

Four Corners Project

Design Workshop #1

April 11, 2024, 6-8pm

Clarksburg Community Center

Introductions

Agenda

Project Goals + Objectives

Questions/Comments

Context + Focus Area

Questions/Comments

Precedents: Design + Management

Questions/Comments

Next Steps

Project Overview

Goals

Objectives

Timeline

Goals

Big Picture

- Build community understanding of the ecological, hydrological, + climate dynamics that influence Clarksburg and the Four Corners focus area.
- Collaborate on identifying nature-based solutions that help Clarksburg **adapt to and mitigate** the damages from increased precipitation + flooding

Specific

- Enhance existing spaces to support more recreation and community events
 - Pickleball, Circuit trail around Town Field, Playground equipment, Outdoor winter activities, Dog park
- Increase accessibility of parking lots, trails, circulation, and gathering spaces
- Increase resiliency of public + private infrastructure to flooding and storm damage

Project Objectives

- 1. Develop four conceptual designs for stormwater management in the project area**
 - Will address site specific challenges at Clarksburg Elementary School, the Community/Senior Center, the Town Field, and a representative residential site
- 2. Conceptual site plan of interventions in the Four Corners area that restore and enhance floodplain function.**
 - Will include recommendations for both land management and policy interventions
- 3. Conceptual recreational overlay for the Town Field and other recreational priorities identified during the planning process.**
 - Will emphasize accessibility and integration with ecological and floodplain dynamics



Project Timeline

Jan - Mar 2024

Phase One: Project
Initiation + Site Analysis

- Research
- Mapping + Assessments
- Project Team Site Walks

Mar – June 2024

Phase Two: Community
Engagement

- Design Workshops #1 + #2
- Coordination w/ School Groups
- Community Site Walks

July 2024 – Dec 2025

Phase Three: Concept
Development

- Concept Drafts
- Community Listening Sessions
- Final Design Packets

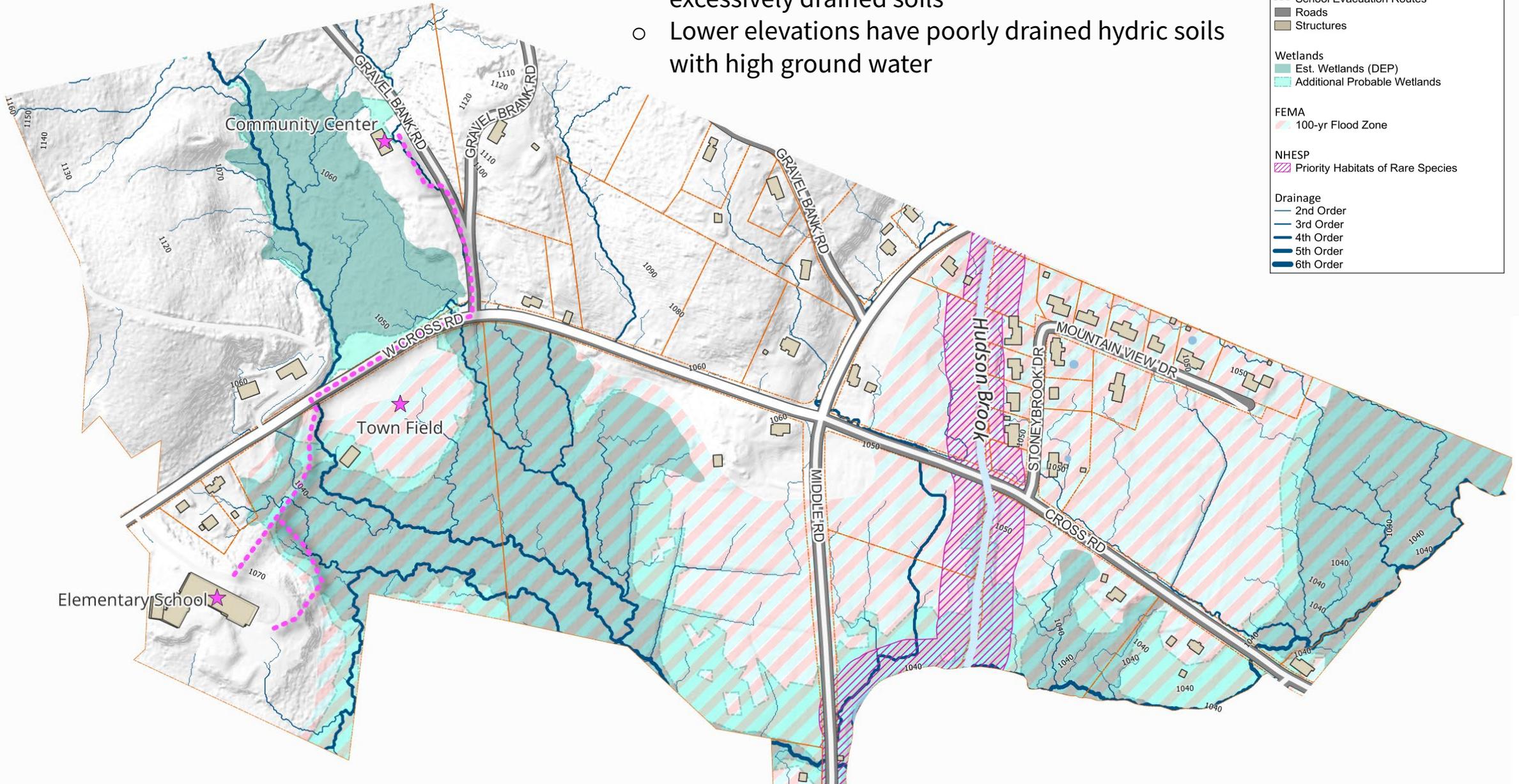
Questions/Comments

Four Corners

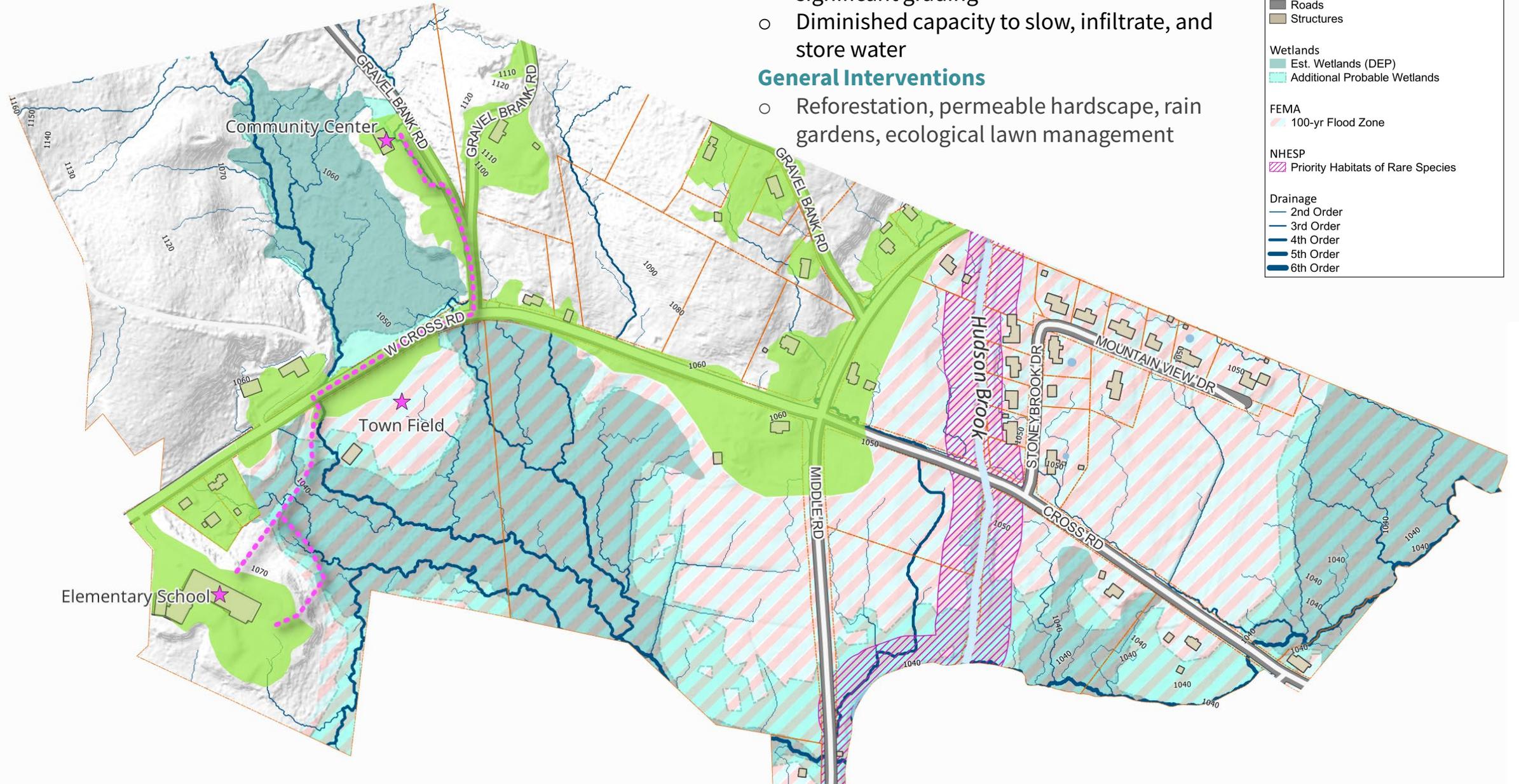
Ecological + Development Patterns

Existing Conditions

- One-square mile sub-basin of the Hudson Brook
- Higher ground in general has moderate-to-excessively drained soils
- Lower elevations have poorly drained hydric soils with high ground water



Modified Uplands: ~22 acres



Characteristics

- Above the floodplain, w/ built infrastructure, impervious surface, and/or significant grading
- Diminished capacity to slow, infiltrate, and store water

General Interventions

- Reforestation, permeable hardscape, rain gardens, ecological lawn management

Legend

Developed or Modified Uplands

Key Town Sites

School Evacuation Routes

Roads

Structures

Wetlands

Est. Wetlands (DEP)

Additional Probable Wetlands

FEMA

100-yr Flood Zone

NHESP

Priority Habitats of Rare Species

Drainage

2nd Order

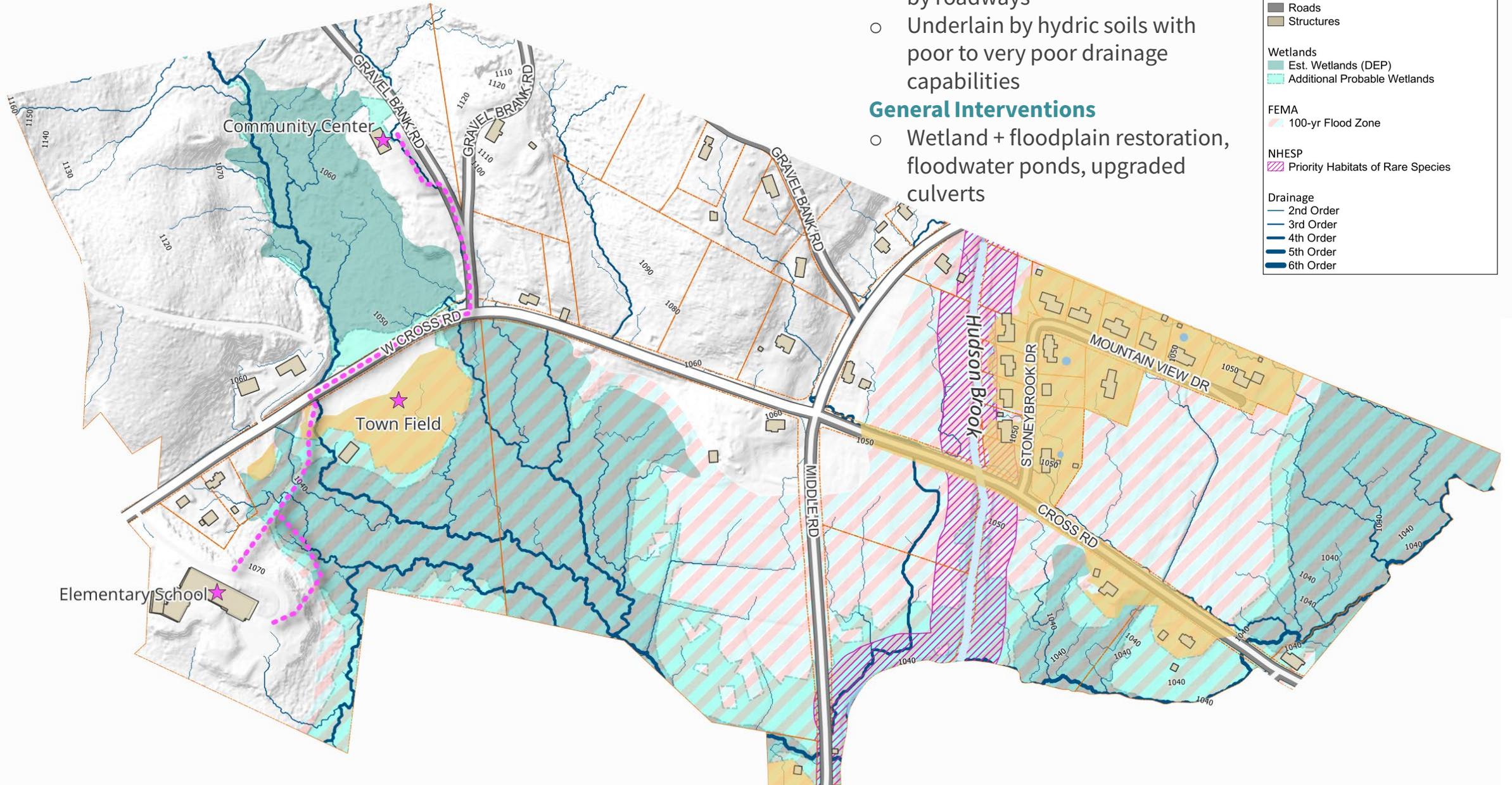
3rd Order

4th Order

5th Order

6th Order

Developed Floodplains: ~13 acres



Characteristics

- Patchwork of agricultural and residential parcels, crisscrossed by roadways
- Underlain by hydric soils with poor to very poor drainage capabilities

General Interventions

- Wetland + floodplain restoration, floodwater ponds, upgraded culverts

Legend

- Developed, Filled, or Modified Floodplain
- Key Town Sites
- School Evacuation Routes
- Roads
- Structures
- Wetlands
 - Est. Wetlands (DEP)
 - Additional Probable Wetlands
- FEMA
 - 100-yr Flood Zone
- NHESP
 - Priority Habitats of Rare Species
- Drainage
 - 2nd Order
 - 3rd Order
 - 4th Order
 - 5th Order
 - 6th Order

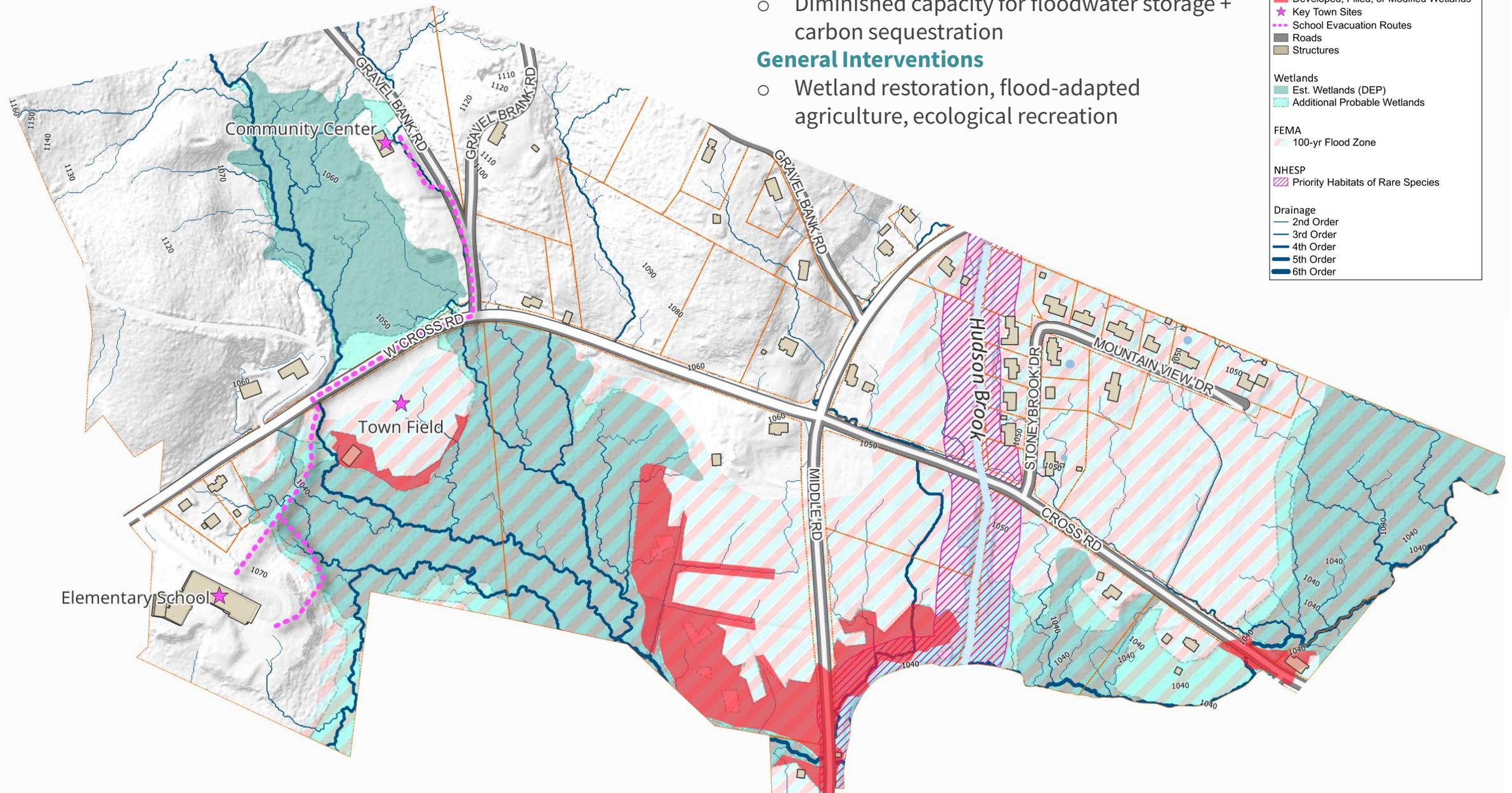
Modified Wetlands: ~7 acres

Characteristics

- Underlain by hydric soils with poor to very poor drainage capabilities
- Diminished capacity for floodwater storage + carbon sequestration

General Interventions

- Wetland restoration, flood-adapted agriculture, ecological recreation



Legend

- Developed, Filled, or Modified Wetlands
- Key Town Sites
- School Evacuation Routes
- Roads
- Structures

Wetlands

- Est. Wetlands (DEP)
- Additional Probable Wetlands

FEMA

- 100-yr Flood Zone

NHESP

- Priority Habitats of Rare Species

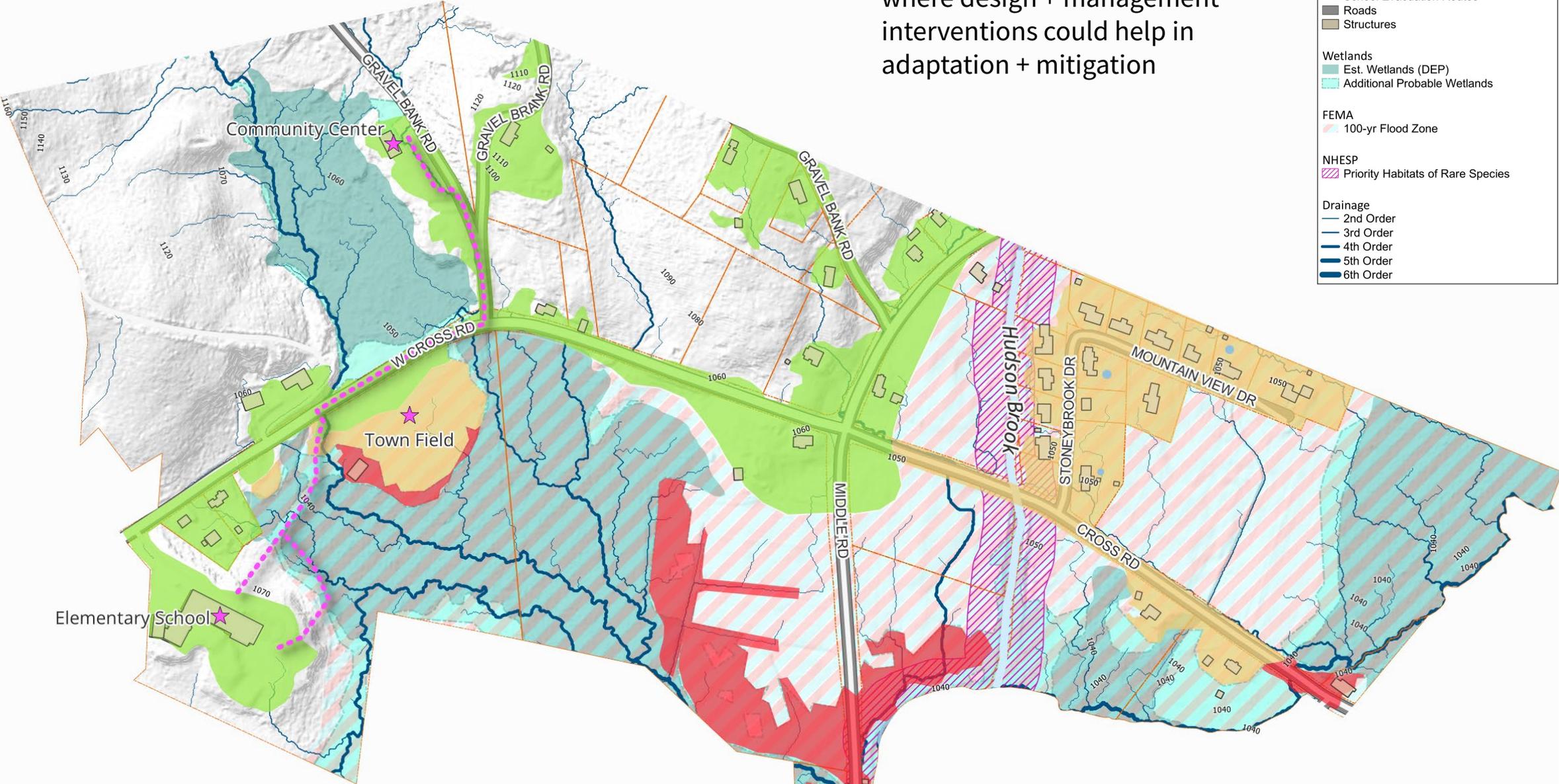
Drainage

- 2nd Order
- 3rd Order
- 4th Order
- 5th Order
- 6th Order

Modified Landscape: ~40 acres

Summary

~40 acres of modified landscape where design + management interventions could help in adaptation + mitigation



Legend

- Developed or Modified Uplands
- Developed, Filled, or Modified Floodplain
- Developed, Filled, or Modified Wetlands
- Key Town Sites
- School Evacuation Routes
- Roads
- Structures

Wetlands

- Est. Wetlands (DEP)
- Additional Probable Wetlands

FEMA

- 100-yr Flood Zone

NHESP

- Priority Habitats of Rare Species

Drainage

- 2nd Order
- 3rd Order
- 4th Order
- 5th Order
- 6th Order

Questions/Comments

Community Sites

Challenges + Potential BMPs

Community Sites

Community Center

- ~1 acre; ~.40 acres impervious
- Some hydric soils; Poor to moderately well-drained

Town Field

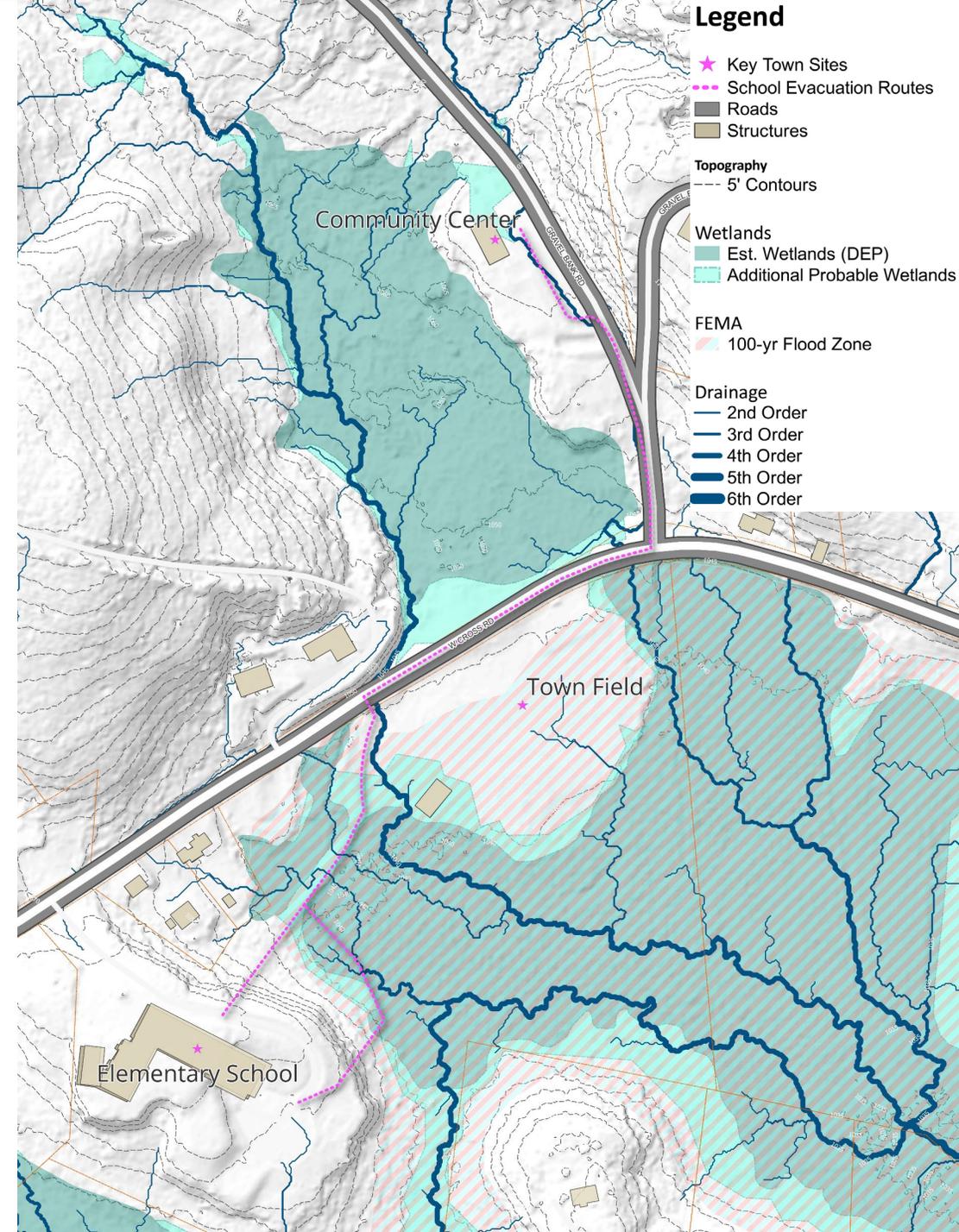
- ~4.25 acres, includes the parking lot + wetlands/drainages in between
- High water table, hydric soils + fill; poorly to very poorly drained

School/Library

- ~3.5 acres; ~1.8 acres impervious
- Excessively drained

Connectivity

- Emergency route is .35 miles; not universally accessible
- Travels along steep grades, wetlands, areas of ponding, and W.Cross Road



School + Library

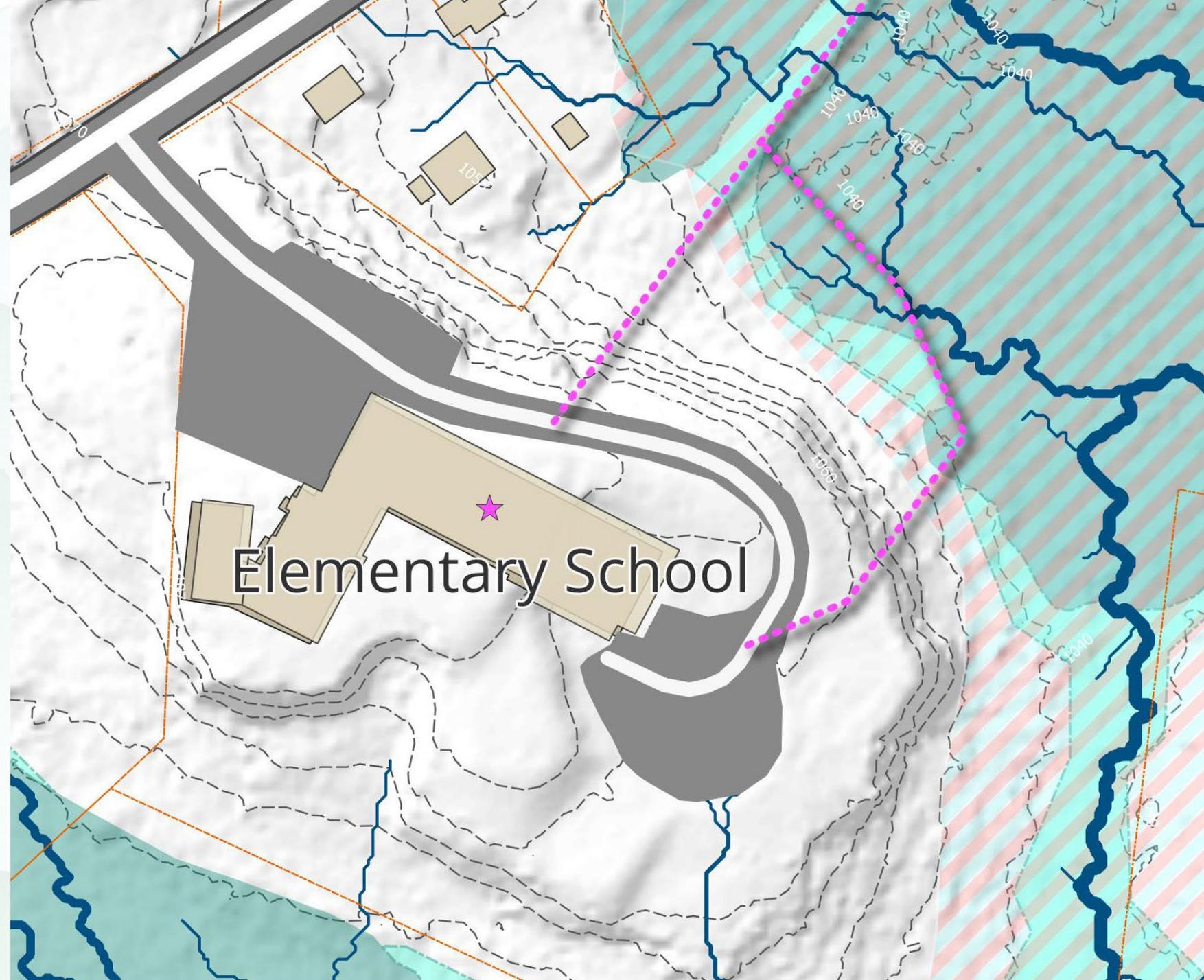
Challenges

- Driveway grade limits visibility, accessibility, and infiltration of stormwater
- Parking layout + lack of sidewalks limits efficient, legible use of the space
- Lack of stormwater infrastructure contributes to hillside and trail erosion along the NE slope
- Staircase and trail into the wetland complex aren't universally accessible
- Some trail portions may conflict with wetland regulations

Preliminary Design Directions

- Revise parking lot layout for safer vehicular + pedestrian flow
- Incorporate permeable hardscape where appropriate
- Integrate bioswales and/or rain gardens for stormwater infiltration
- Create at least one universally accessible access route into the wetland complex

6/13/2024



Town Field

Access + Circulation

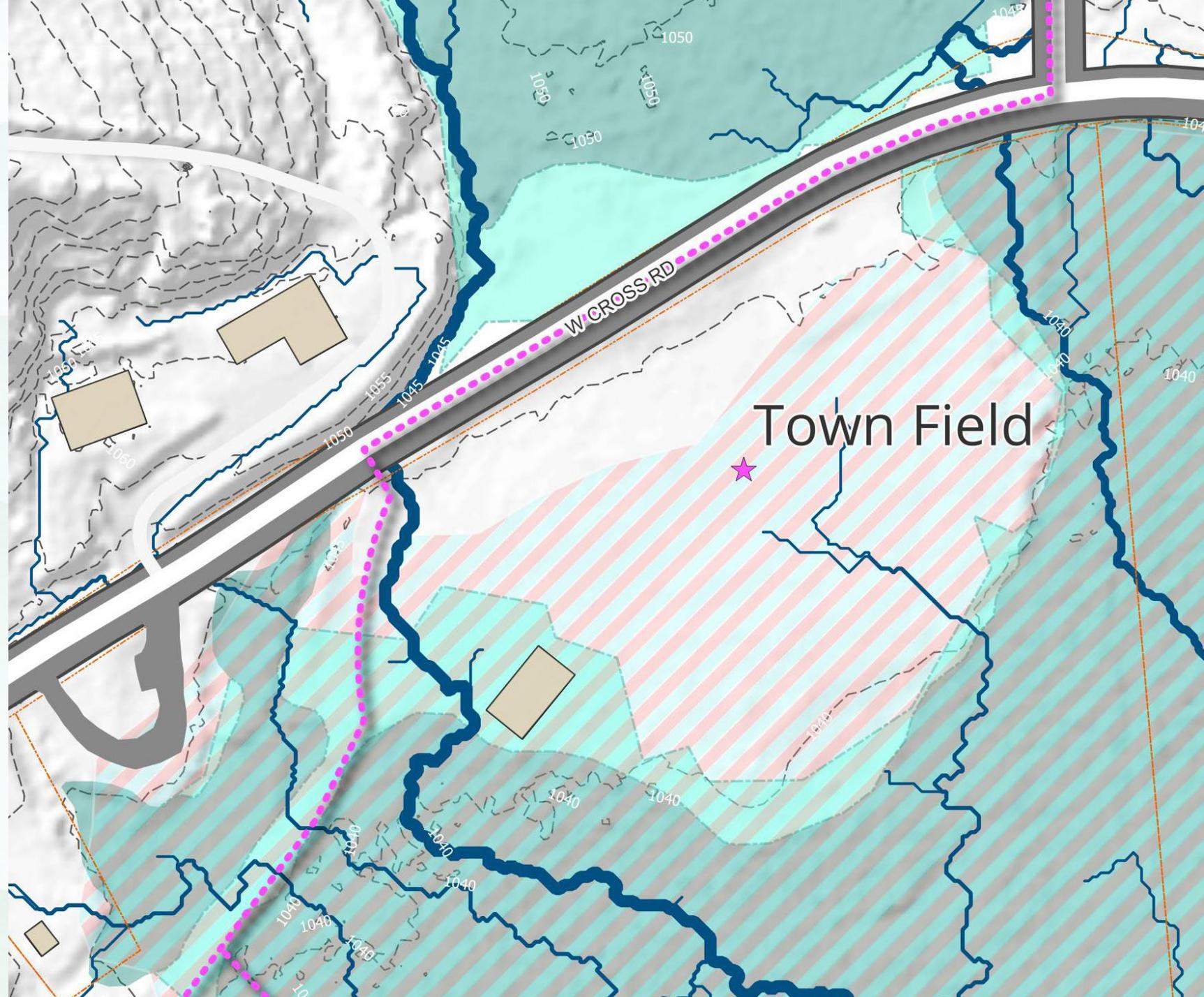
Challenges

- Single parking lot is poorly defined and underutilized for day-to-day use; conversely, there's a lack of adequate parking for big events
- Pathways + boardwalks aren't universally accessible
- Emergency route cuts through significant ponding area
- No sidewalks along W Cross Rd

Preliminary Design Directions

- Revise parking layout to maximize usable space and define parking spots
- Upgrade existing pathways + boardwalks for universal access
- Integrate parallel parking, pedestrian access, and green stormwater infrastructure along W Cross Road

6/13/2024



Town Field

Recreation + Gathering

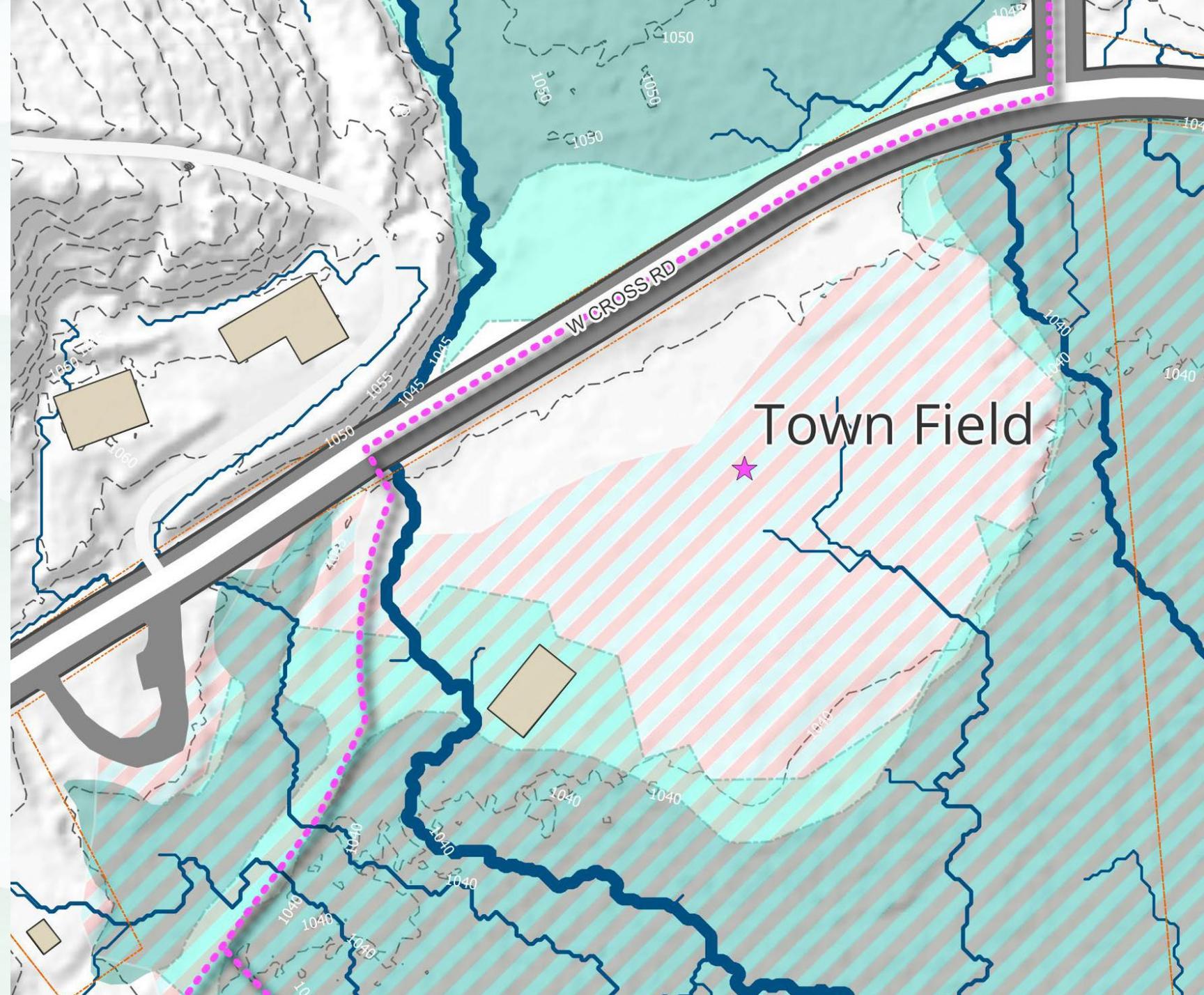
Challenges

- Persistent ponding and soil saturation throughout the field limits use
- Culverts are undersized

Preliminary Design

Directions

- Make grading, soil, and subsurface improvements to the portion of Town Field not identified as wetlands
- Manage areas with most persistent ponding and saturation as restoration and catchment zones
- Enlarge culverts or replace with bridges



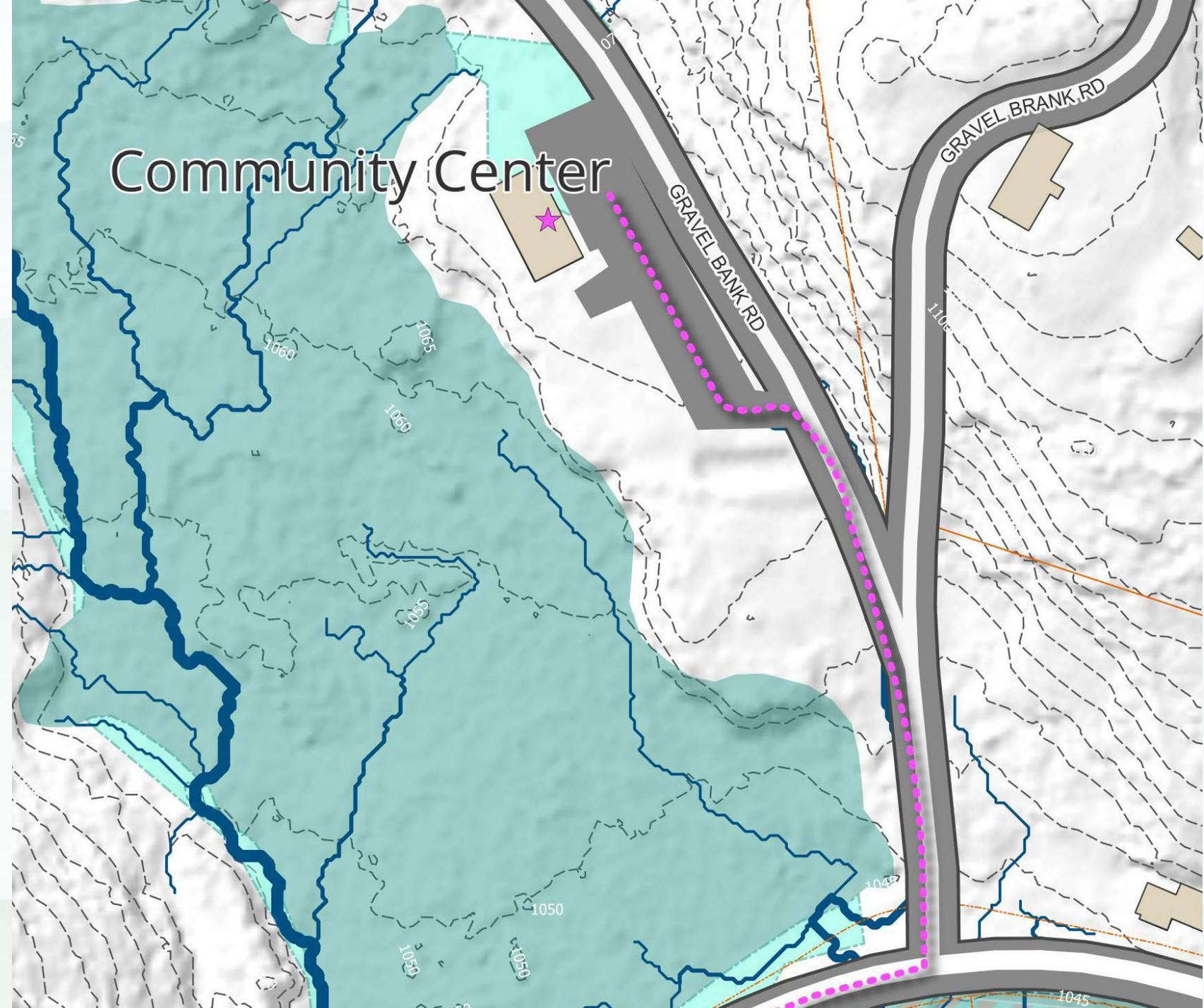
Community Center

Challenges

- Detention basin south of building may not be functioning as intended
- Grades around building don't allow stormwater to be diverted or infiltrated effectively
- Surrounding landscape and parking lot could be used more effectively/efficiently
- Not universally accessible from other point in the project focus areas

Preliminary Design Directions

- Route stormwater from north end of parking lot to the bioretention basin
- Resize/reshape and vegetate bioretention basin
- Improve grading at north end to prevent sediment laden stormwater from running into the parking lot
- Replace undersized culverts along Gravel Bank Road
- Identify recreational + accessibility goals that could fit in this location



Questions/Comments

Precedents: Design + Management

Accessible Trails

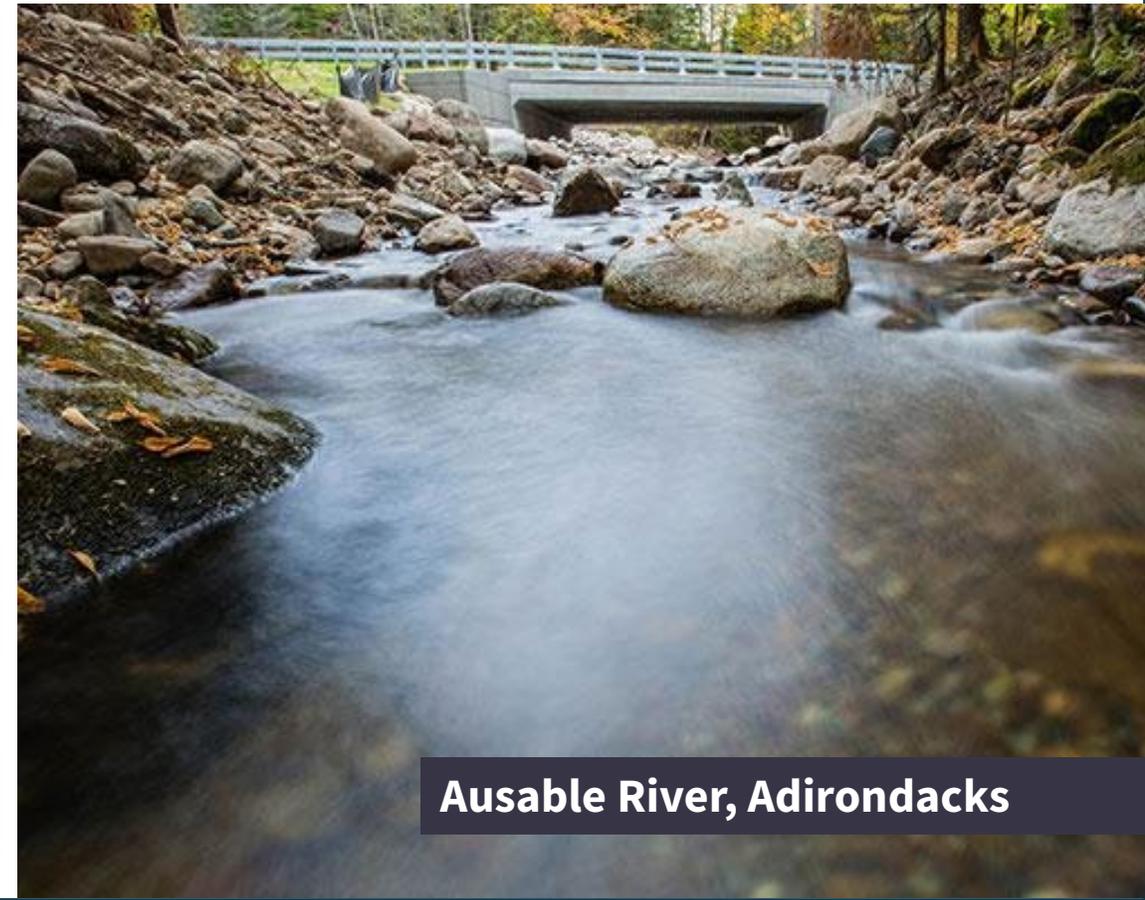
Floodplains + Wetlands

Uplands

Floodplain + Wetlands Precedents: Flood Friendly Culverts

Benefits:

- More resilient transportation infrastructure
- Upstream + downstream hazard mitigation
- Habitat connectivity for migratory species



Floodplain + Wetlands Precedents: Restoration

Benefits:

- Increased flood absorption
- Expanded active + passive recreation opportunities
- Improved water quality, carbon sequestration, + habitat



Wetland Restoration, Plymouth, MA



Floodplain Forest Restoration, Longmeadow, MA

Floodplain + Wetlands Precedents: Floodwater Ponds

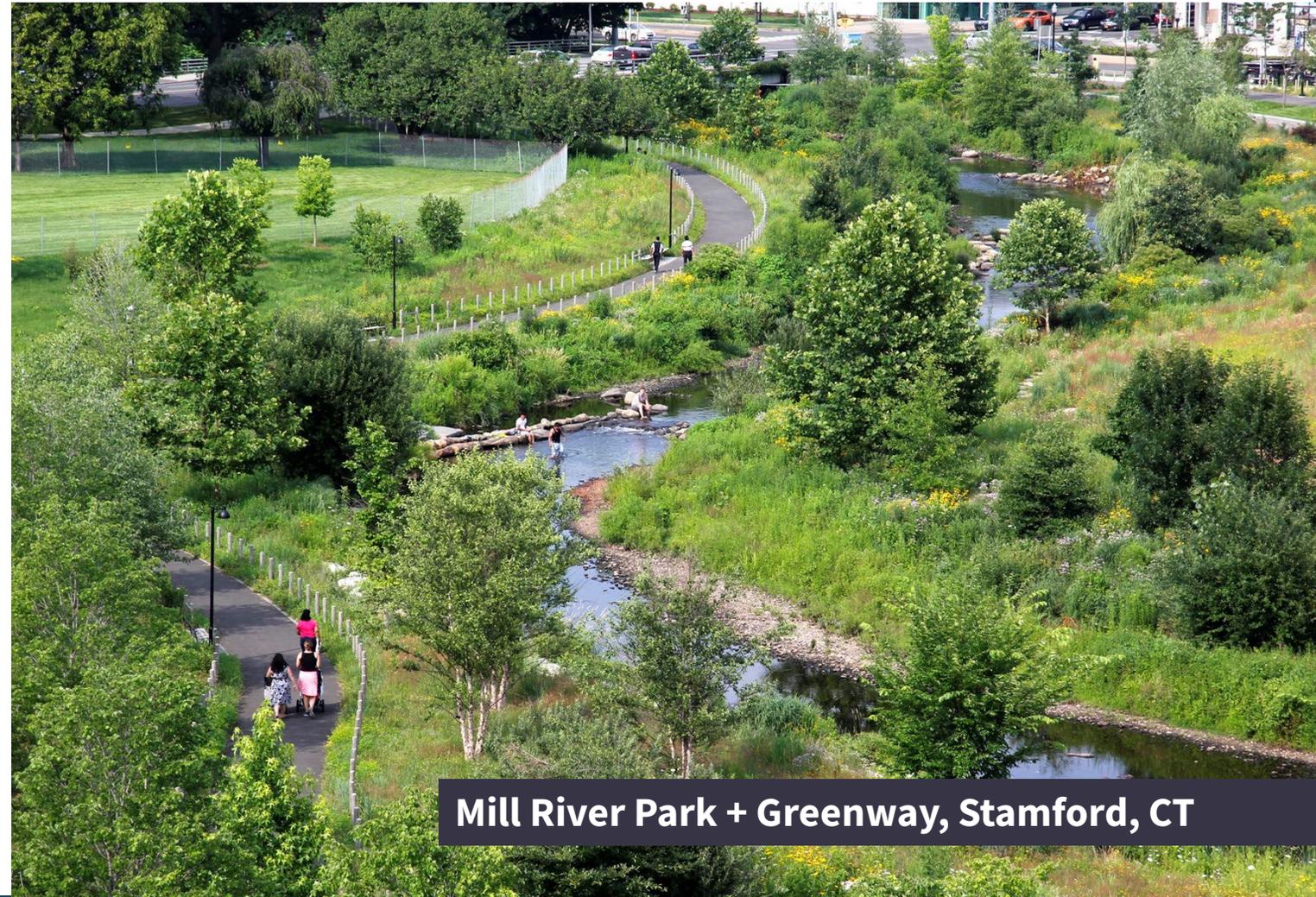
Benefits:

- Prevention of downstream flooding
- Increased storage during highwater events
- Expanded active + passive recreation opportunities
- Improved habitat



Floodwater Pond, Duke University

Floodplain + Wetlands Precedents: **Living with Dynamic Hydrology**



Mill River Park + Greenway, Stamford, CT

Uplands + Built Environment Precedents: Bioswales, Rain Gardens, Dry Creeks

Benefits:

- Increased infiltration of run-off
- Reduced sediments, turbidity, + pollutant loads = improved water quality
- Educational opportunities
- Increased biodiversity + habitat



Cornell, Ithaca, NY



Uplands + Built Environment Precedents: **Permeable Paving**

Benefits:

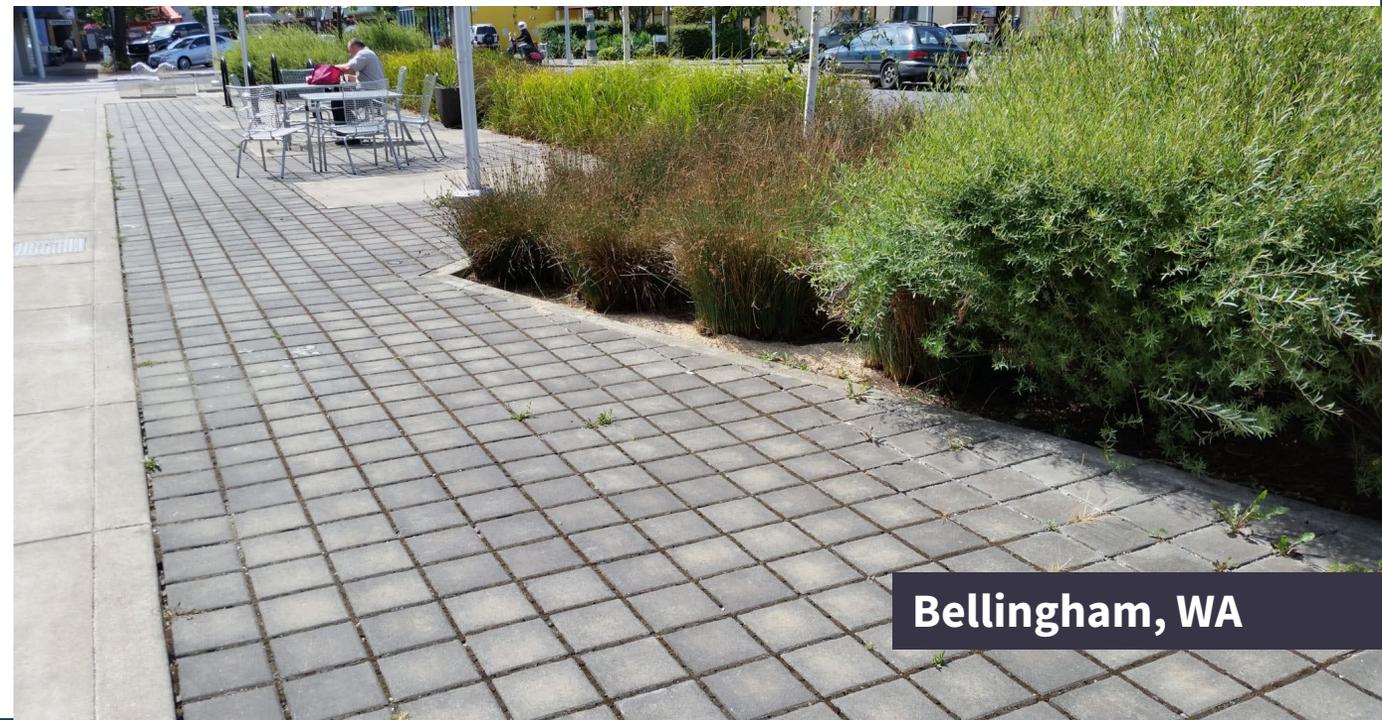
- Reduce stormwater runoff volumes
- When combined with other green infrastructure, reduction in heat island effect



Beacon, NY



Boston, MA



Bellingham, WA

Uplands + Built Environment Precedents: Community/Sports Field in Floodprone Area



Deerfield, MA

Next Steps

School Visit

Design Workshop #2

Summary Report

Thank You!