Channel Restoration Overview and Case Study: Lebow Creek
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Population Growth
Increased Development
Watershed Impacts
Peak Flow & Sediment Impacts

Complimentary Goals

Stream Mechanics

Increase in sinuosity to decrease slope is a mechanism available in stream mechanics, allowing a planform change to take a longer distance between elevations.

\[ V = Q/A \]
Flood Mitigation

Ecosystem Uplift

Bank Shaping and Planting

Case Study - Lebow Creek at NE 28th Street, Fort Worth, TX
Watershed

Existing Flood Hazard
- Overtopping of 28th Street crossing
- Overtopping of Decatur Avenue
- Overflow from railroad underpass sump
- Unstable channel

Existing Conditions
Proposed Project Layout

Channel Stability
- Sediment Transport Analysis
- Geomorphic Assessment
- Sizing Pilot Channel
- Laying out Meander Belt
- Riffle Spacing

Channel Stability - Armoring
Typical Cross Section

- Water Quality Enhancement
- Ecosystem Uplift

Coordination & Permitting

Coordination with:

- Transportation & Public Works
- Parks Department
- Water Department - Utility Conflicts
- Stormwater Criteria Requirements
- Bridge Scour Analysis
- Outfall Coordination
- TXDOT Bridge Crossing armoring removal
- Riprap sizing
- 404 Application
- Riparian Buffer Requirements
- LOMR Submittal

Lessons Learned

- Project limits transition
  - Where do we end/start?
- Flattening channel bottom slope
  - Reduced velocities but raised WSEL
- Riprap armoring
  - Sizing for pilot channel and bridge area
  - City of Fort Worth & TXDOT criteria

Currently in bid. Construction is scheduled to begin in June 2022!