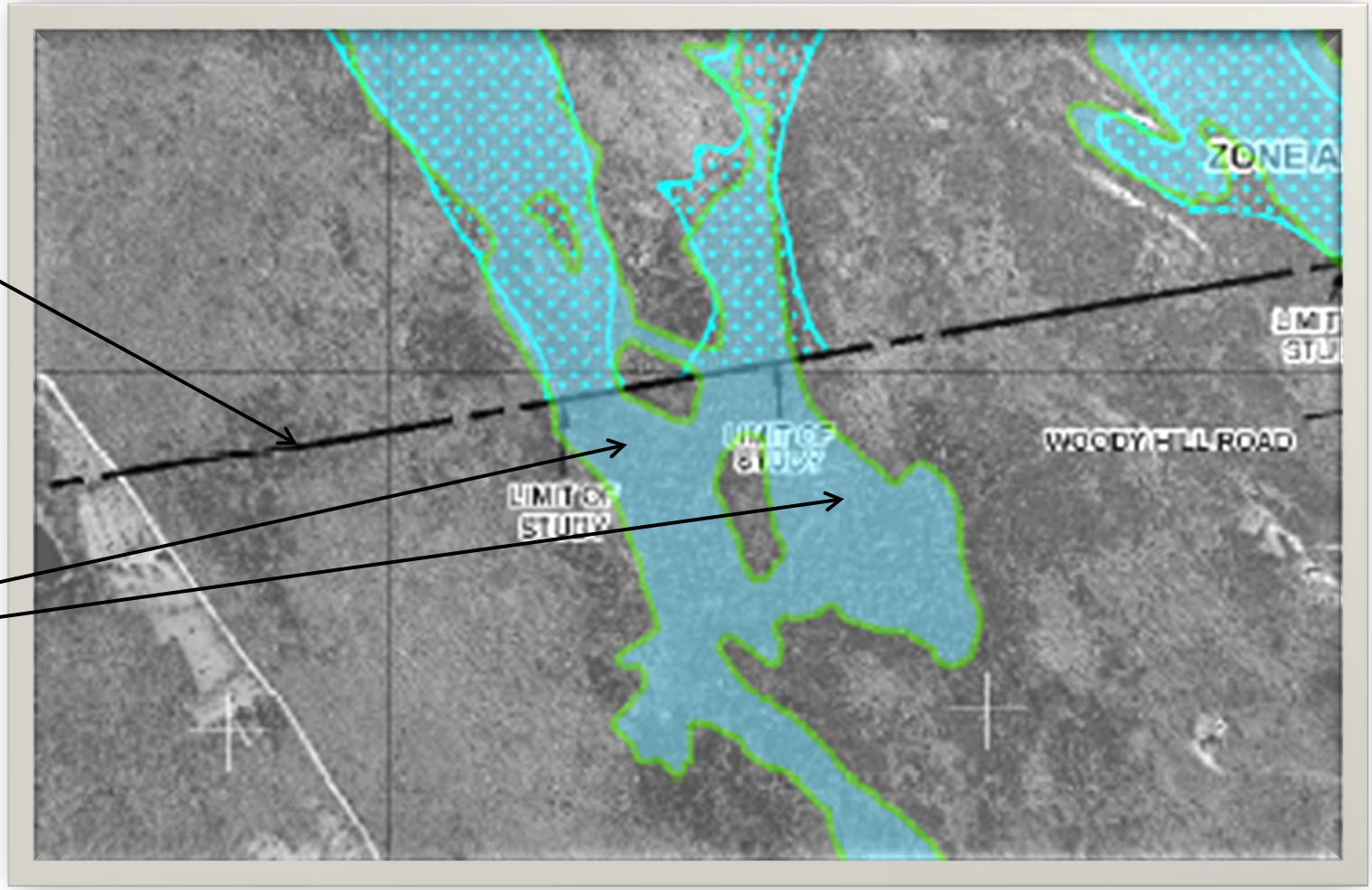
Example: Adjacent Panels



Example: County Boundary (yellow) and Watershed Boundary (pink)



Example: Zone A Extension



Points of Contact

- **VT state contacts:**
  - Rebecca Pfeiffer, State NFIP Coordinator, VT DEC, rebecca.pfeiffer@vermont.gov
  - Sacha Pealer, Northeast Region Floodplain Manager, VT DEC, sacha.pealer@vermont.gov
  - Ned Swanberg, Central Region Floodplain Manager, VT DEC, ned.swanberg@vermont.gov
  - Stephanie Smith, State Hazard Mitigation Officer, VT DEMHS, stephanie.a.smith@vermont.gov
- **USGS Contacts:**
  - Greg Stewart, Project Manager, USGS gstewart@usgs.gov
  - Melissa Smith, AOA, USGS, melissasmith@usgs.gov
- **FEMA Region 1 Contacts:**
  - Colleen Bailey, Project Manager, FEMA Region I, colleen.bailey@fema.dhs.gov
  - Chris Markesich, Floodplain Management & Insurance Branch, FEMA Region I, Christopher.markesich@fema.dhs.gov
- **FEMA Regional Service Center:**
  - Alex Sirotek, RSC Lead, ARC PTS, alexander.sirotek@wsp.com

Please send comments to:

Greg Stewart at gstewart@usgs.gov and Melissa Smith at melissasmith@usgs.gov
Please CC: Colleen Bailey at colleen.bailey@fema.dhs.gov

Mail comments to:

Greg Stewart, U.S. Geological Survey
196 Whitten Road
Augusta, ME 04330

Other Resources

- For general FEMA mapping and Letter of Map Change (LOMC) questions, contact FEMA's Mapping and Insurance eXchange (FMIX): 1-877-FEMA MAP (1-877-336-2627) or email a Map Specialist: FEMAMapSpecialist@riskmapcds.com
- Map Service Center (MSC) – view effective maps online for free: http://msc.fema.gov/
- To learn more about the National Flood Insurance Program (NFIP), call 1-888-379-9531 or visit http://www.floodsmart.gov/floodsmart

Draft Work Maps Review

- **Available at:** https://doimspp.sharepoint.com/:f:/r/sites/GS-NEWENG-FEMARiskMAP-outreach/Shared%20Documents/General/Meetings/20250408%20Franklin-Orleans%20%26%20Lake%20Champlain%20Workmap%20Meeting/Maps/Map%20PDFs?csf=1&web=1&e=OS75Ut
- **DUE BACK ON MAY 16, 2025 (5 weeks)**
- **The draft work maps are not for public consumption.**
  - Can not be put on public web site
  - Can not be displayed at town or city hall for residents to view
  - For municipal offices only not for the general public (they will have opportunities to comment later in the process)

Optional Breakout Sessions

Breakout sessions for community specific draft workmap review:

- Provide an opportunity to review and comment on the draft work maps.
- We will explain what river reaches may have changed and what mapping has been updated within your community.

Optional Breakout Sessions

- We will have one hour time slots on Thursday, April 10 and Wednesday, April 16 for one-on-one meetings with towns
- Email Melissa Smith at melissasmith@usgs.gov if you have not scheduled a breakout session yet