SJRA

SAN JACINTO RIVER AUTHORITY

Upper San Jacinto River Basin Regional Sedimentation Study

July 28, 2022

sanjacintosedimentationstudy.com

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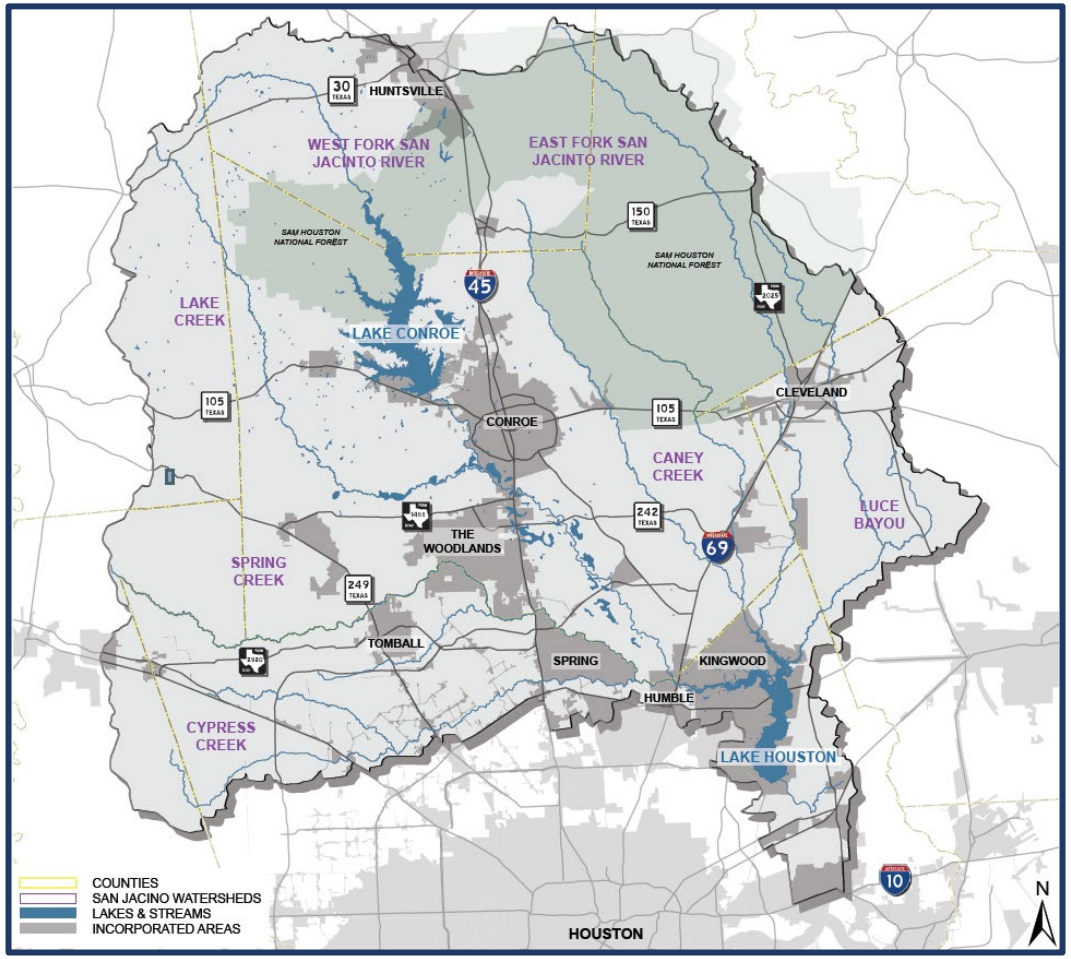
San Jacinto Regional Watershed Master Drainage Plan

- The San Jacinto Regional Watershed Master Drainage Plan (SJMDP) was a comprehensive regional study of the Upper San Jacinto River Watershed.
- The SJMDP was led by Harris County Flood Control District (HCFCD) and included the San Jacinto River Authority (SJRA), Montgomery County, and the City of Houston as funding and technical partners.
- One of the recommendations from the SJMDP was the development of a regional sediment management plan.
- SJRA applied for and was awarded grant funding from the Flood Infrastructure Fund (FIF) to perform a project to develop the recommended plan, with local match funding support from multiple regional partners.



Regional Sedimentation Study

- **Study Cost: $750,000**
- **TWDB FIF Grant Funding: $375,000**
- **Maximum Local Partner Contributions: $375,000**
- **SJRA In-Kind Goal: $84,374**
- **Anticipated SJRA In-Kind services include:**
  - Perform Project Management Activities
  - Assist with Public Outreach, Messaging, and Logistics
  - Support Data Analysis and GIS Mapping efforts
  - Assist with Field evaluations
  - Coordinate Property Access for Field Assessments
  - Review Interim Reports and Final Deliverables

STUDY GOAL: *Understand the characteristics of sedimentation in the Upper San Jacinto River Basin to develop feasible and cost-effective conceptual solutions, best management practices, and an overall implementation strategy that can help better manage sediment in the Basin.*

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Upper San Jacinto River Basin Regional Sedimentation Study

Public Engagement Meeting #1

KIT

July 28, 2022

Agenda

1. Consultant Team
2. Project Approach
3. Scope of Work
4. Community Engagement
5. Ongoing Analysis
6. Schedule
7. Wrap-up / Q&A

Consultant Team

I

Consultant Team

KIT

Watershed Characterization / Sediment Budgets

HALFF®

ENGINEERS ▪ ARCHITECTS ▪ SCIENTISTS ▪ PLANNERS ▪ SURVEYORS

Sediment Mgmt. Solutions / Funding Identification

PARSONS

Geomorphology Assessments / Fingerprinting

JMT® 50 YEARS

Public Outreach & Communications

HOLLAWAY

ENVIRONMENTAL + COMMUNICATIONS

KIT Introduction

I

Sunil Kommineni, PhD, PE, BCEE
Project Manager
25 Years of Experience
Delivered 50+ Studies in the Past 10 years

Justin Bartlett, PhD, PE
Task Leader / DPM
15 Years of Experience
Specialist in Sediment Transport Modeling

SJRA Staff are an Extension of Our Team

01 Provide Input During Progress Meetings & Milestone Workshops

02 Assist w/ Public Outreach Plan, Messaging & Logistics

03 Coordination of Property Access for Field Assessments

04 Support w/ Procore Updates, Data Analysis and GIS Mapping

05 Review Interim Reports & Final Deliverables

Project Approach

2

Our Approach Aligns with RSM Process

Problem Statement

- Reduction in floodway conveyance capacity and maintaining storage of Lake Houston
- Appreciable loading from streambanks and alluvial sources
- Cypress Ck, Spring Ck & West Fork contribute majority of sediment
- Sediment characteristics range from medium-grained sand (settleable) to fine silt and clay (suspended)

Regional Sedimentation Management Process

1

Understand the Region

- Watershed Characterization
- Sediment Budgets
- Sediment Characterization

2

Project Scale RSM Strategies

- Sediment Traps
- Channel Modifications
- Structural Stabilization

3

Regional Scale RSM Strategies

- Floodplain Reconnection
- Vegetative Stabilization
- Detention Basins

4

Actionable Plan

- Short-term (1-5 yrs)
- Mid-term (6-10 yrs)
- Long-term (>10 yrs)

5

Funding & Partnerships

- Community Benefits
- Benefit / Cost Analysis
- Beneficial Use

Not All Suspended Solids are Equal

Total Suspended Solids

Organic Suspended Solids

Inorganic Suspended Solids (i.e., Sediment)

Sand

Silt

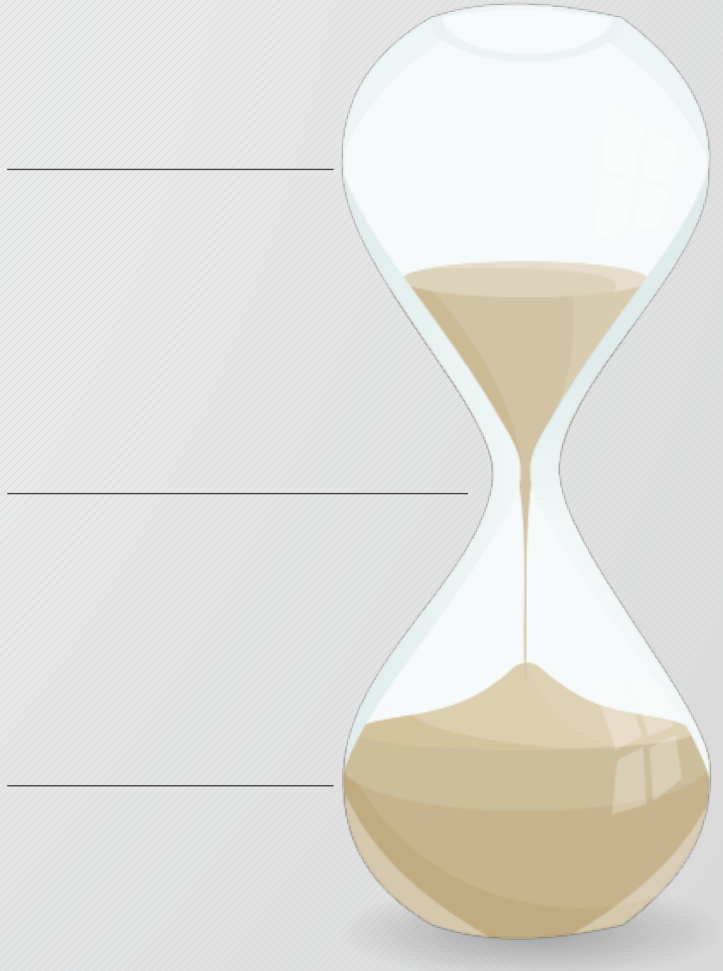
Clay

Approach Summary – Varying Spatial Scales

Desktop analysis to characterize and prioritize watersheds

Detailed, focused modeling and field investigation

Data extrapolation and solutions development



Scope of Work

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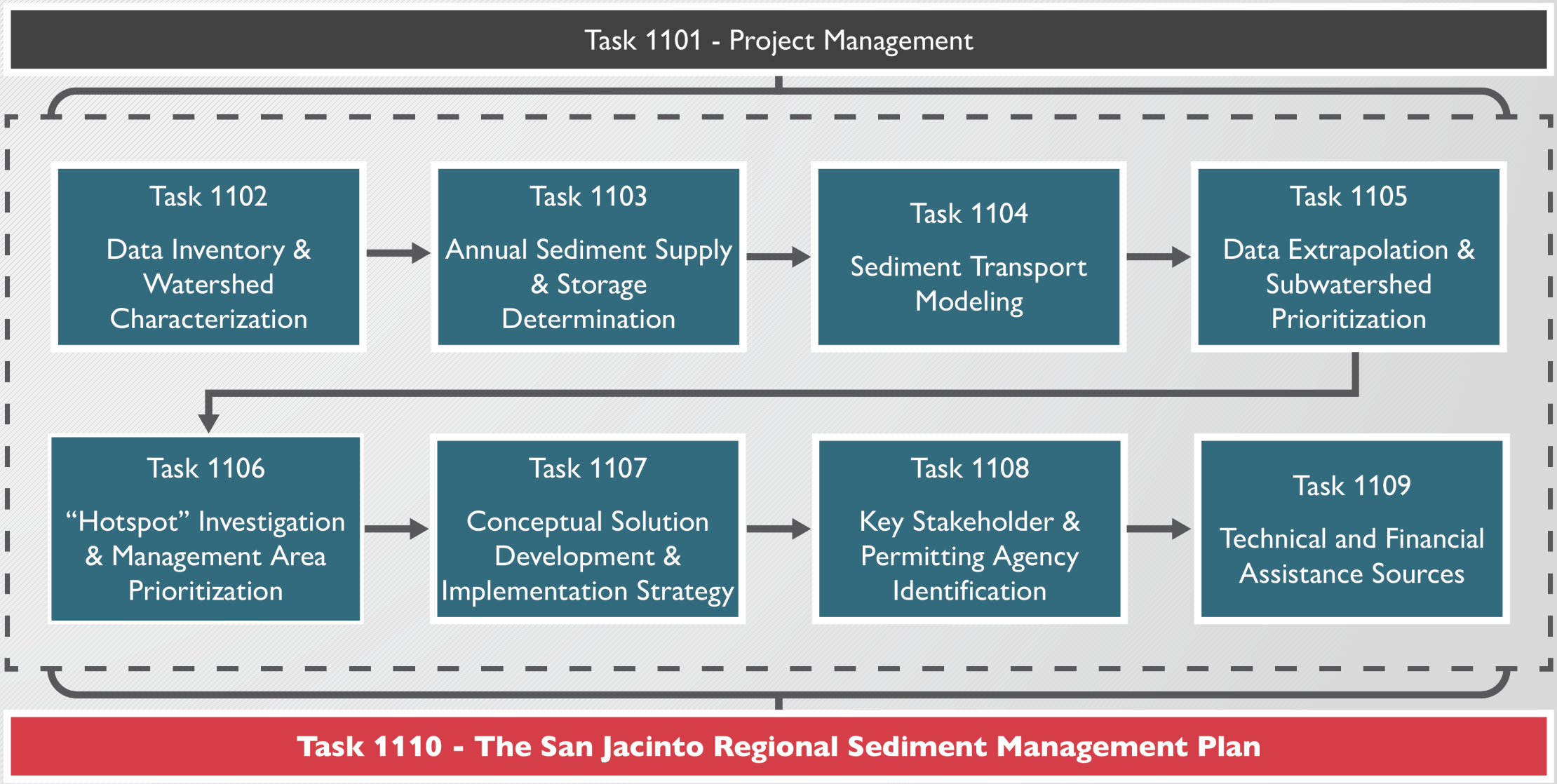
Scope of Work



Task 1101 – Project Management

3

- Coordinate internal and external progress meetings
- Assist with external community engagement meetings
- Prepare and submit monthly invoices with status reports

Task 1102 – Inventory Data & Characterize Watersheds

- Collect and perform preliminary data analysis on historical data
- Organize watersheds into categories based on similar characteristics; analysis will be performed on "representative watersheds"

Deliverables

- 2 Chapters in Sediment Management Plan

Task 1103 – Annual Sediment Supply & Storage

- Using models and surveys, determine sediment sources into Upper San Jacinto River Basin (USJRB), sediment stored in the basin, and sediment leaving the basin (i.e., "sediment budgets")

Deliverables

- Chapter in Sediment Management Plan

Task 1104 – Sediment Transport Modeling

- Perform modeling to determine the processes governing the movement of sediment through the stream segments

Deliverables

- Chapter in Sediment Management Plan

Task 1105 – Extrapolation & Prioritization

- Extrapolate "representative watersheds" to all other watersheds in the USJRB
- Prioritize specific watersheds which may have sediment "hotspots" for further investigation

Deliverables

- Chapter in Sediment Management Plan

Task 1106 – "Hotspot" Investigations & Management Area Prioritization

- Investigate subwatershed to determine significant contributors of sediment ("hotspots")
- Use knowledge of sediment contributors to prioritize areas that should receive sediment management solutions

Deliverables

- Chapter in Sediment Management Plan

Task 1107 – Conceptual Solution Development & Implementation Strategy

- Identify conceptual structural and non-structural sediment management solutions for typical watershed conditions
- Develop conceptual solutions for priority subwatersheds and estimate sediment load reductions from implementation

Deliverables

- Chapter in Sediment Management Plan

Task 1108 – Identify Implementation Partners and Permitting Agencies

- Identify agencies that may partner with SJRA to implement or sponsor sediment management strategies
- Identify permitting agencies and regulatory requirements necessary to implement sediment management strategies

Deliverables

- Chapter in Sediment Management Plan

Task 1109 – Identify Technical & Financial Assistance Sources

3

- Identify sources of technical or financial assistance to potentially aid in implementing sediment management strategies
- Collaborate with SJRA to refine and recommend agencies for technical and financial support

Deliverables

- Chapter in Sediment Management Plan

Task 1110 – SJ Regional Sediment Management Plan

3

- Assemble chapters into the San Jacinto Regional Sediment Management Plan
- Address SJRA comments and submit final documentation and files

Deliverables

- San Jacinto Regional Sediment Management Plan

Community Engagement

4

Public Engagement is Two-Way Information Flow

Community Engagement

First Public Meeting

Thursday, July 28, 2022, 6:00 p.m. to 8:00 p.m.
San Jacinto River Authority Board Room
1577 Dam Site Road, Conroe, TX

A project overview presentation will be given at the start of the meeting. Following the presentation, members of the project team will be available to collect input and answer questions from members of the public. If you are unable to attend in person, you may view the overview presentation on SJRA's Facebook, which will be posted following the meeting. Any questions submitted via email will be answered by the project team.

Public Engagement is Two-Way Information Flow

Contact Us

Comment Portal

First name*

Last name*

City*

Affiliation

Email

Please provide your e-mail address if you would like to be added to the distribution list for future project communication.

Are you aware of any flood conveyance issues in the Upper San Jacinto River Basin caused by sedimentation? If so, provide location and brief description.

Ongoing Analysis

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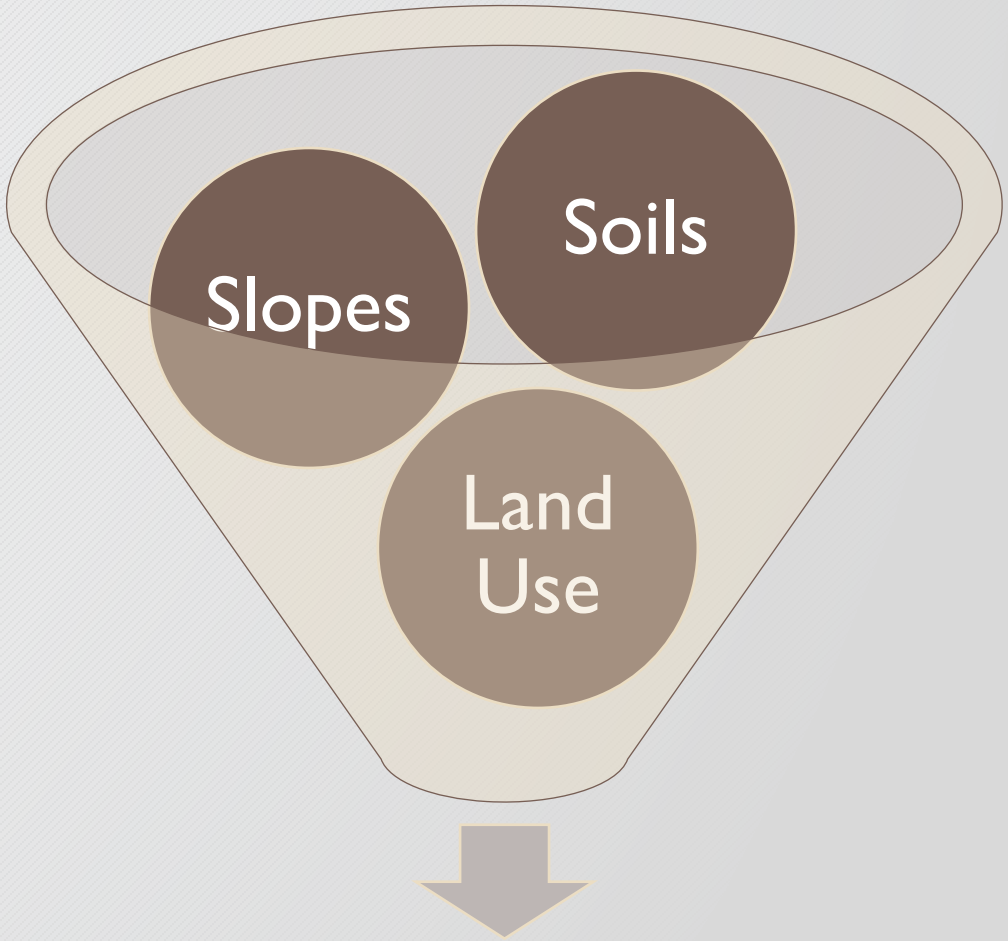
Task 1102 Approach

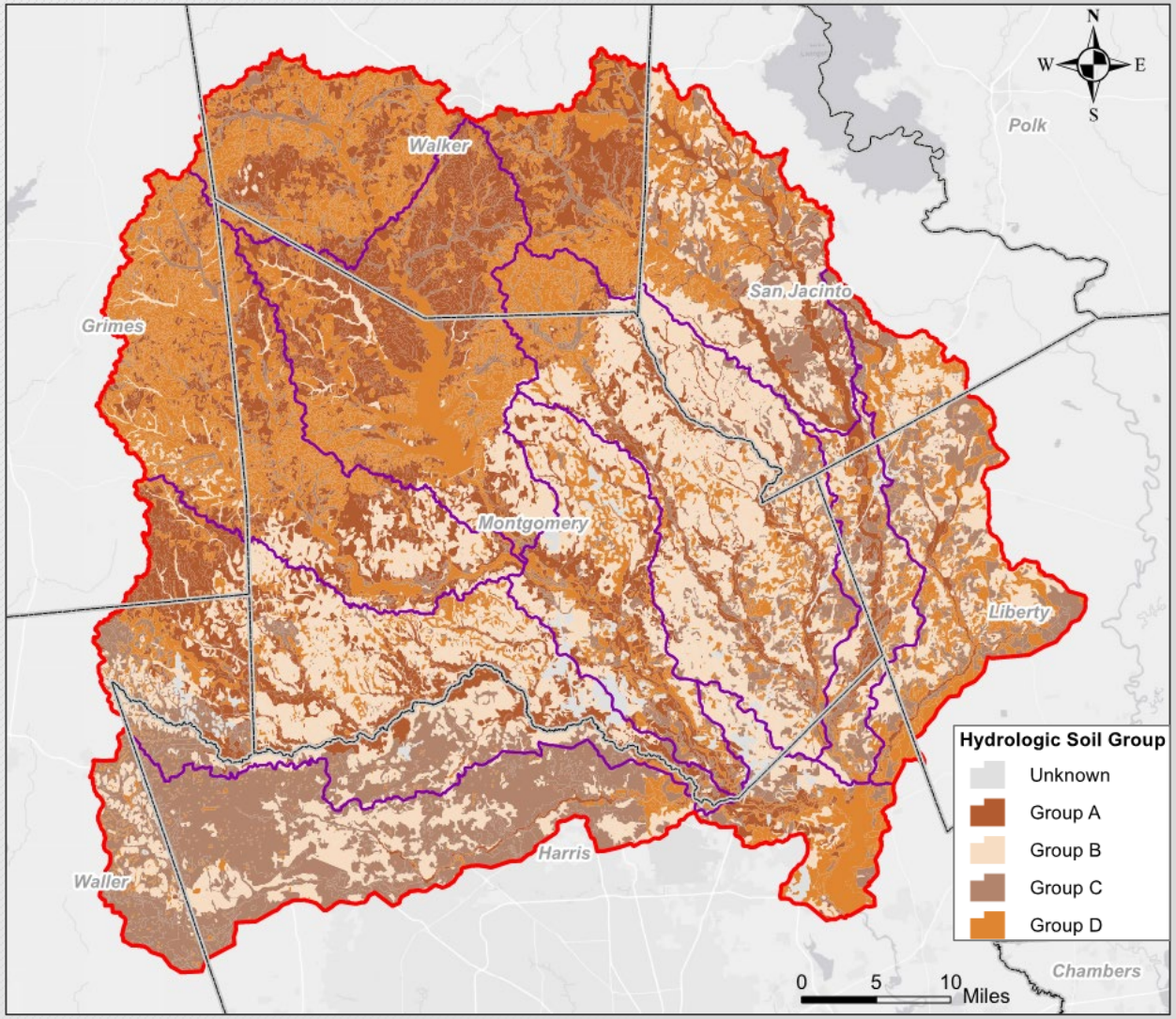
- Desktop (i.e., GIS) analysis of broad spectrum of data and models
  - Soils
  - Land Use
  - Impervious Cover
  - Topography
- Develop subwatershed "bins," or groups, with shared characteristics
- Select 3 subwatersheds for detailed analysis



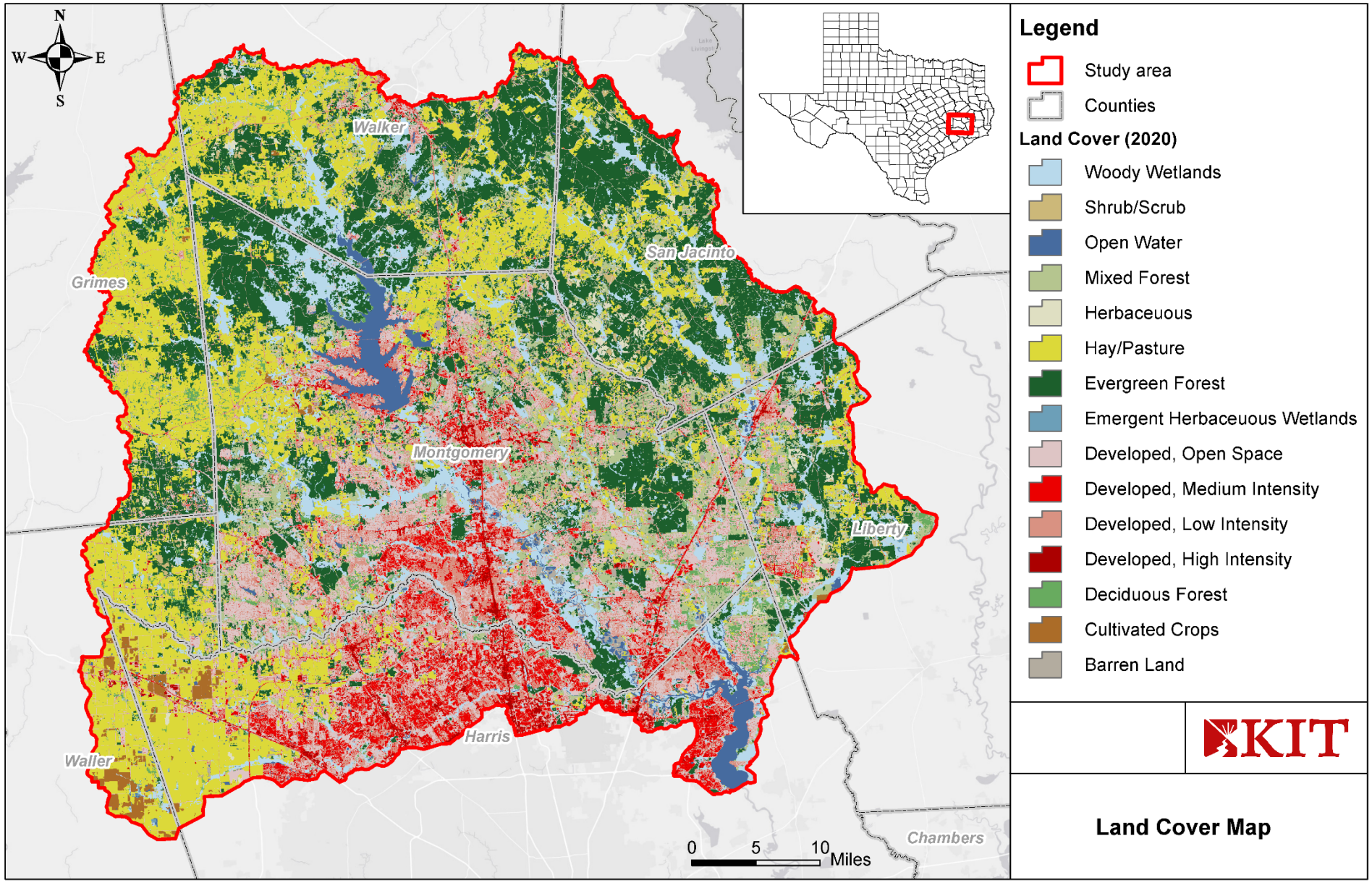
Subwatershed "Bins"

Upper San Jacinto River Basin Soils

- Upland soils predominantly fine-grained
- Stream channels have higher proportion of sandy soils



Upper San Jacinto River Basin Land Use



Schedule

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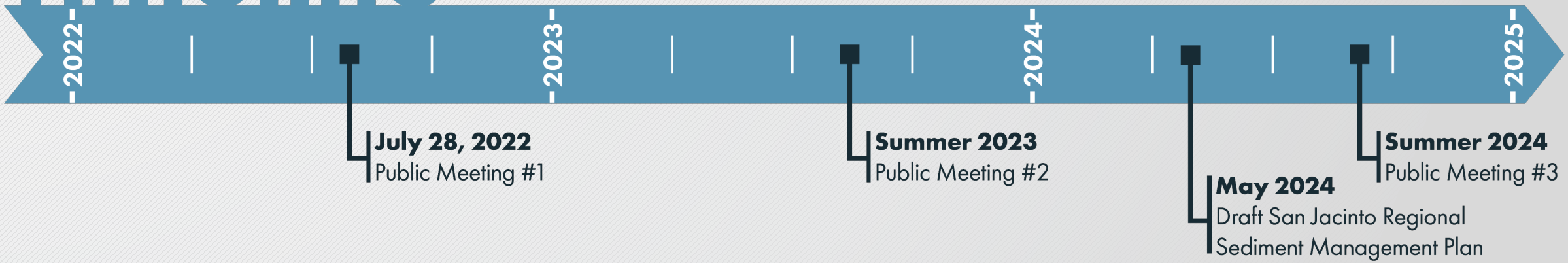
Project Schedule

Timeline



Wrap-Up / Q&A

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