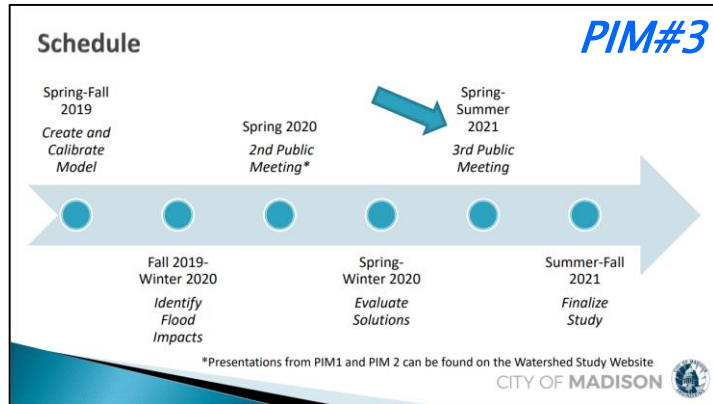
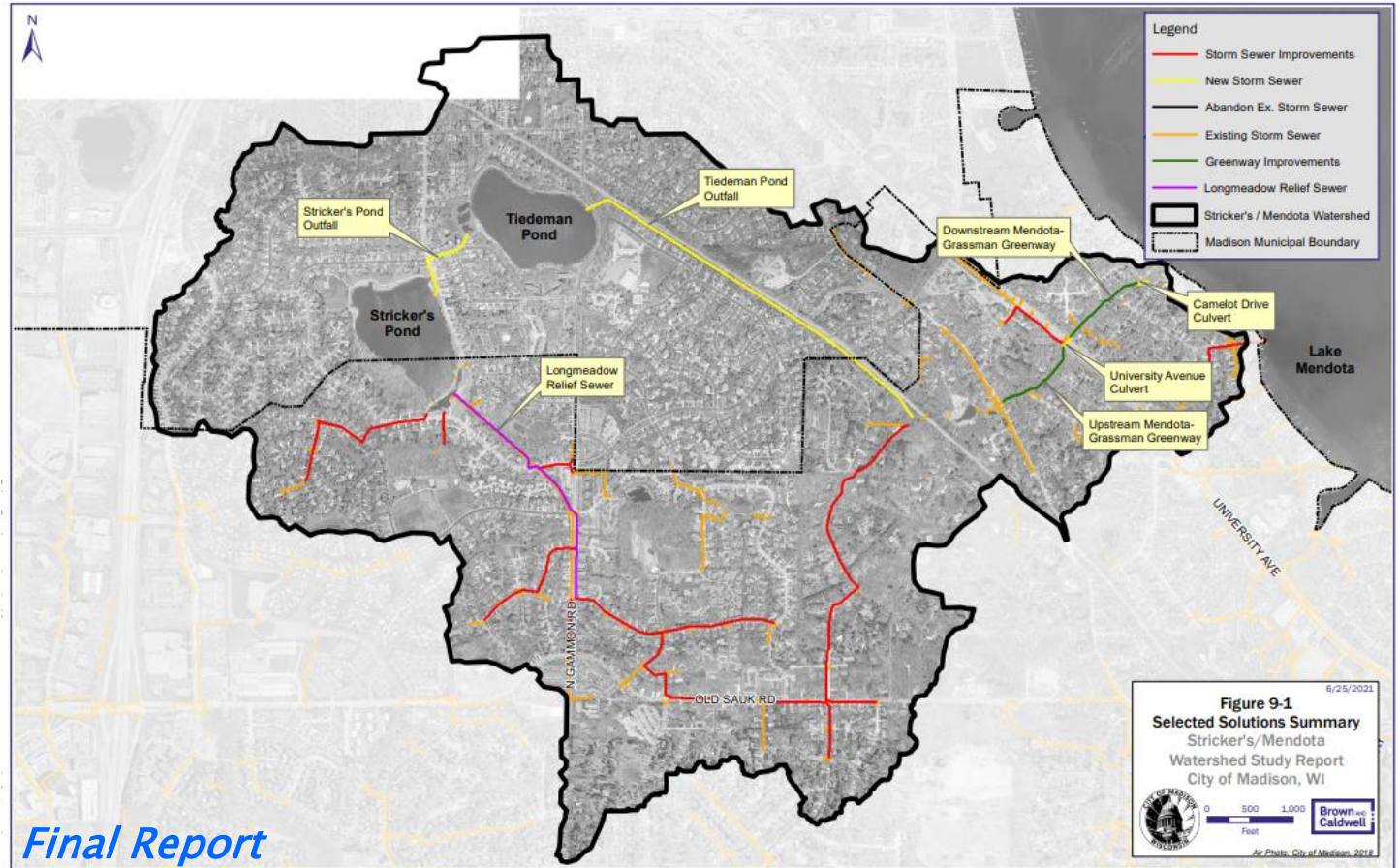


Project from Strickers/Mendota Watershed Study

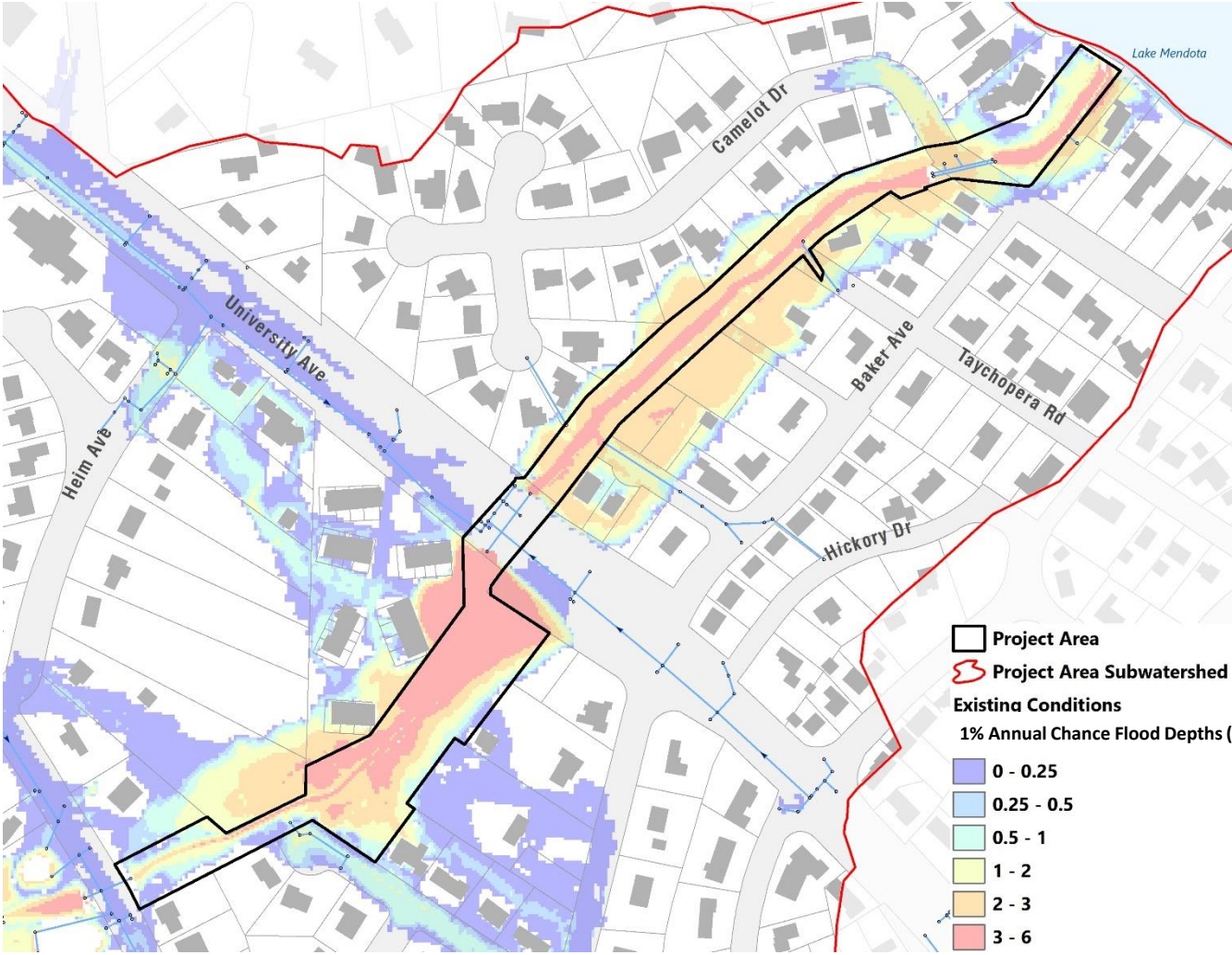


- Proposed Solutions** *PIM#3*
- ▶ Local storm sewer improvements
 - ▶ Longmeadow Relief Sewer
 - ▶ Mendota-Grassman Greenway Improvements
 - Greenway Modifications
 - University Avenue Culvert
 - Camelot Drive Culvert
- CITY OF MADISON

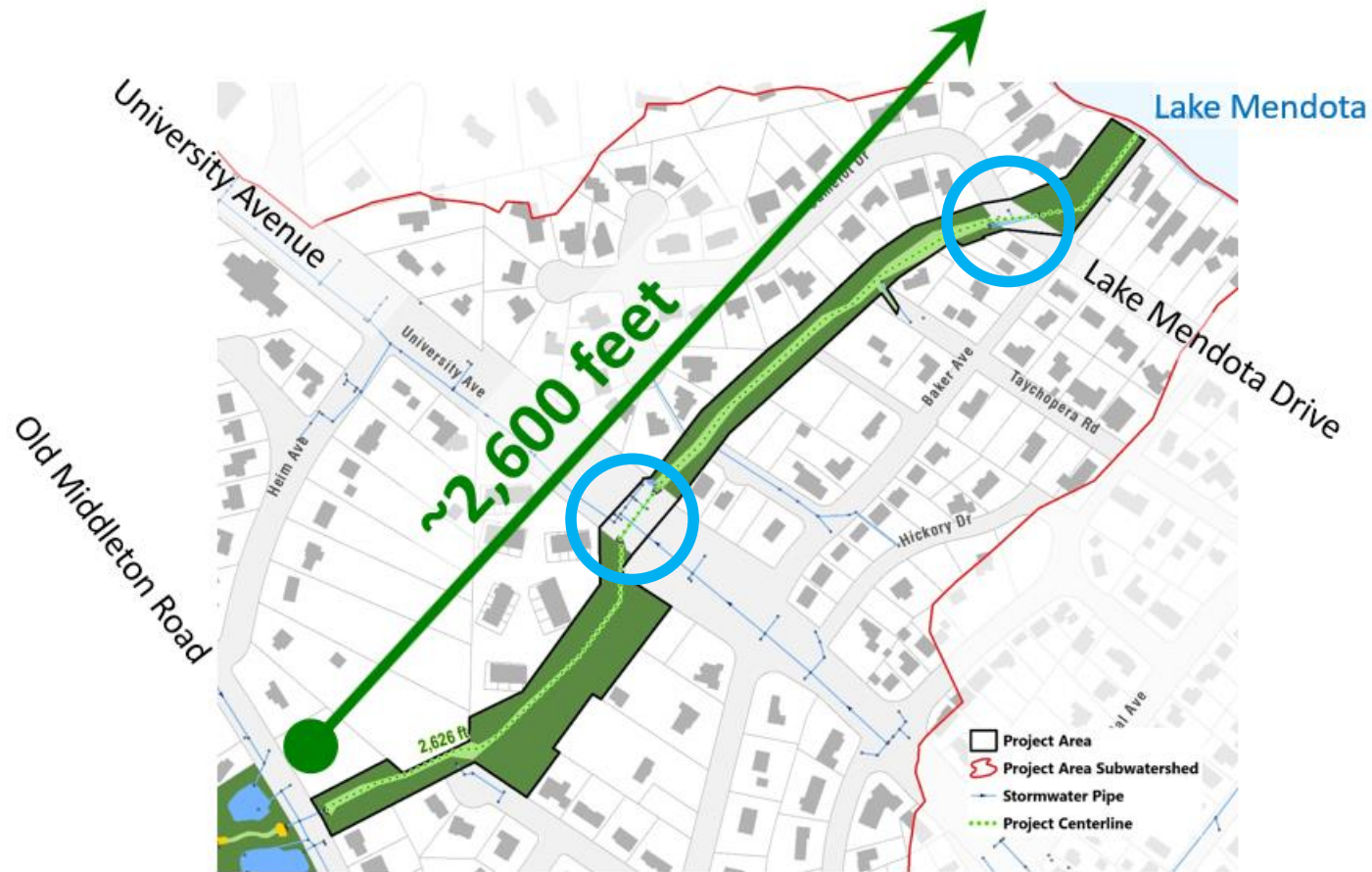


<https://www.cityofmadison.com/engineering/projects/strickers-mendota-watershed-study>

Existing Conditions 1% Annual Chance Flood



Mendota-Grassman Greenway Project



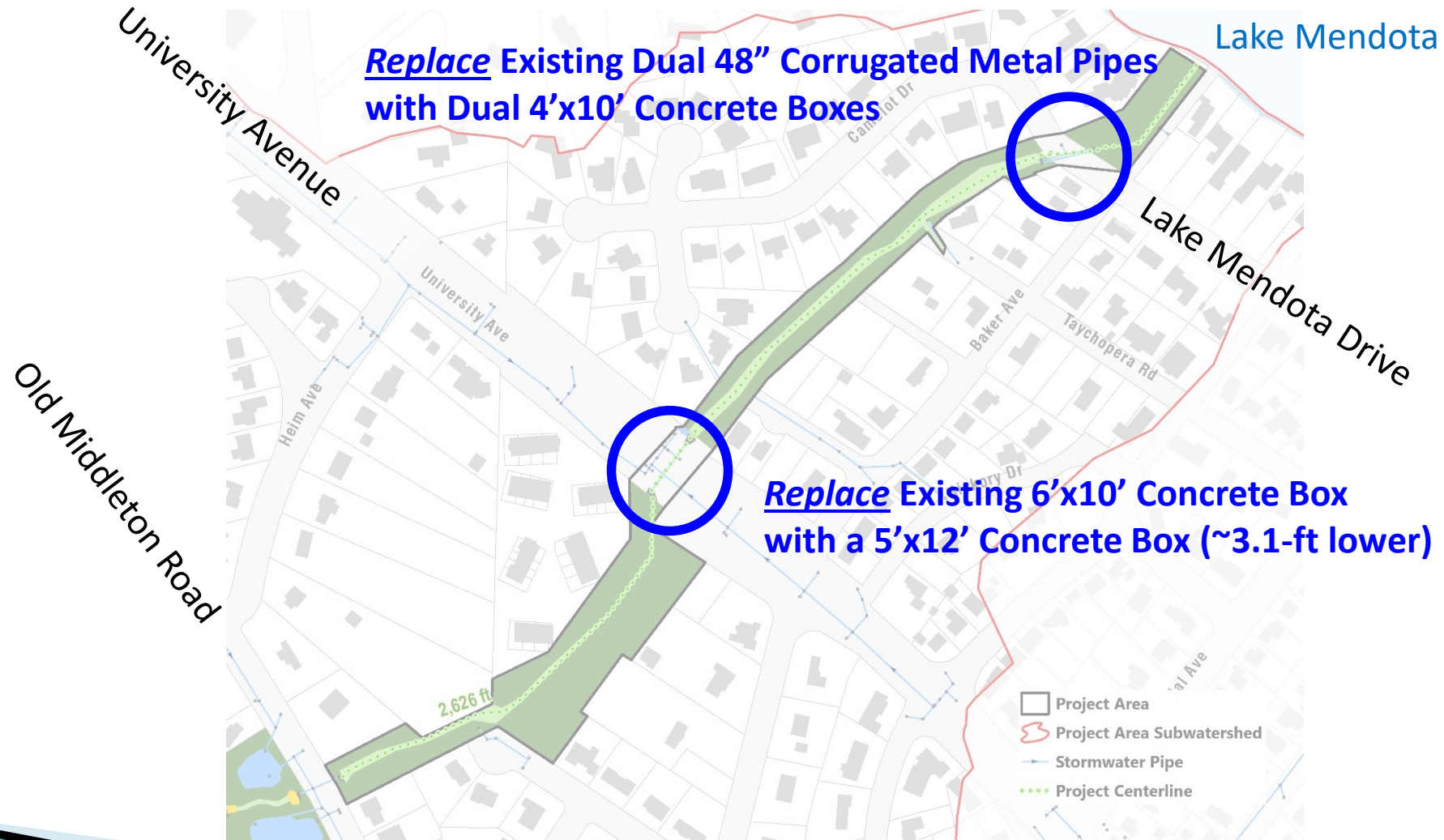
Flood Mitigation Targets

- 1% Chance Event (6.66" rain/24 hours)
- No structure (home/building) flooding
 - No greenway crossing overflow

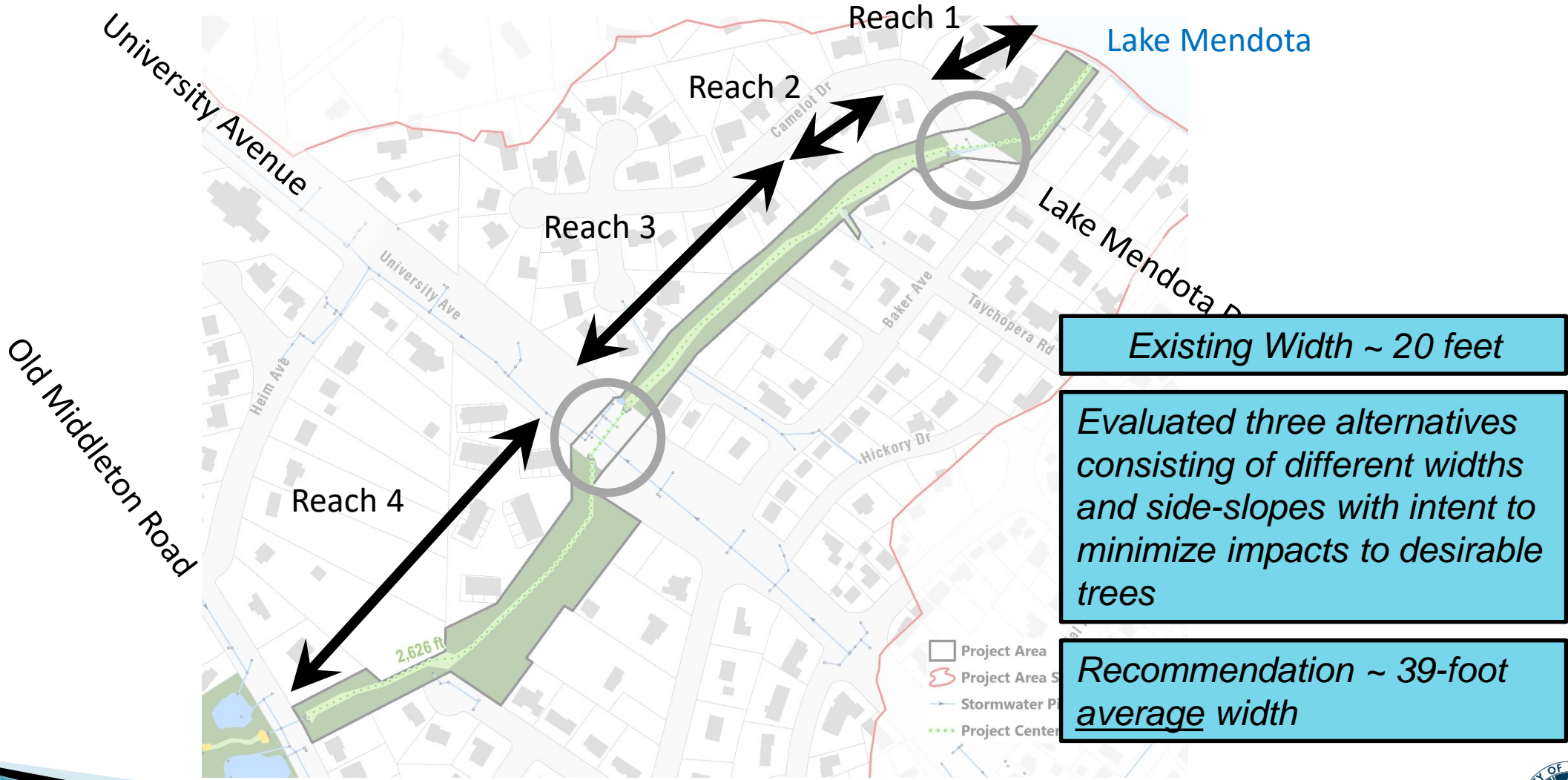
Project Scope

- Increase capacity at University Avenue
- Increase capacity at Camelot Drive
- 2,600 feet of channel improvement

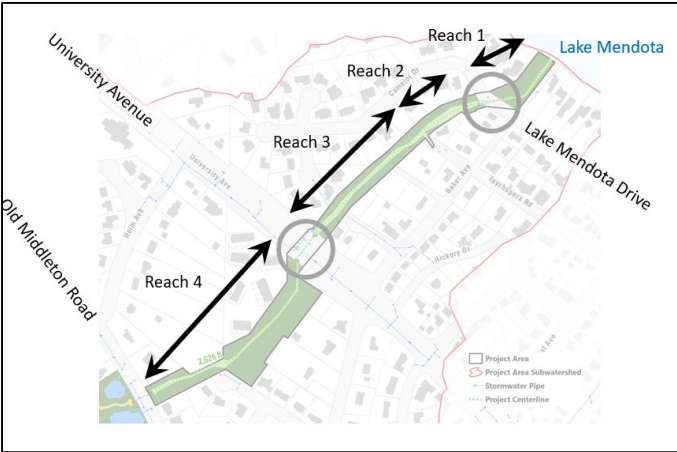
Project Segments – Pipe Work



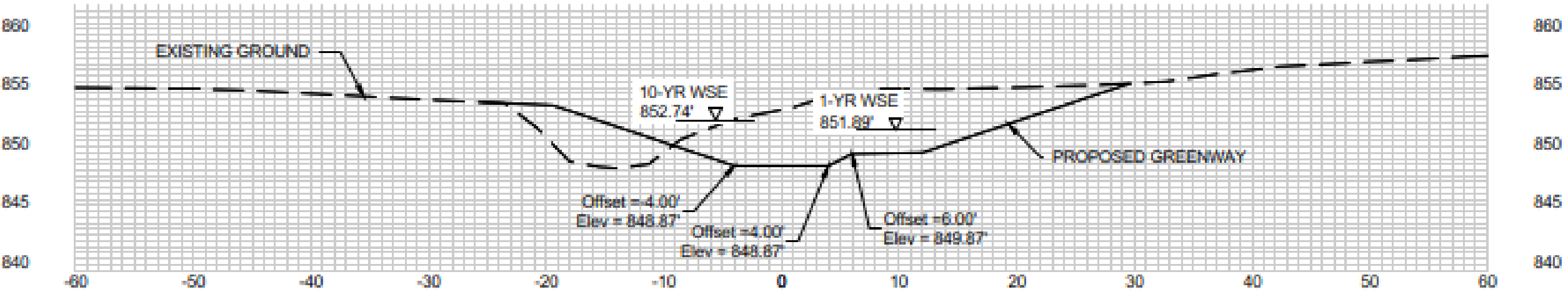
Project Segments – Channel Work



Reach #1 – Typical Section



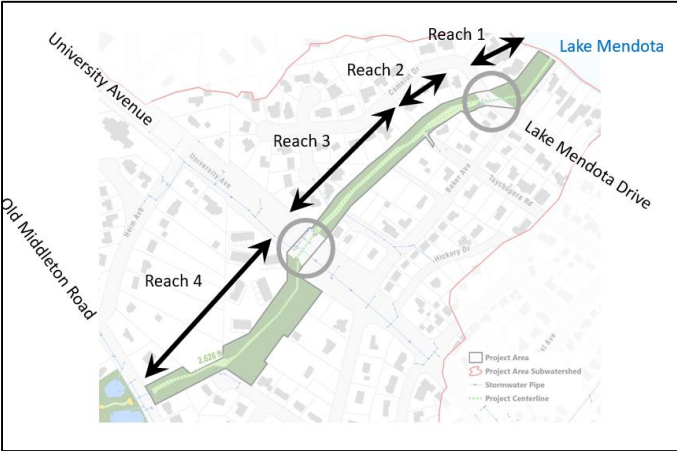
- Width at Bottom = 8 ft
- Width at Shelf = 19.4 ft
- Low Flow Side Slope = 2:1
- Main Channel Side Slope = 3:1
- Width at Top ~ 53 ft



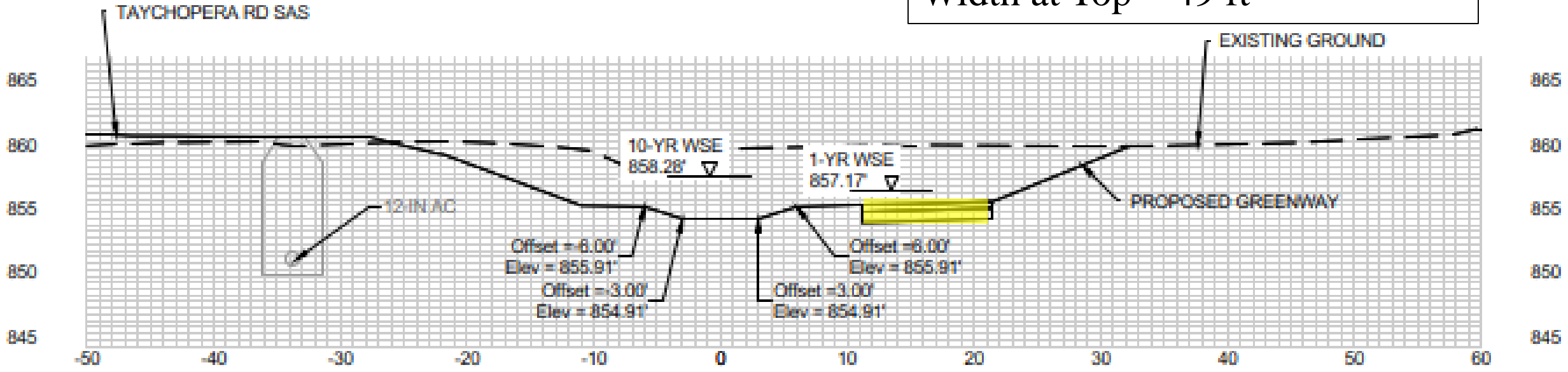
STA 151+50



Reach #2 – Typical Section



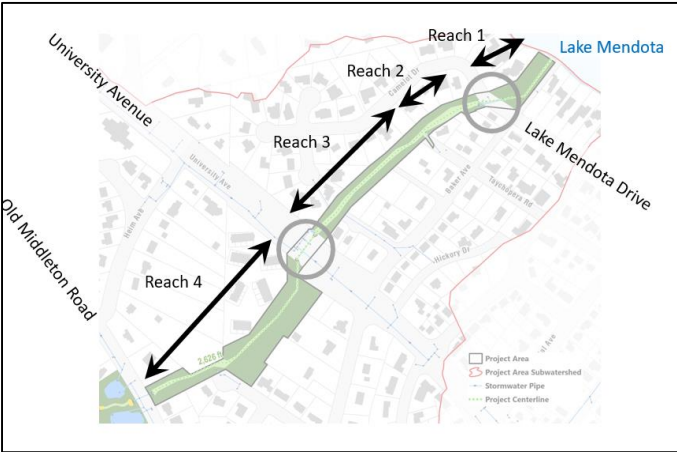
Width at Bottom = 6 ft
 Width at Shelf = 20.6 ft
 Low Flow Side Slope = 2:1
 Main Channel Side Slope = 2.8:1
 Width at Top ~ 49 ft



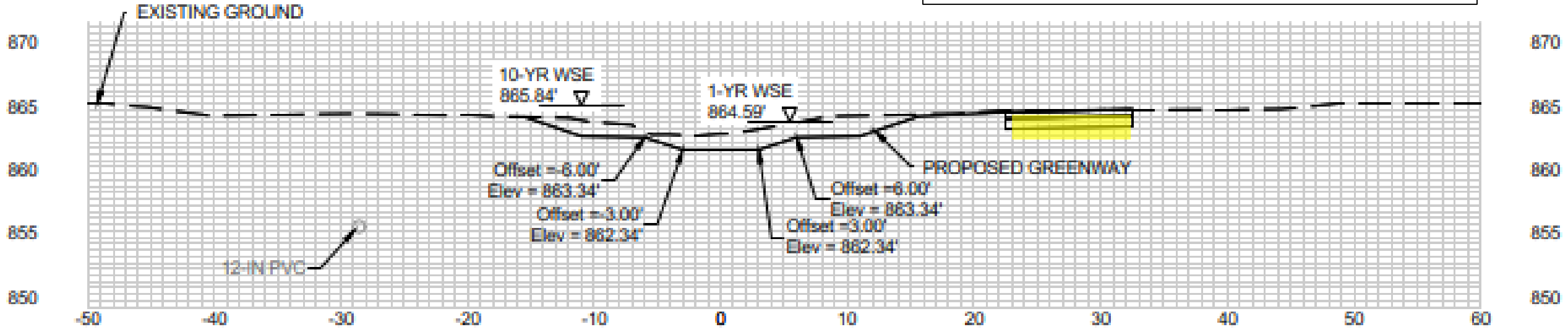
STA 157+50



Reach #3 – Typical Section



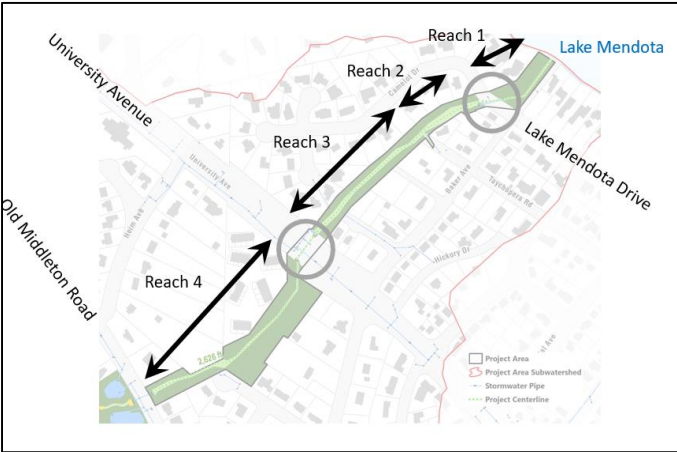
Width at Bottom = 6 ft
 Width at Shelf = 22 ft
 Low Flow Side Slope = 3.5:1
 Main Channel Side Slope = 3:1
 Width at Top ~ 39



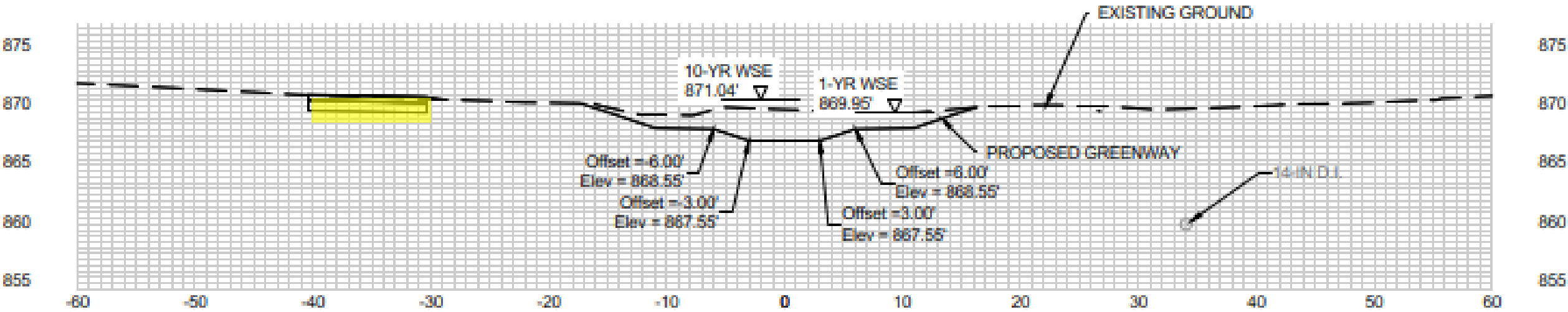
STA 163+50



Reach #4 – Typical Section



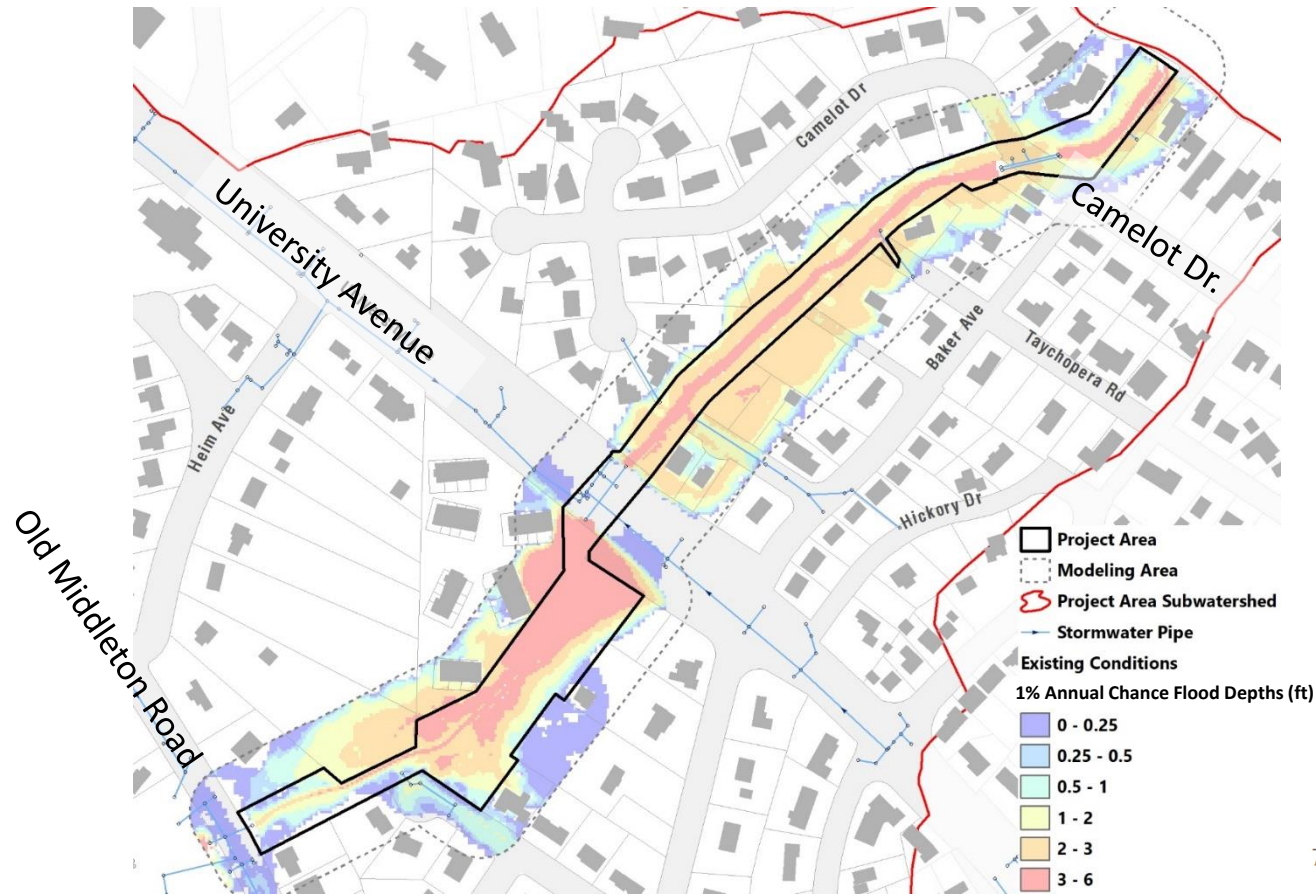
Width at Bottom = 6 ft
 Width at Shelf = 22 ft
 Low Flow Side Slope = 3:1
 Main Channel Side Slope = 3:1
 Width at Top ~ 30



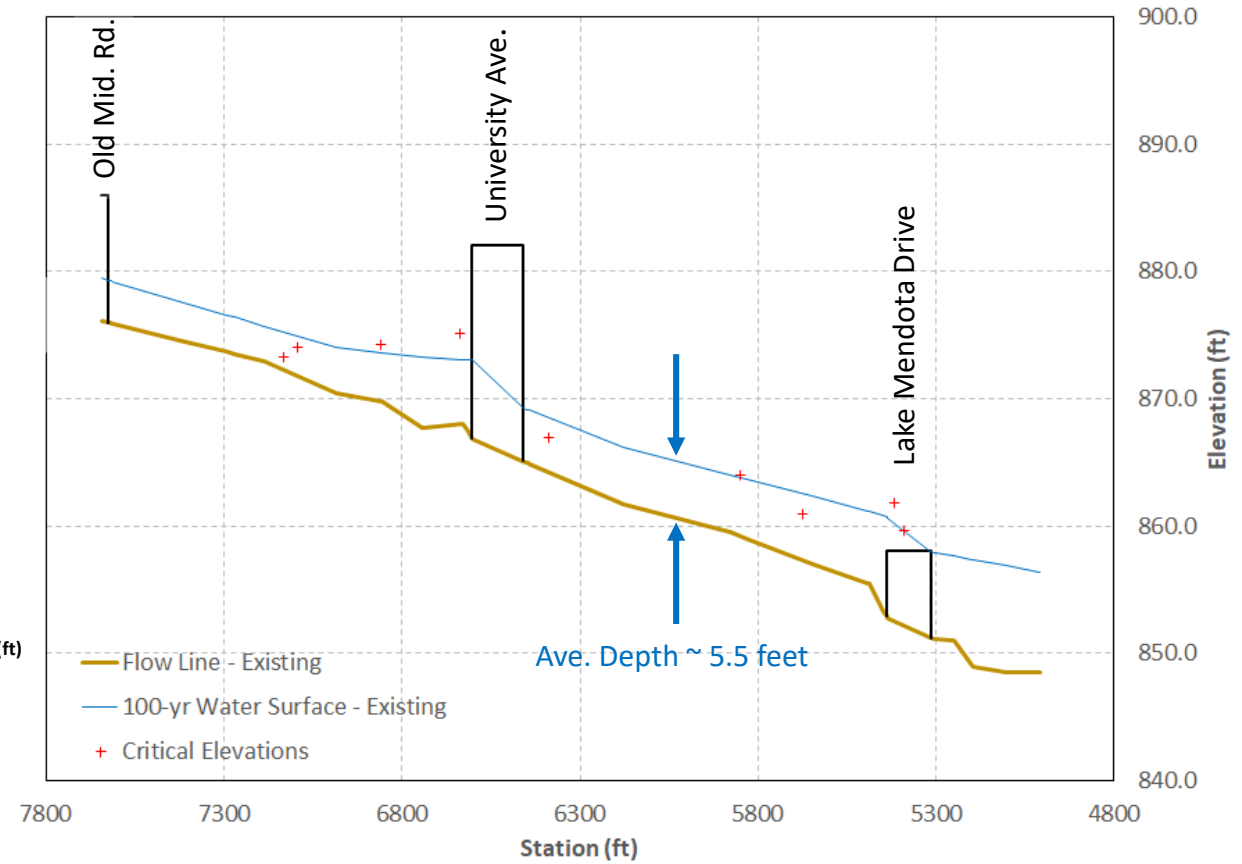
STA 169+50



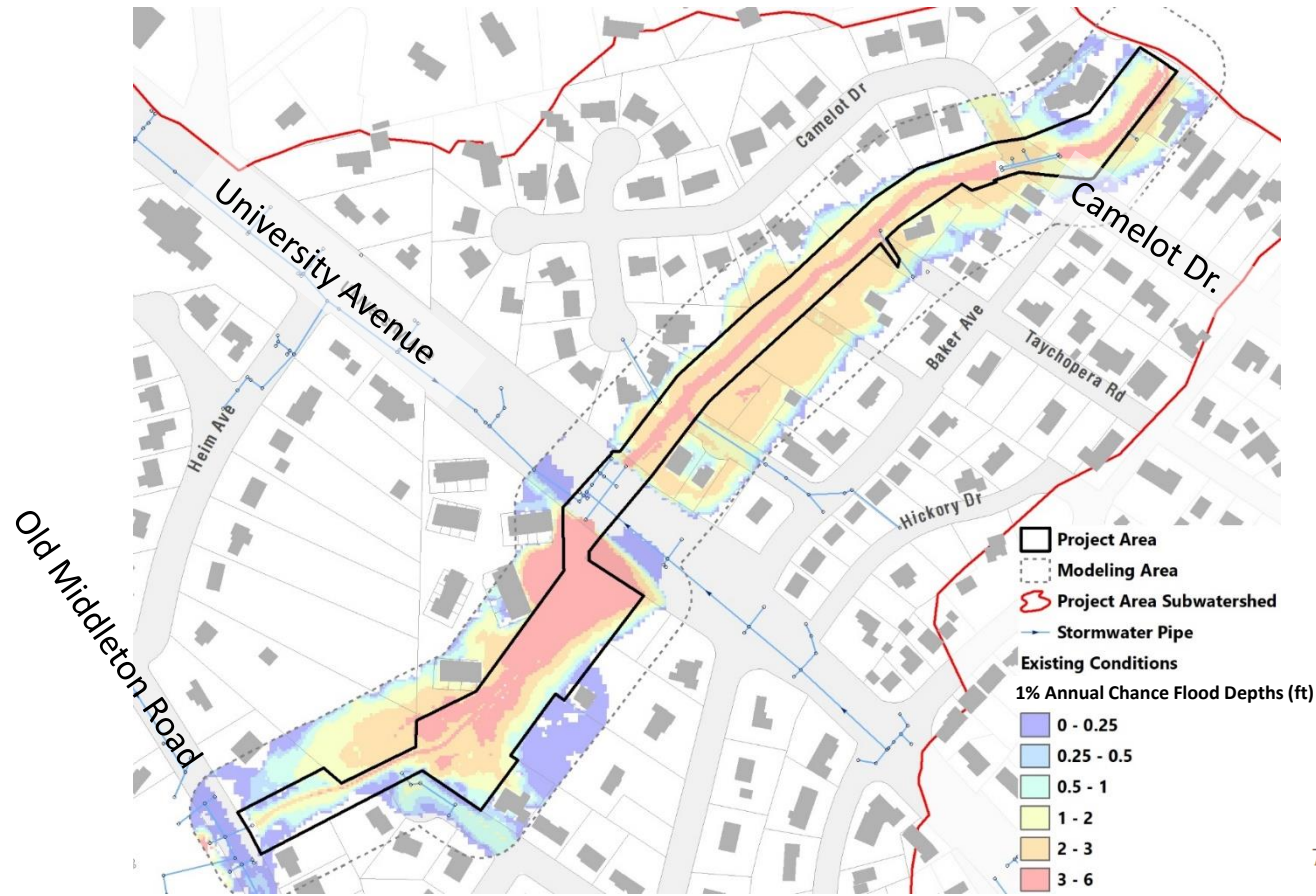
Targeted Flood Reduction



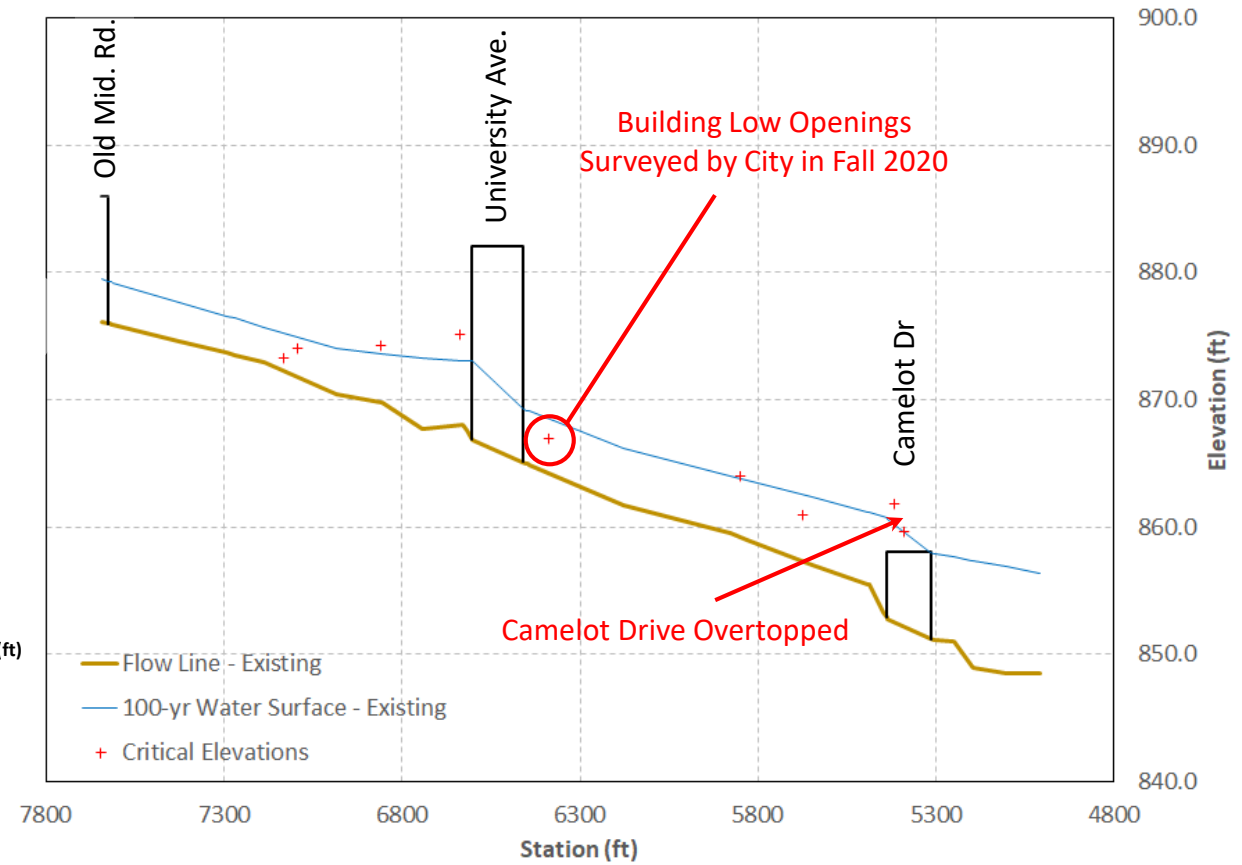
Mendota Grassman Greenway 100-yr Flood Profile



Targeted Flood Reduction

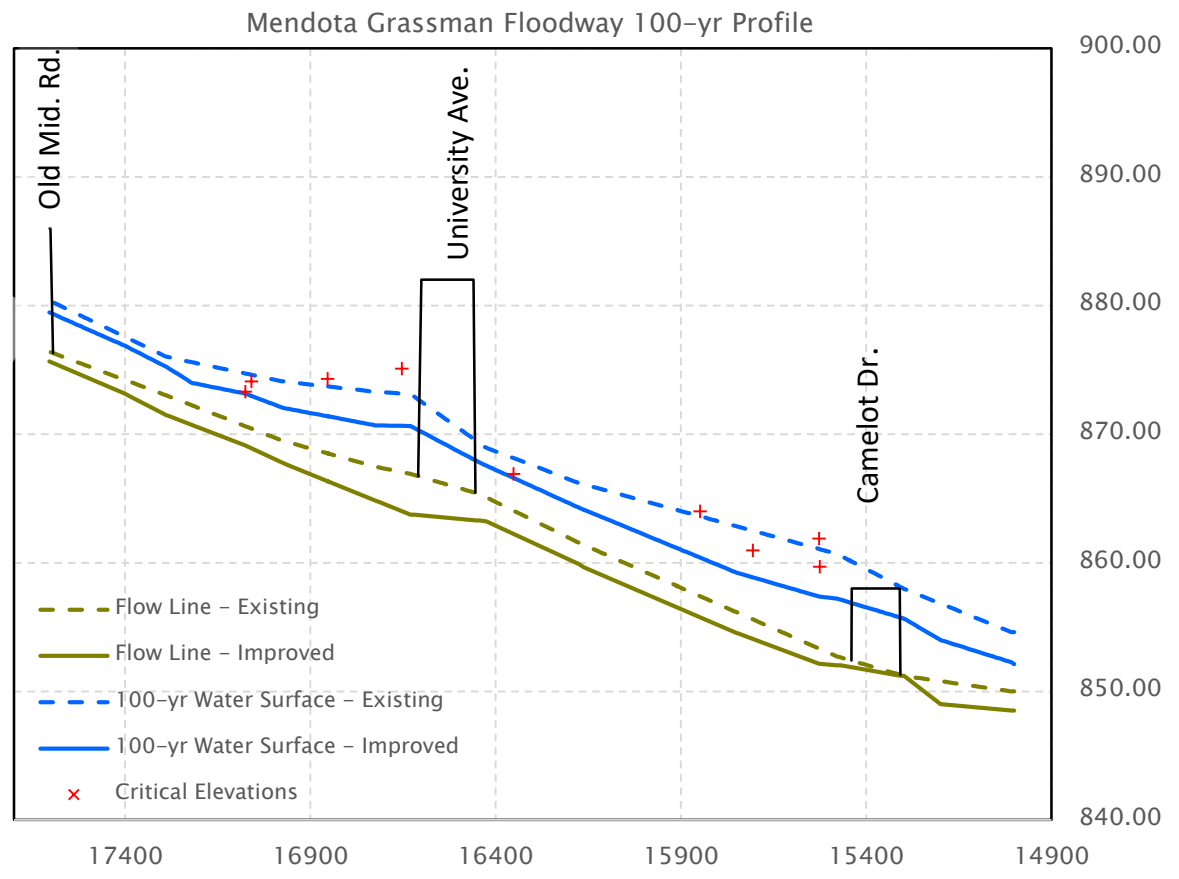
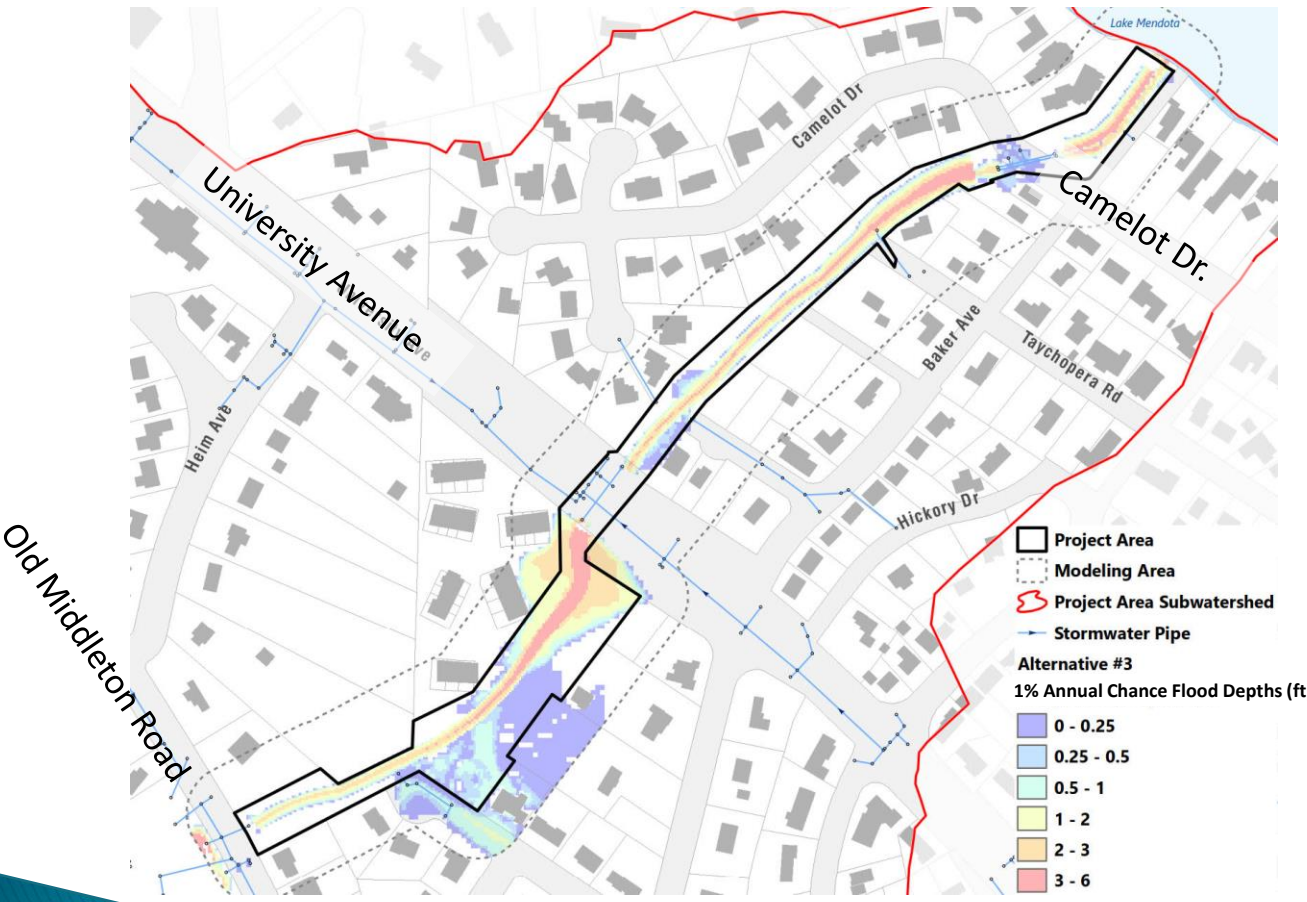


Mendota Grassman Greenway 100-yr Flood Profile



Current Design - 1% Annual Chance Inundation

Average Inundation Elevation Reduction = 2.2 feet



Maintenance Access

- ▶ Channel maintenance access
 - Primarily gravel topped with soil/vegetation
 - Some small portions in floodplain are concrete flexamat
 - To maintain channel, prevent blockages that could cause flooding
- ▶ Sanitary Access
 - Gravel
 - Clean sanitary sewer
 - Access sewer in emergencies



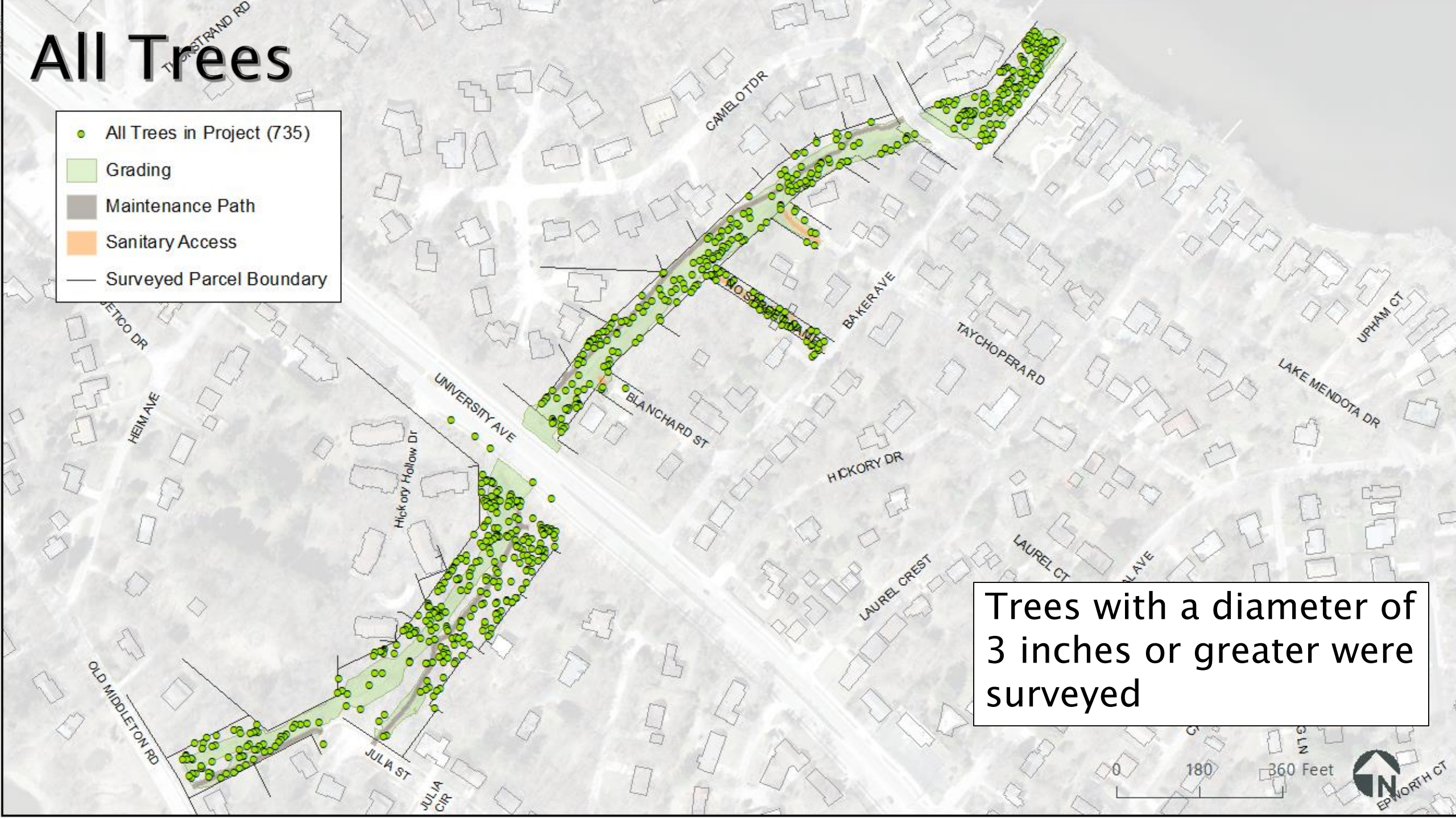
Current Vegetation



Woody volunteers: ash, buckthorn, box elder, honeysuckle. Little to no oak regeneration. Low herbaceous veg. diversity: Virginia stickseed, Virginia creeper, burdock, curly dock, jewelweed, garlic mustard.

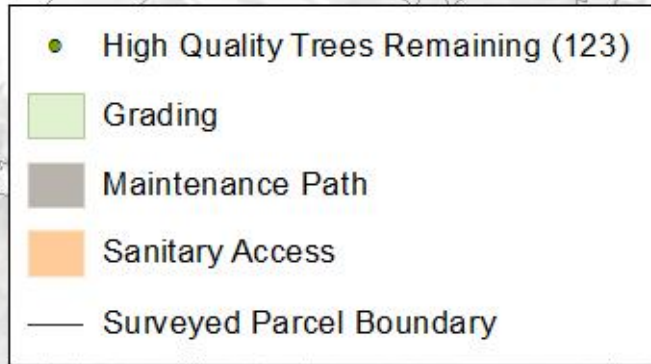
All Trees

- All Trees in Project (735)
- Grading
- Maintenance Path
- Sanitary Access
- Surveyed Parcel Boundary

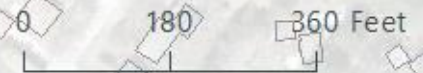


Trees with a diameter of 3 inches or greater were surveyed

High Quality Trees Remaining



• Restoration plans shown were based off of these high quality trees remaining and site context



Ecological Restoration

Remove Invasive Plants

- density to replicate wetland and sedge meadow ecological conditions that support fluctuating water.

Install native shrubs, forbs and grasses

- within areas of higher velocity to quickly establish root structure to stabilize soil.
- Native forbs and grasses have the root structure necessary to stabilize soil and increase infiltration in wet conditions.

Seed with aggressive native seed

- mixes based on flood tolerances, sun, and soil moisture to create quick forming native understory that is less susceptible to invasive species takeover.

Ongoing removals of invasives

- Include in multi-year ecological restoration contract to get native understory started
- Manage with minimal mowing, prescribed burn, targeted invasive treatment

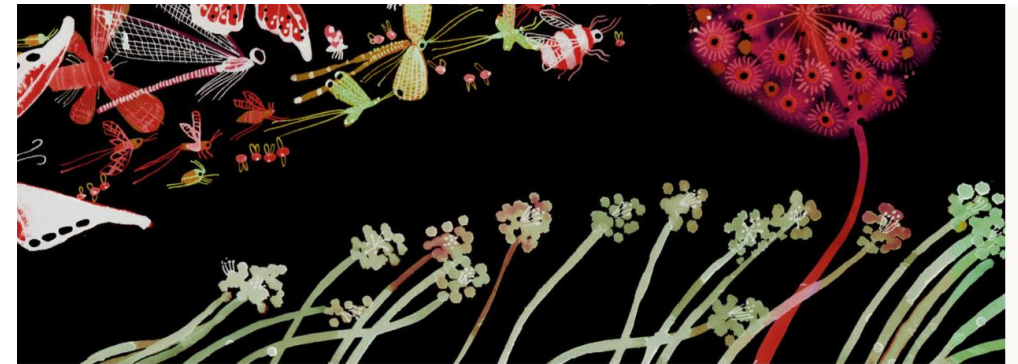
Ecological Restoration

- ▶ Benefits
 - Biodiversity
 - Insects– Specialist species that need specific habitat plants are particularly helped by ecological restoration (e.g. monarch butterfly)
 - “Ninety percent of the insects that eat plants can develop and reproduce only on the plants with which they share an evolutionary history,” Doug Tallamy
 - Habitat
 - Soil Health
 - Reducing erosion and nutrients runoff that enter our lake and impair our waters
 - Carbon Impact
 - Studies are finding that native grasslands act as carbon sinks

Plummeting insect numbers 'threaten collapse of nature'



The Guardian, Feb 10, 2019







NZO PERES-LABOURETTE / YALE E360

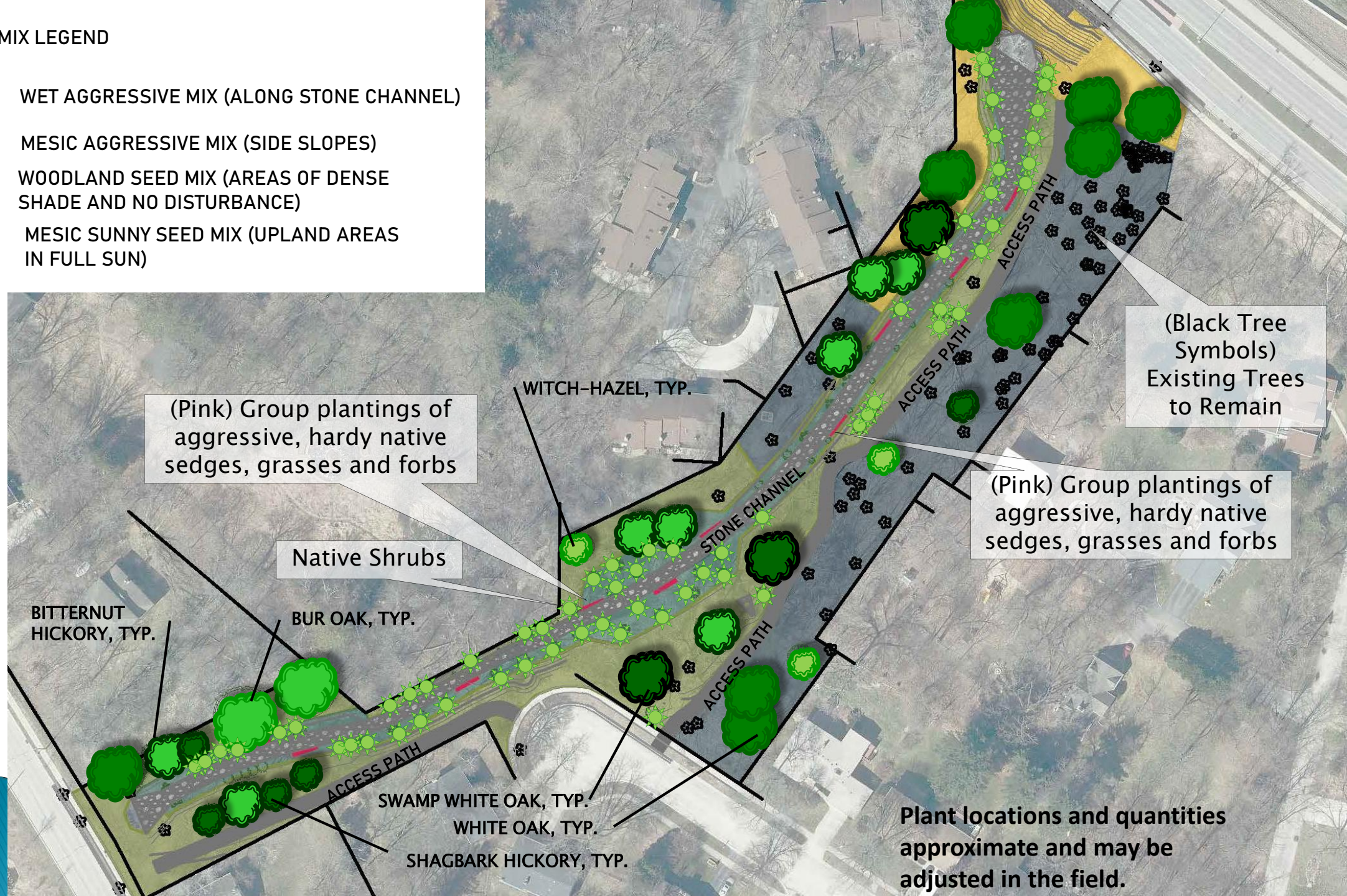
How Non-Native Plants Are
Contributing to a Global Insect
Decline

Yale School of the Environment
E360, December 8, 2020



SEED MIX LEGEND

-  WET AGGRESSIVE MIX (ALONG STONE CHANNEL)
-  MESIC AGGRESSIVE MIX (SIDE SLOPES)
-  WOODLAND SEED MIX (AREAS OF DENSE SHADE AND NO DISTURBANCE)
-  MESIC SUNNY SEED MIX (UPLAND AREAS IN FULL SUN)



(Pink) Group plantings of aggressive, hardy native sedges, grasses and forbs

Native Shrubs

WITCH-HAZEL, TYP.

BITTERNUT HICKORY, TYP.

BUR OAK, TYP.

(Pink) Group plantings of aggressive, hardy native sedges, grasses and forbs

(Black Tree Symbols) Existing Trees to Remain

SWAMP WHITE OAK, TYP.

WHITE OAK, TYP.





SHAGBARK HICKORY, TYP.

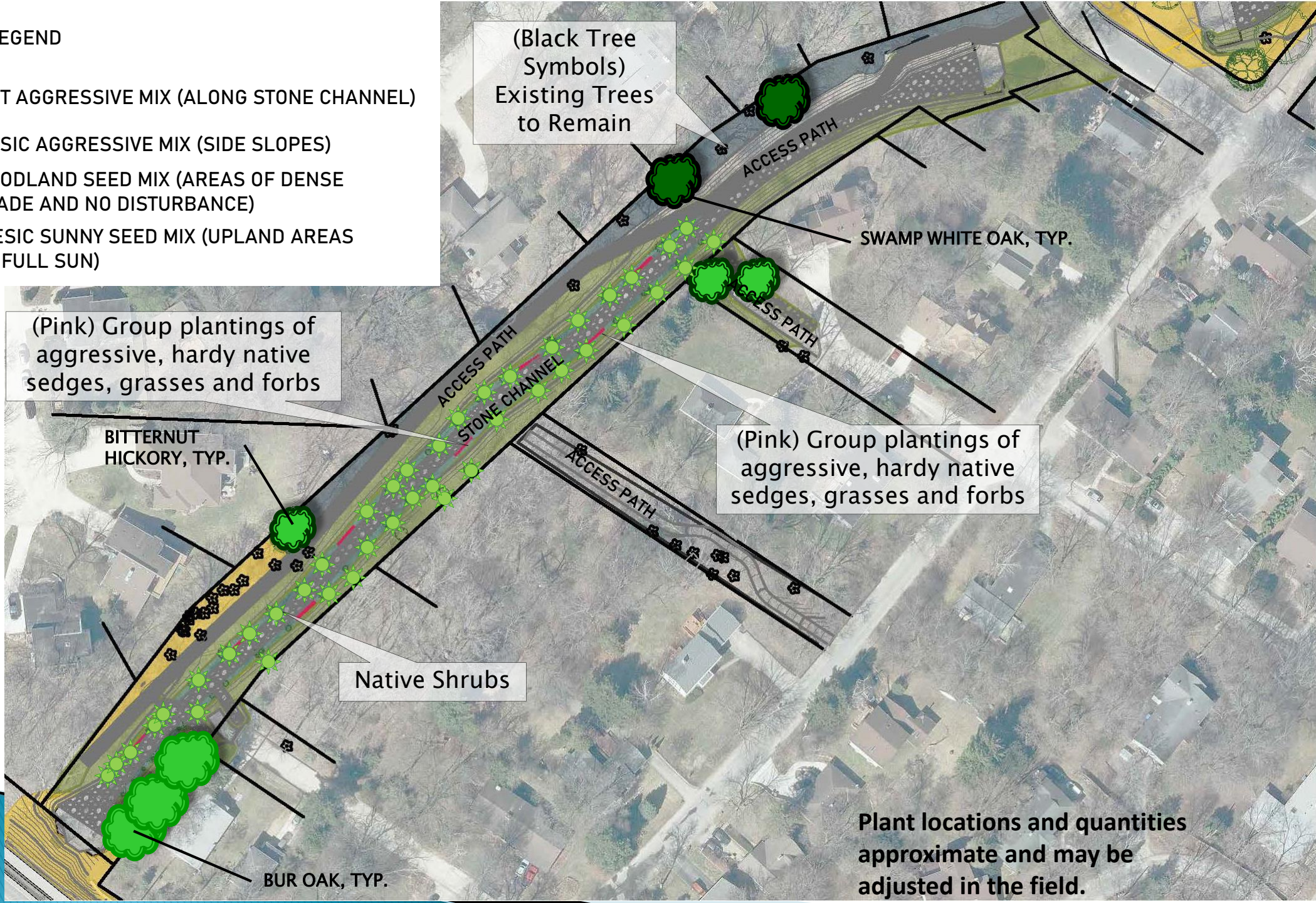
Plant locations and quantities approximate and may be adjusted in the field.

N



SEED MIX LEGEND

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(Black Tree Symbols)
Existing Trees
to Remain

SWAMP WHITE OAK, TYP.

(Pink) Group plantings of
aggressive, hardy native
sedges, grasses and forbs

BITTERNUT
HICKORY, TYP.

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Native Shrubs

BUR OAK, TYP.

Plant locations and quantities
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