



How do you solve a problem like McCoy's Creek? Urban Stream Restoration

Presentation for: Florida Stormwater Association
June 2025

Let's start at the very beginning...



The Problem

- ❖ Chronic Flooding
- ❖ Environmental Contamination
- ❖ Failing Bulkheads

*“Raindrops on roses
and whiskers on
kittens”*



How do you solve a problem like McCoy's Creek?



Build in
resiliency



Create a
community
asset



Reduce
flooding



GROUNDWORK
Jacksonville

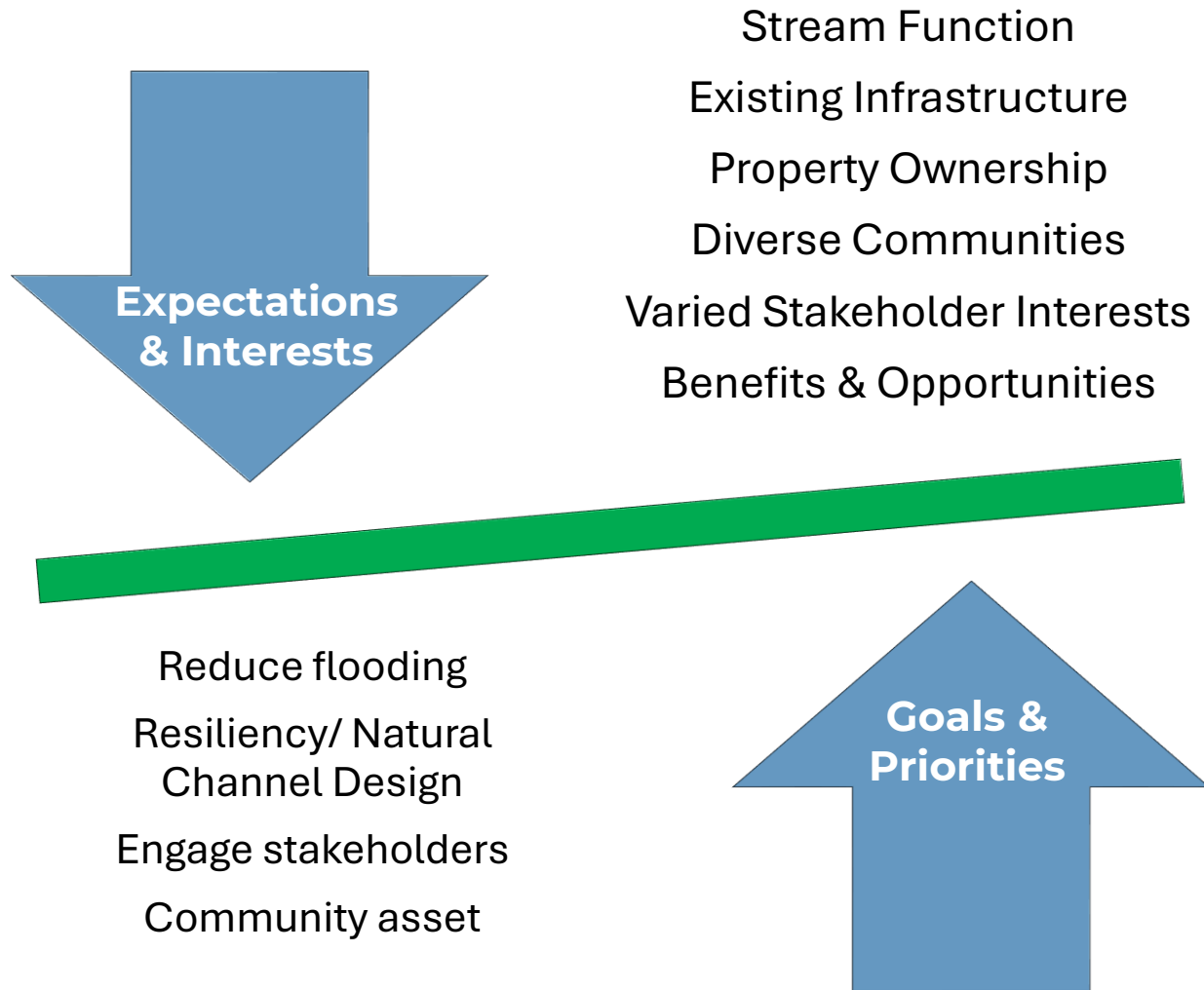


Engage
stakeholders
throughout
the process



MCCOYS
CREEK

Balancing All Our Favorite Things





DOWNTOWN
JACKSONVILLE

MCCOYS CREEK WALK

FOREST ECOLOGICAL PARK

STOCKTON TRAIL HEAD

STOCKTON ST

COMMUNITY LIVING ROOM AT NIXON

KING ST

HOLLYBROOK BLUFF

CONFLUENCE PARK

RAILROAD

SOUTH BRANCH

McCoy's Creek

Visioning Plan

Typical public works projects...

"Engineers
like to solve
problems..."





Delivering the Vision

McCoys Creek Restoration



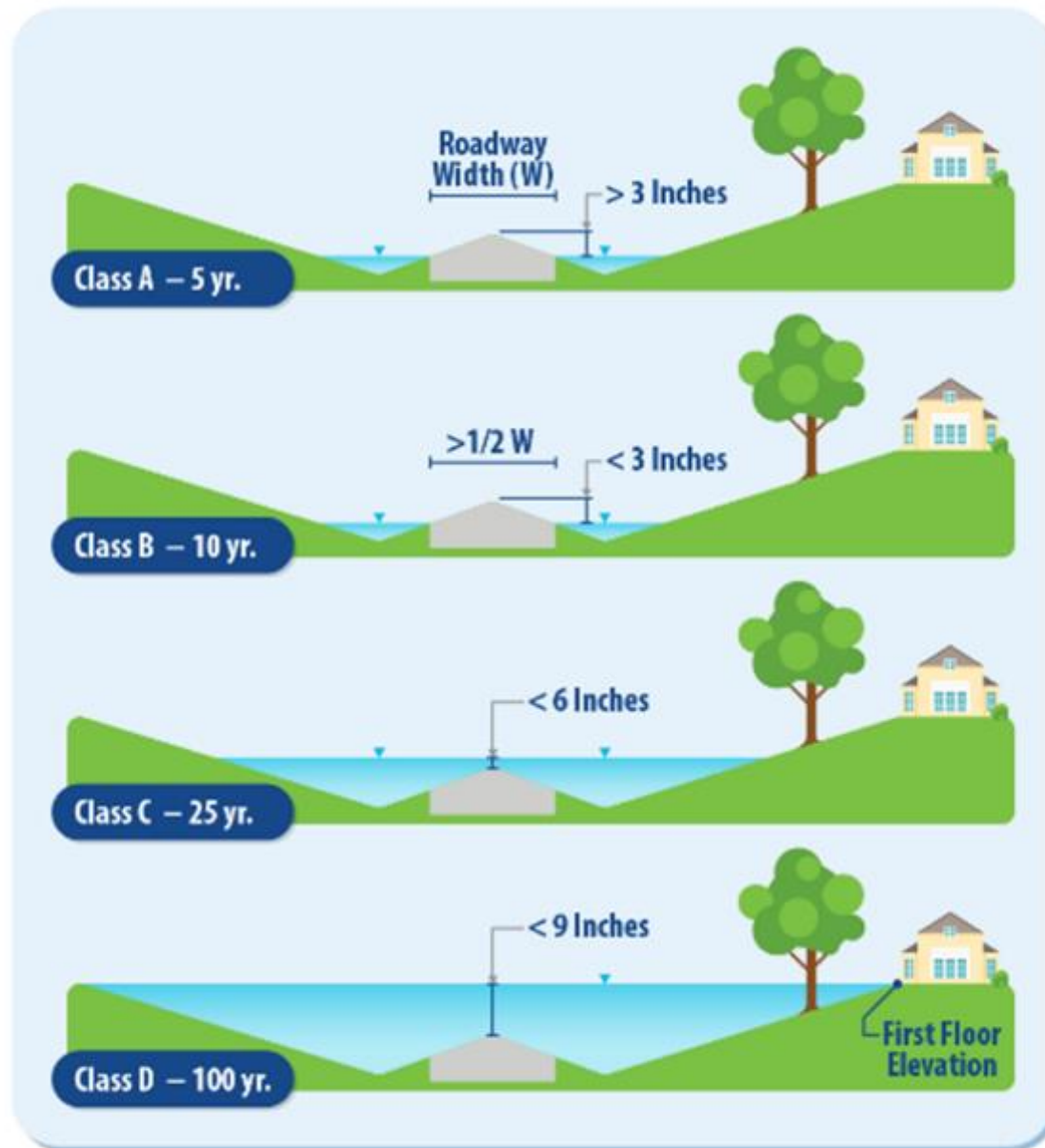
Reduce Flooding

I have confidence in sunshine, I have
confidence in rain...



Image Source:
Bob Self, The Florida Times Union
McCoys Creek in Jacksonville, FL
August 5, 2024

City Level of Service

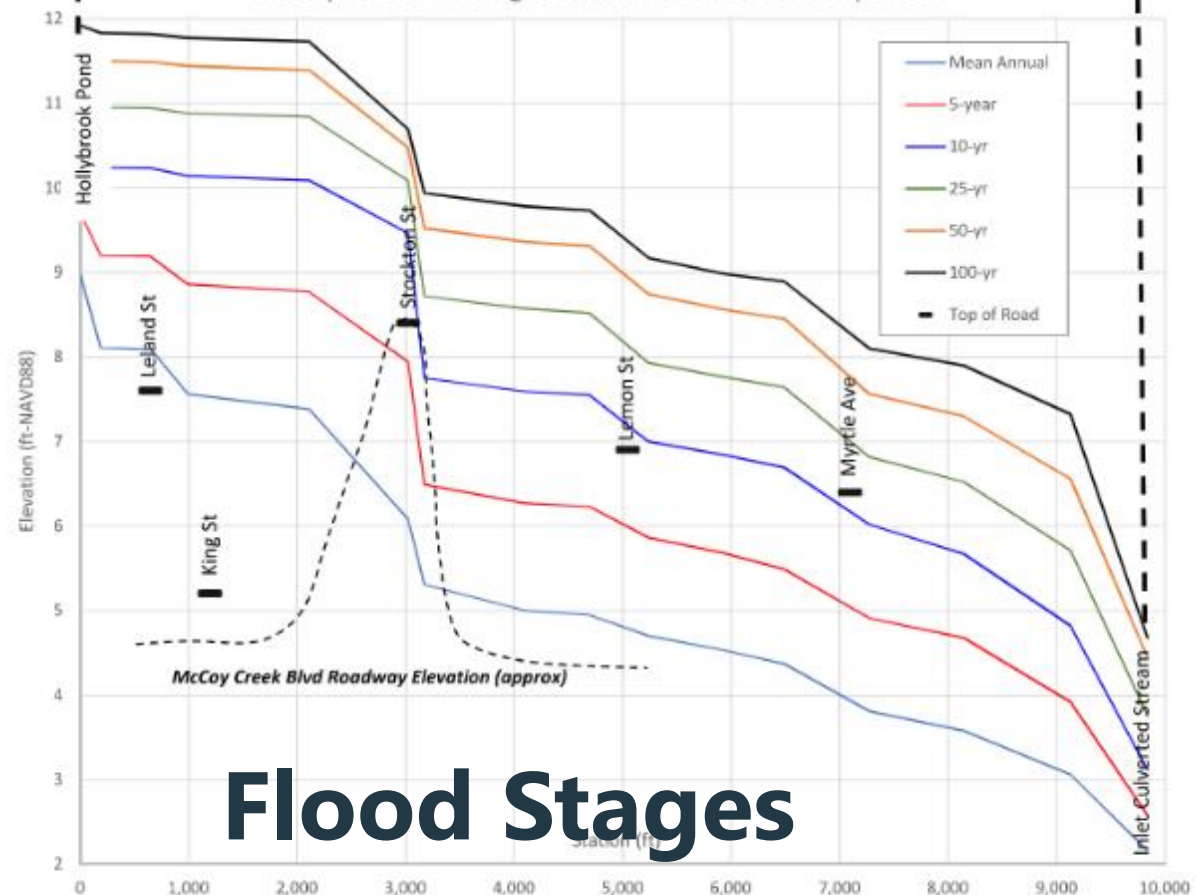


	Design Storm ¹	Standing Water
Local Road ²	5 year	< 3 in
Arterial ^{2,3}	10 year	< 3 in
	25 year	< 6 in
	100 year	< 9 in
Structures	25 year	0 ft
	100 year	0 ft

1. All storm durations are 24 hours
2. Local and Arterial roads are defined by the City and the Northeast Florida Regional Planning Council (NEFRPC)
3. Flood inundation limited to each side of the road such that $\frac{1}{2}$ of the roadway width (W) or one travel lane width is not flooded.



McCoy's Creek Existing Condition Flood Profile Comparison



Flood Stages

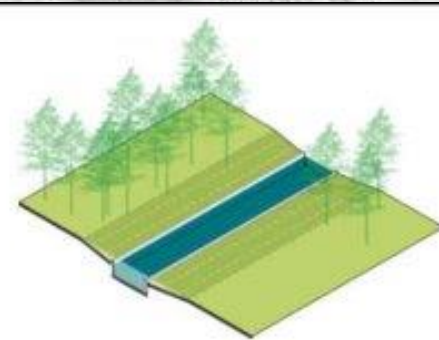
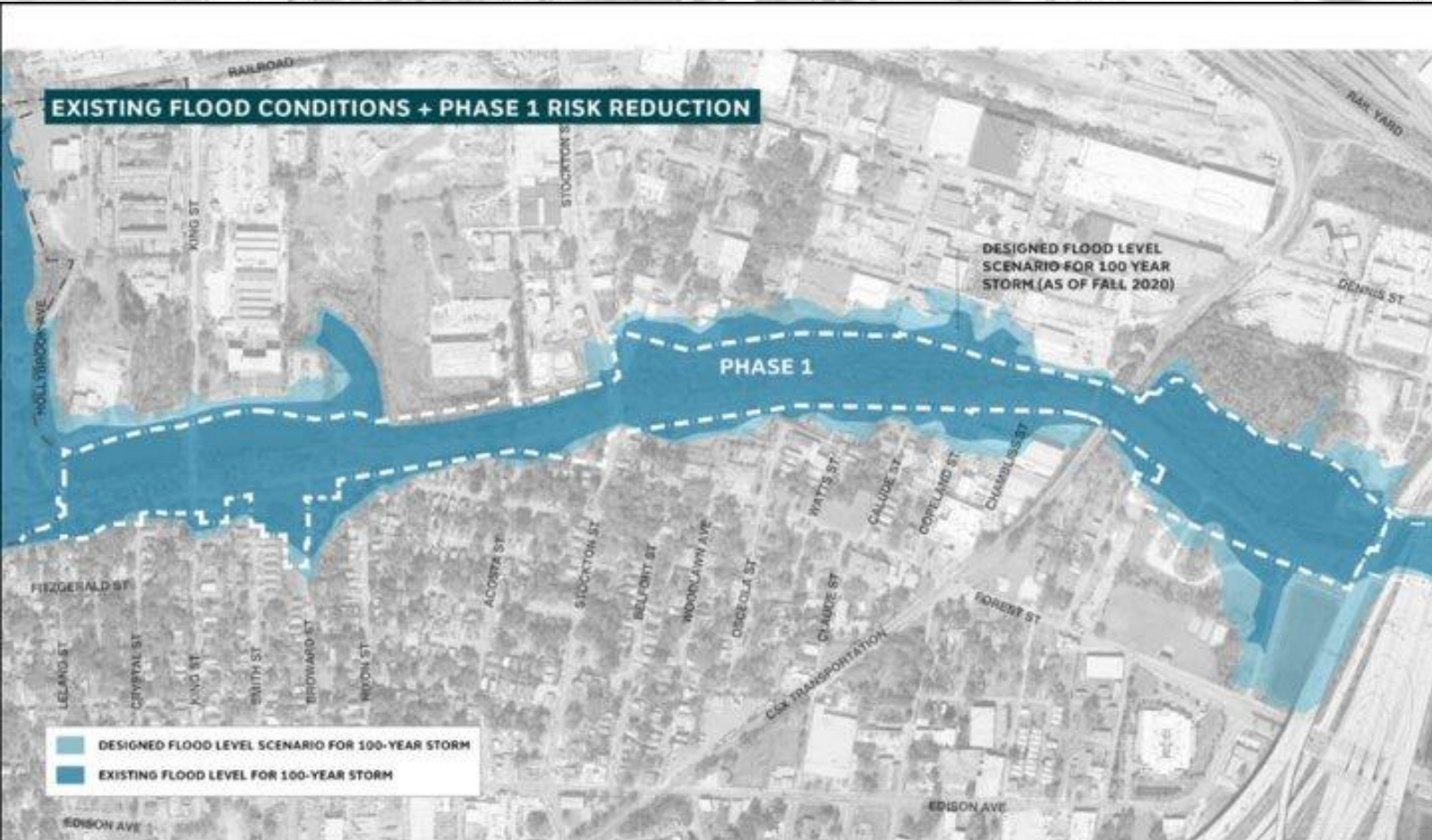


McCoys Project Components

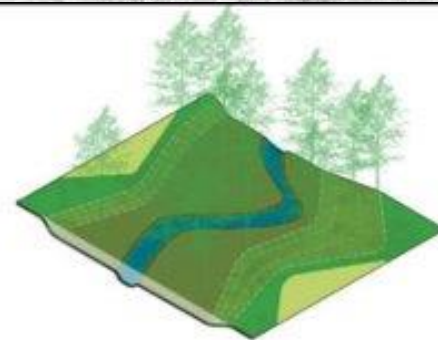
- ❖ Close McCoys Creek Blvd
- ❖ Expand the floodplain to improve LOS
- ❖ Raise King St and Stockton St bridges
- ❖ Daylight and provide conveyance improvements Myrtle Ave to the Outfall

"The flooding issues in McCoys Creek sub-basin are so pervasive that solutions must occur on a grand scale in order to address them."

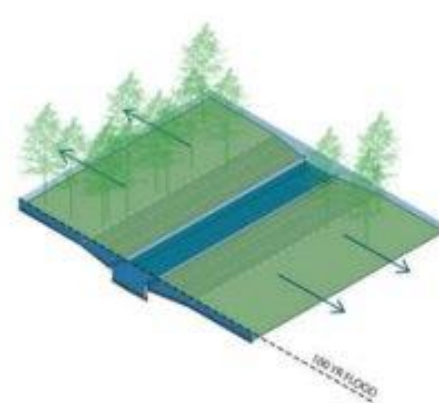
-COJ MSMP 2011



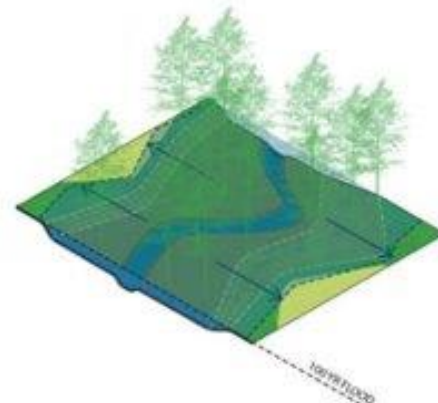
CURRENT CREEK CONDITION



FUTURE CREEK CONDITION



CURRENT CREEK CONDITION
DURING FLOOD



FUTURE CREEK CONDITION
DURING FLOOD



Flood Reduction Benefits

2020 Modeling



- ❖ 2ft flood benefit in most severe reaches
- ❖ Elevate two bridges out of the 100-yr floodplain
- ❖ Improve flood stages for 50 residents
- ❖ Improve LOS for six intersections
- ❖ Ability to implement other drainage projects

Build in Resiliency

The hills are alive . . .

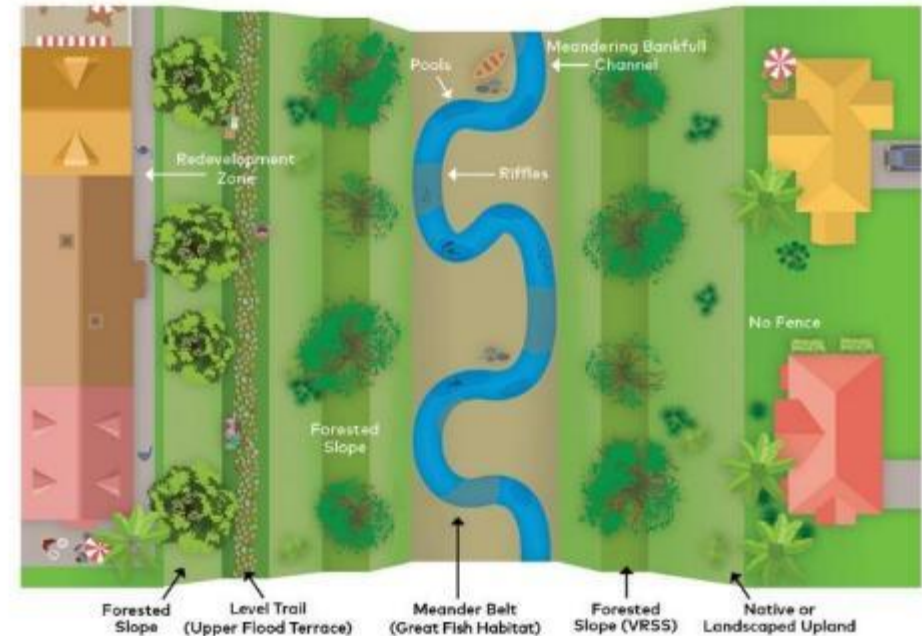
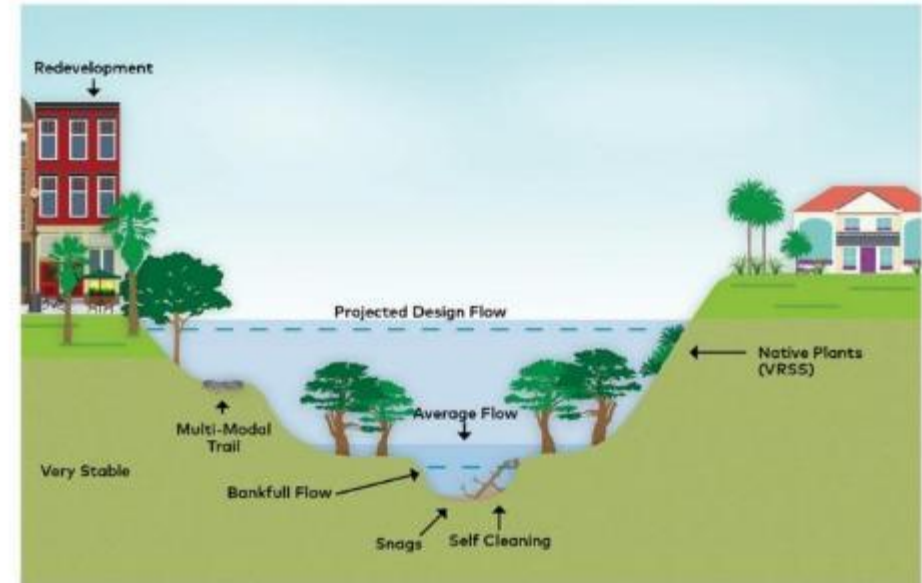


Natural Channel Design



Channelized
Stream
(Before)

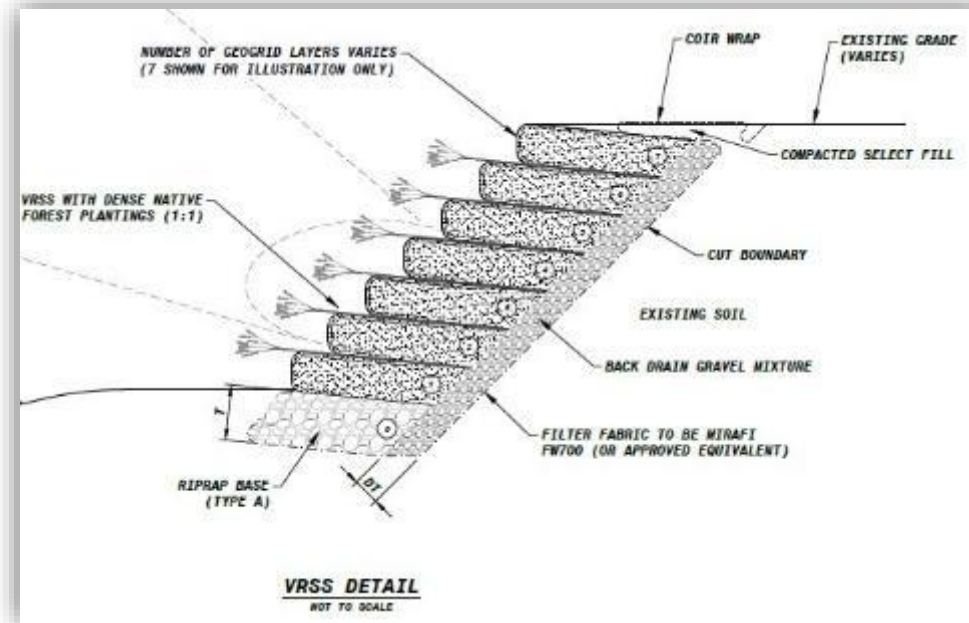
Natural
Channel
Design
(After)



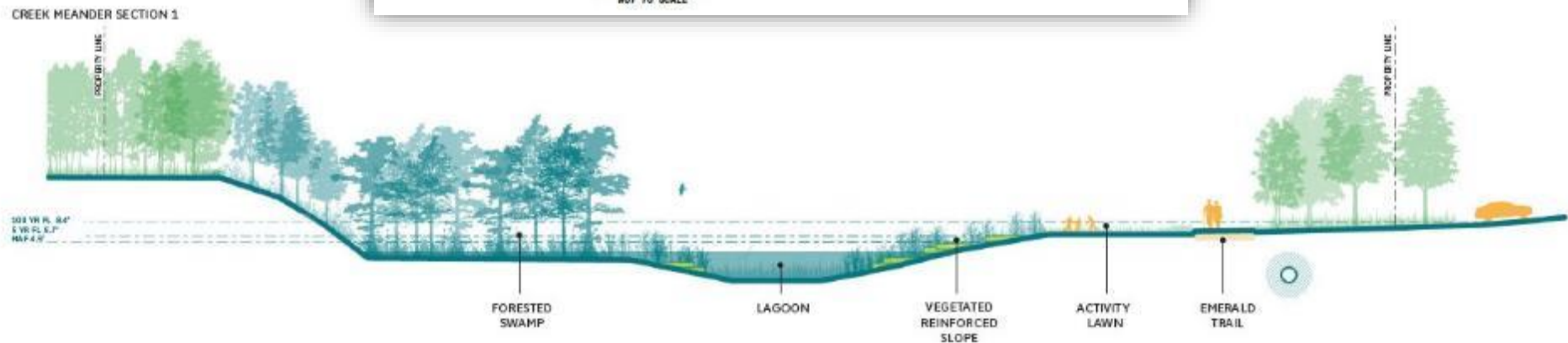
Restored Floodplain *Under Construction*



Vegetation Reinforced Soil Slope

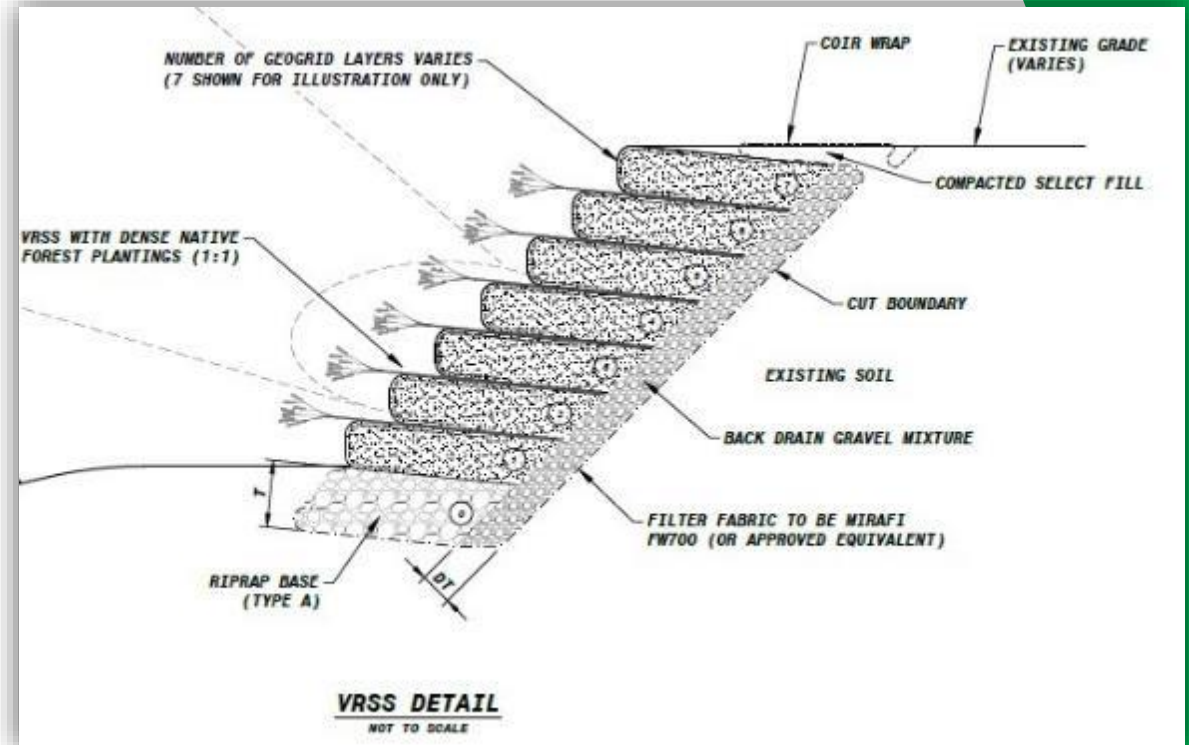


This bioengineering technique allows for the stabilization of the banks without accelerating stream velocities.

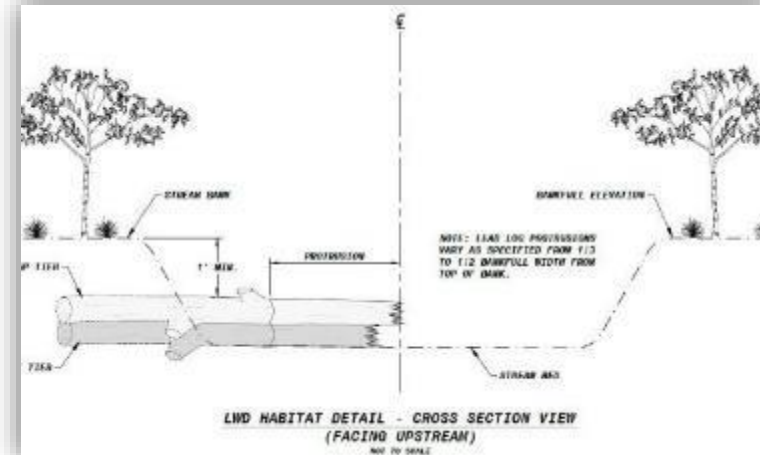
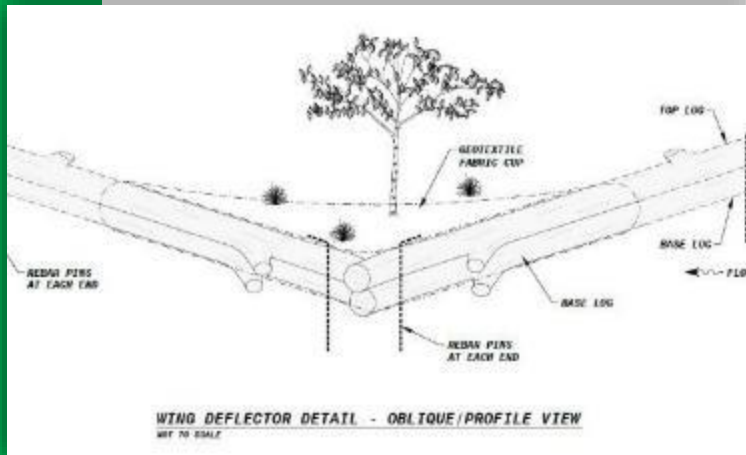
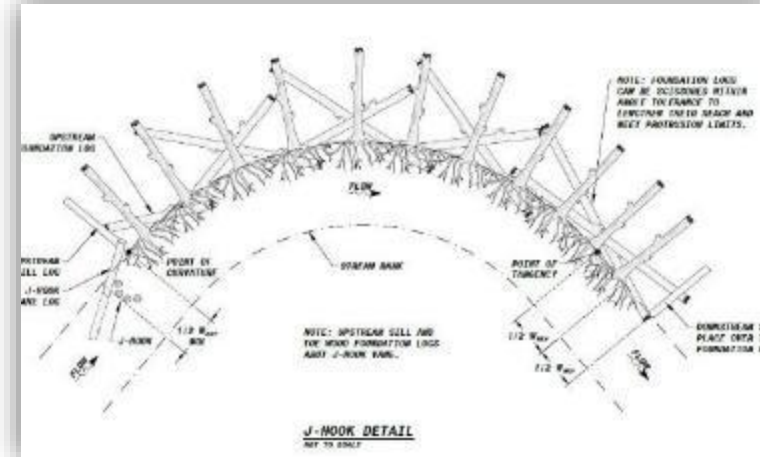
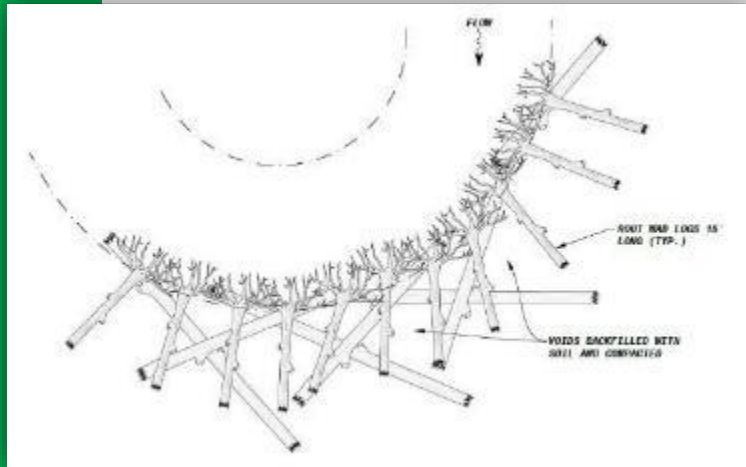


VRSS Wall

Under Construction



Instream Treatments



These treatment techniques dissipate energy rather than displacing the energy down the stream.

Instream Treatments *Under Construction*



Wildlife Habitat & Fish Nurseries



These perennial pools have a shallow connection to the main channel
but limit access by predators.

Wildlife Habitat & Fish Nurseries *Under Construction*



Planting Selection



Salinity will increase with sea level rise, and long-term adaptive plans for resiliency need to account for that gradient change.



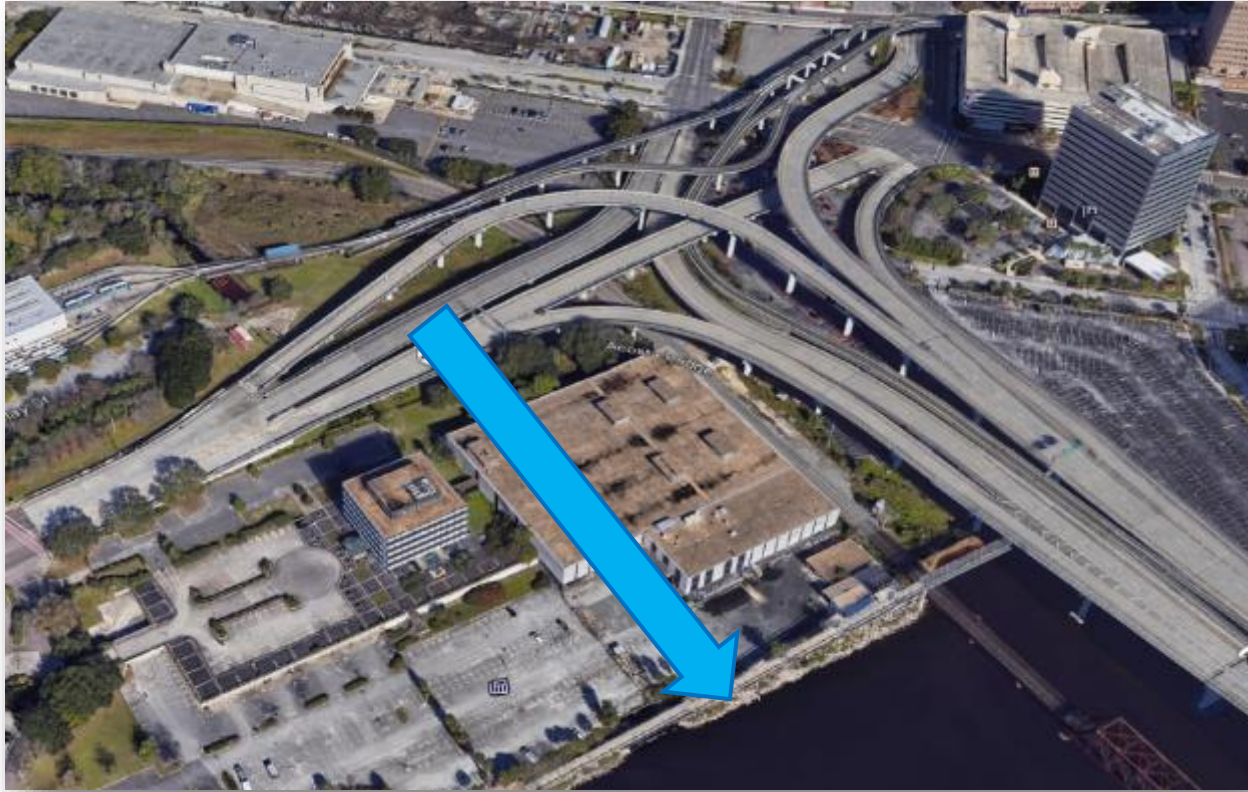
***“May you bloom
and grow,
Bloom and grow
forever.”***



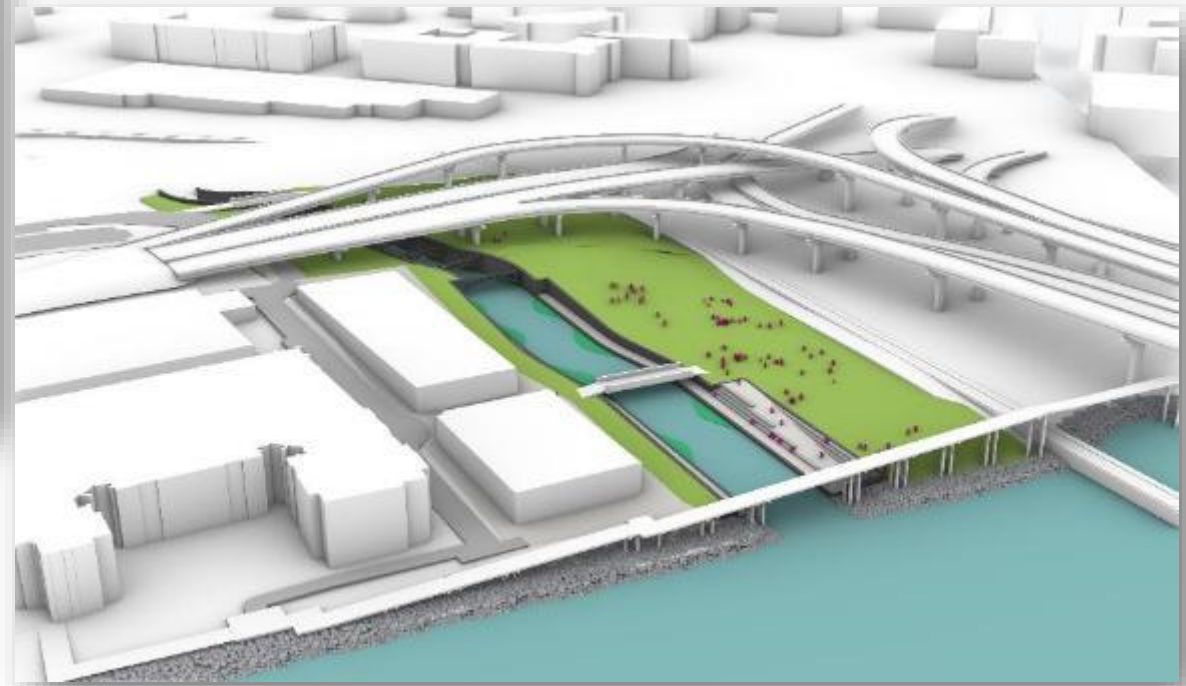
Planting Selection



Daylighting the Outfall



*“Re: Ray, a drop of
golden sun.”*



Daylighting the Outfall



Photo Credit: Metro Jacksonville article dated September 24, 2010





Create a Community Asset

Climb every mountain, Ford every stream...



Integrated Design

Create connections to creek & trail



Trailhead at Stockton St



Trailhead & Playground at Goodwin St



“Follow every byway.

Every path you know.”

Engage stakeholders throughout the process

A Few of Their Favorite Things



McCoys Creek Boulevard Road Closure

Maintain access at rail crossing





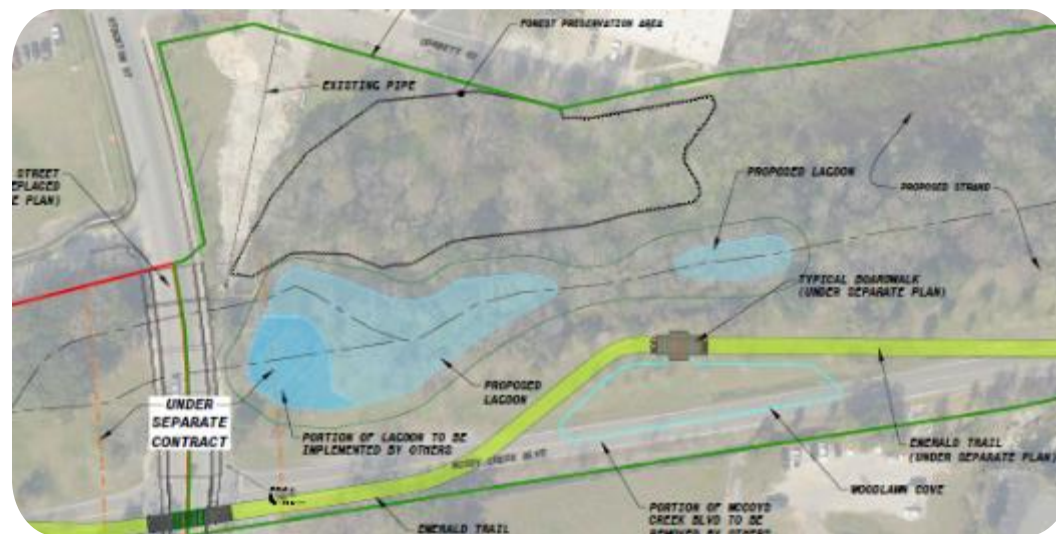
Tree Preservation

Recognize Community's Priorities



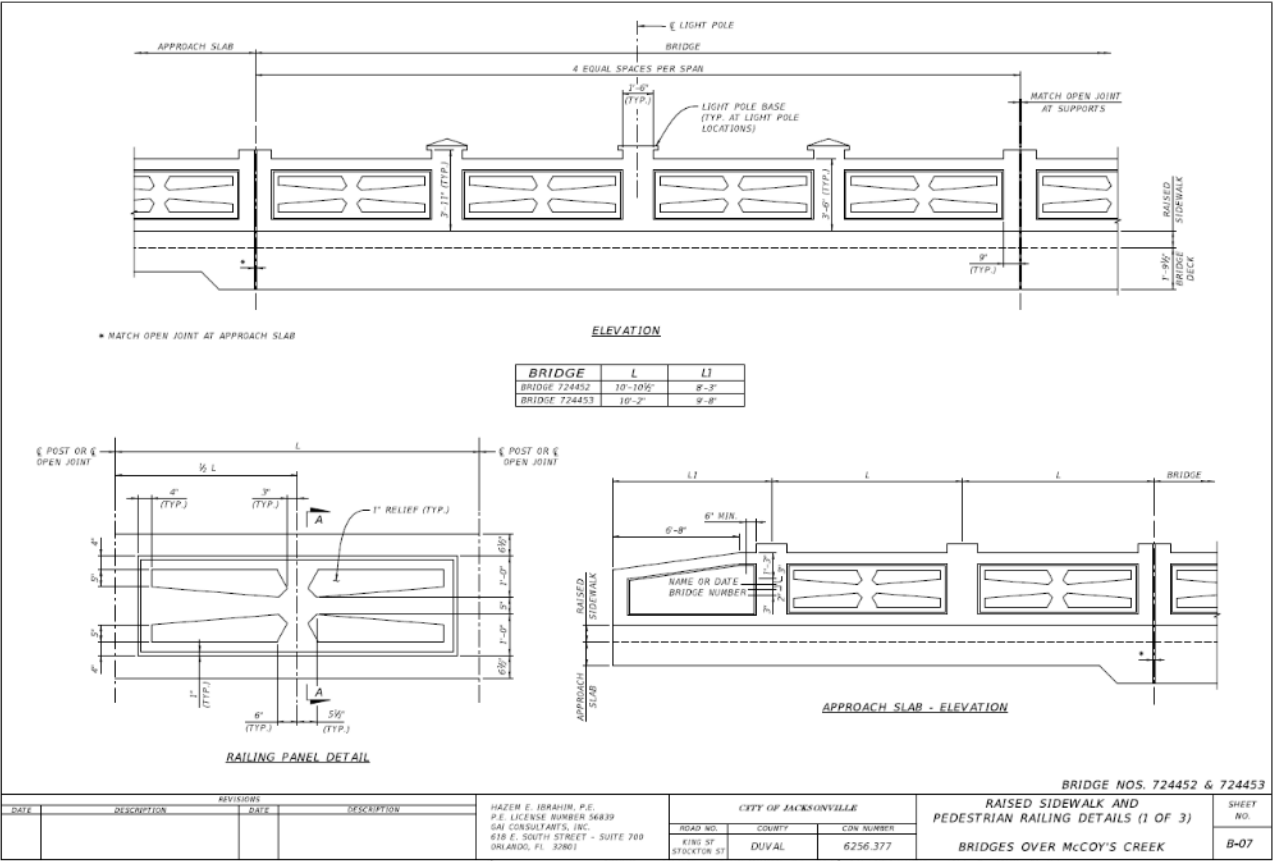
Tree Preservation

Existing Forest Area



Historic Bridge Railings

Be Transparent about Challenges



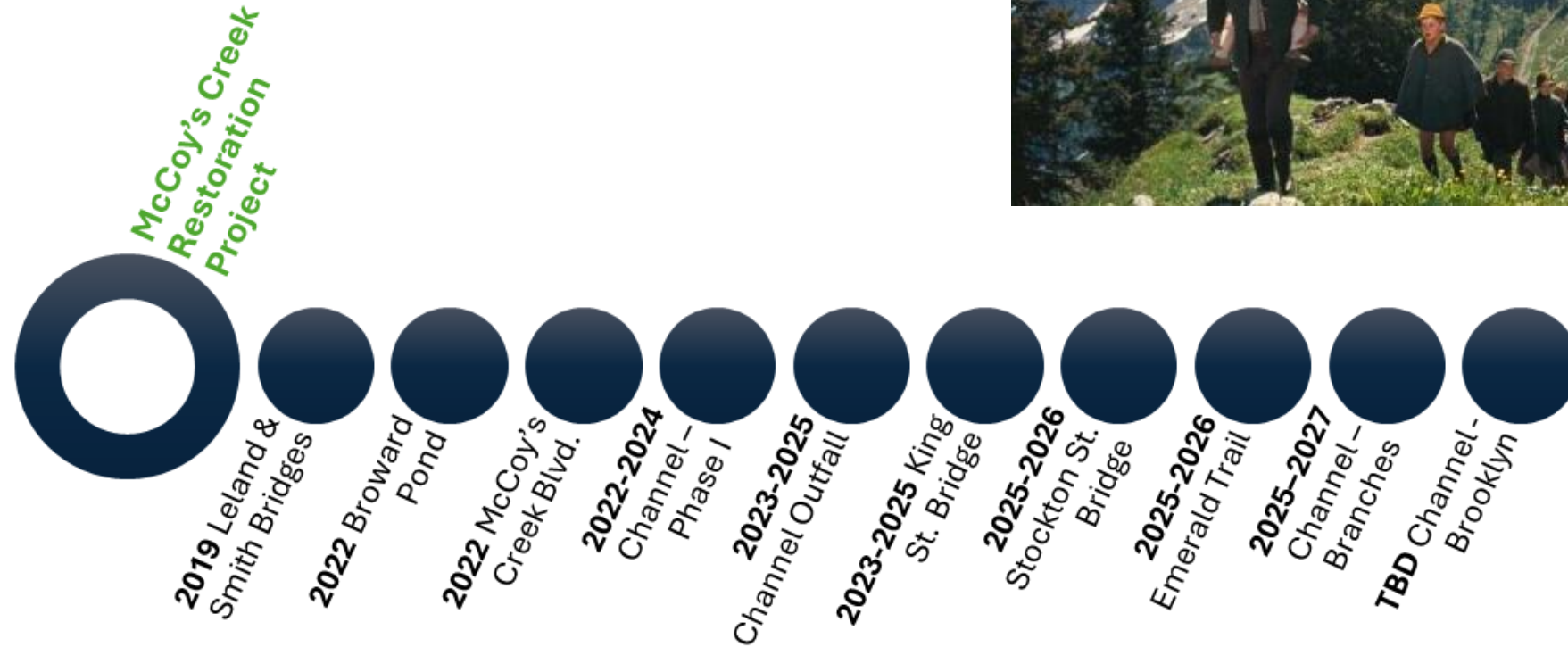
King St. Bridge

New design inspired by historic railings



MCCOYS
CREEK

Climbing Every Mountain



So Long, Farewell, Auf Wiedersehen, Thank You!

Nikita Reed, PE
City of Jacksonville
nreed@coj.net
(904) 255-8702



Rebecca Vanderbeck, PE
WSP
Rebecca.Vanderbeck@wsp.com
(904) 699-7768



Lisa Sterling, PE, BCEE, PMP
CDM Smith
SterlingLM@cdmsmith.com
(904) 527-6726

