Ten Years of River Restoration on the Upper Rio Grande: Successes and Lessons Learned

Rio Grande Headwaters Restoration Project
Heather Messick, Coordinator

Introduction

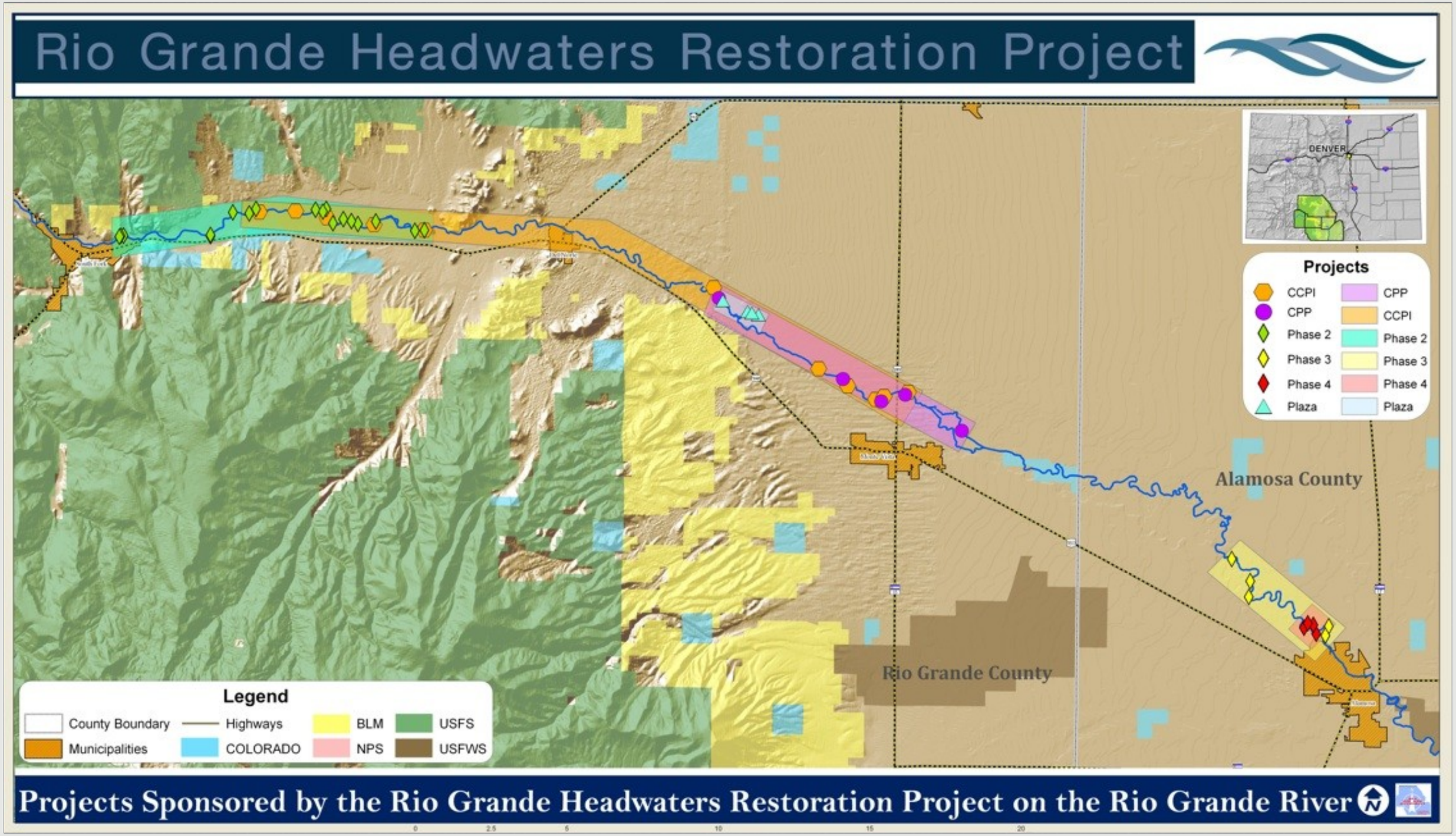
- History
- Projects
- Lessons and Successes

History

- Rio Grande Headwaters Restoration Project (RGHRP)
- 2001 Study
  - Prompted by Stakeholders
  - 91 mile study-reach
  - Identified Causes of Degradation and Opportunities to Address Issues
- 2007 Watershed Strategic Plan

Projects

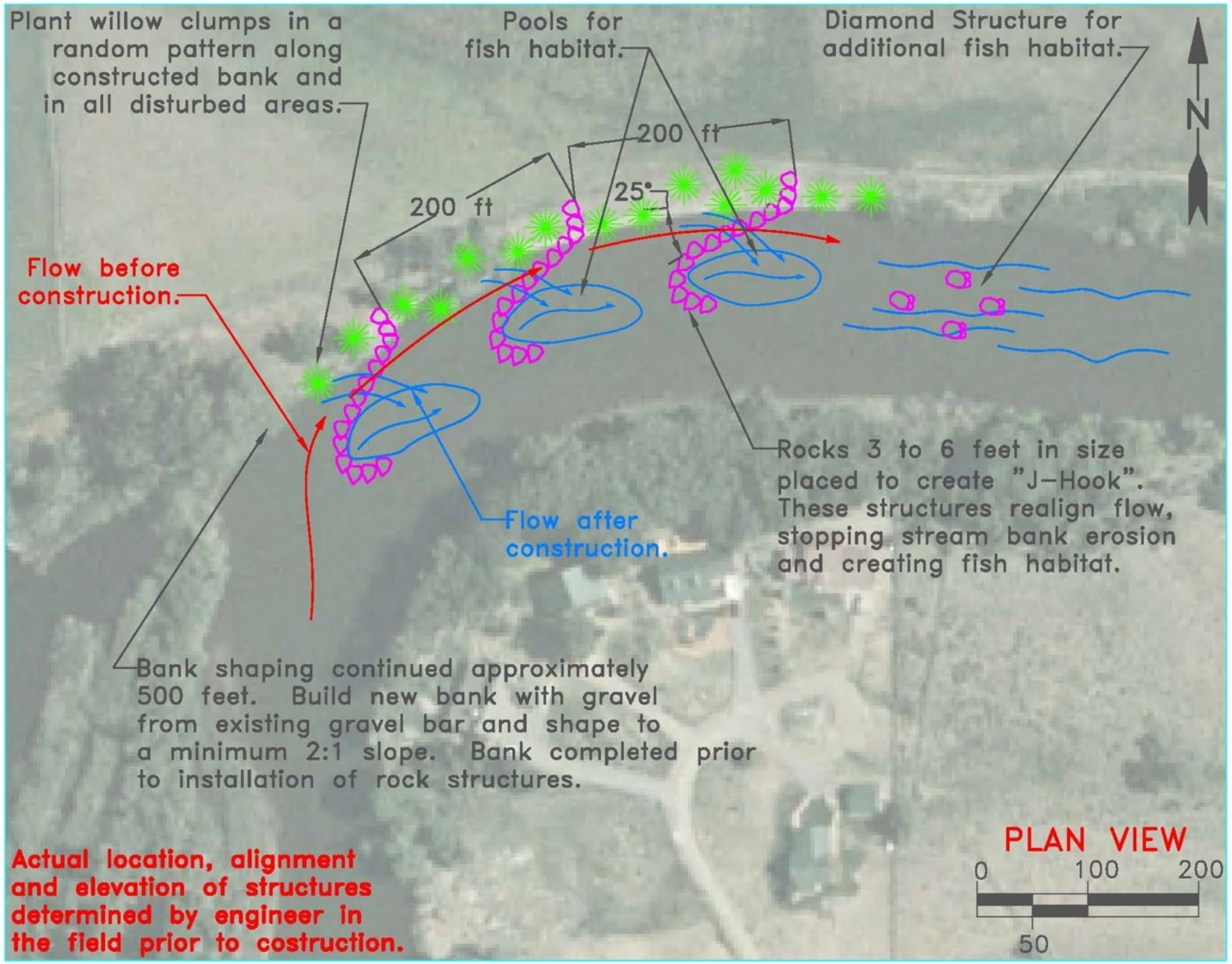
- Phase 1 - NRCS and Rio Grande Conservation District
- RGHRP Projects
  - 7 Projects
  - Address Priorities of 2001 Study



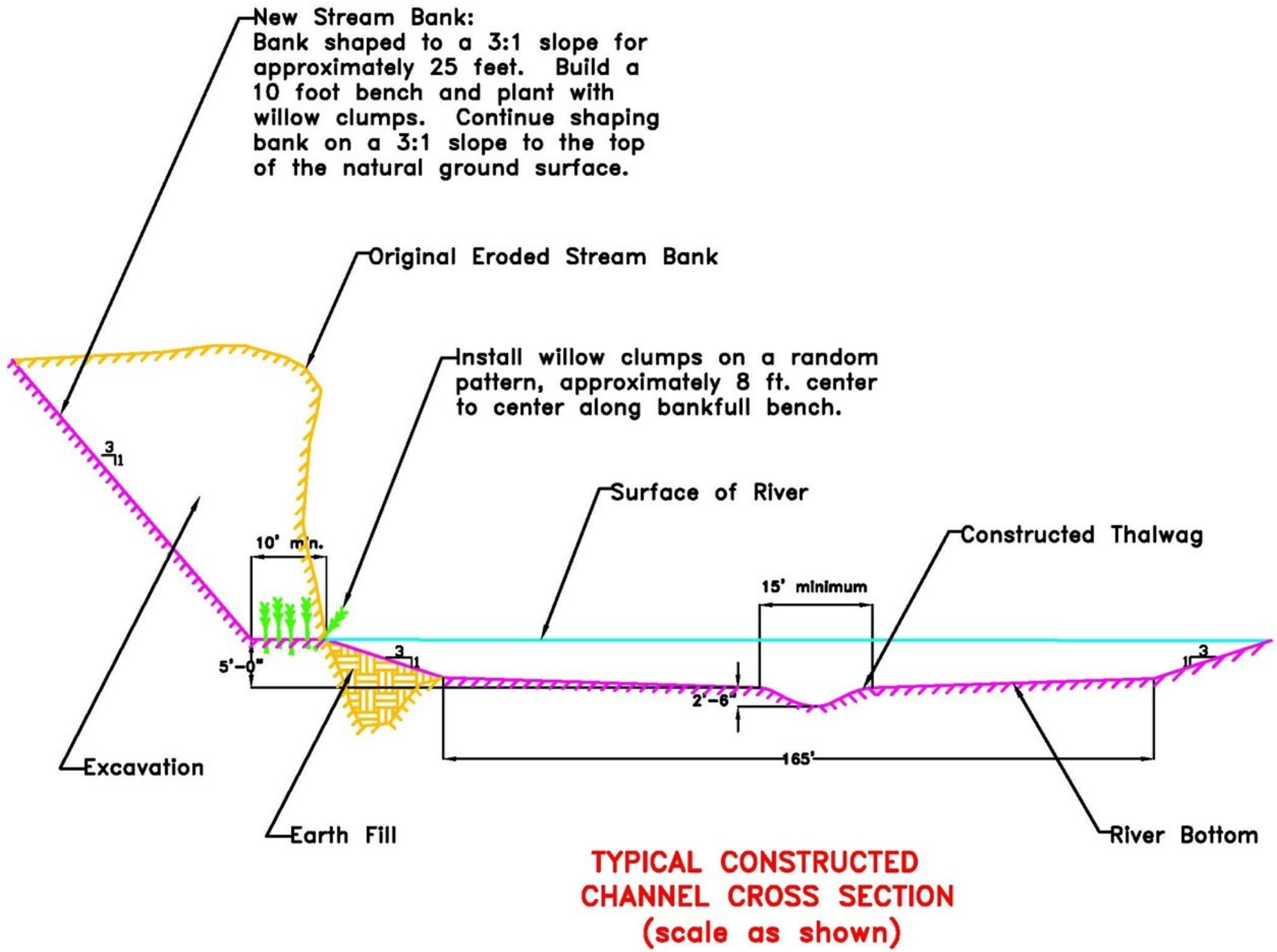
7 Projects, 44 Sites, ~7 miles of river restoration completed.

Projects Administered by the Rio Grande Headwaters Restoration Project (2001-2011)			
Project Details			
Project	Extent	Progress	Total Cost
2004 Rio Grande Riparian Stabilization Project - Phase 2	18 Sites; 8,300 ft	Complete	$ 417,000
2008 Rio Grande Riparian Stabilization Project - Phase 3	5 Sites; 9,000 ft	Underway	$ 640,000
2009 Cooperative Conservation Partnership Initiative (CCPI) Project	12 Sites; 10,000 ft	Complete	$ 320,000
2009 Rio Grande Riparian Stabilization Project - Phase 4	4 Sites; 4,700 ft	Underway	$ 516,000
2010 Colorado Partnership Program (CPP) Project	5 Sites; 3,700 ft	Underway	$ 275,000
Plaza Project Phase 1: Plaza Planning Project	Study	Complete	$90,000
Plaza Project Phase 2: McDonald Ditch Implementation Project	1 Diversion, 1 2 -acre Wetland, 2,000 ft streambanks	Underway	$908,000
7 Projects	***44 streambank stabilization sites, 7.0 miles; 1 diversion, 1 wetland.***		$ 3,166,000

Typical Project



Typical Project



TYPICAL CONSTRUCTED
CHANNEL CROSS SECTION
(scale as shown)

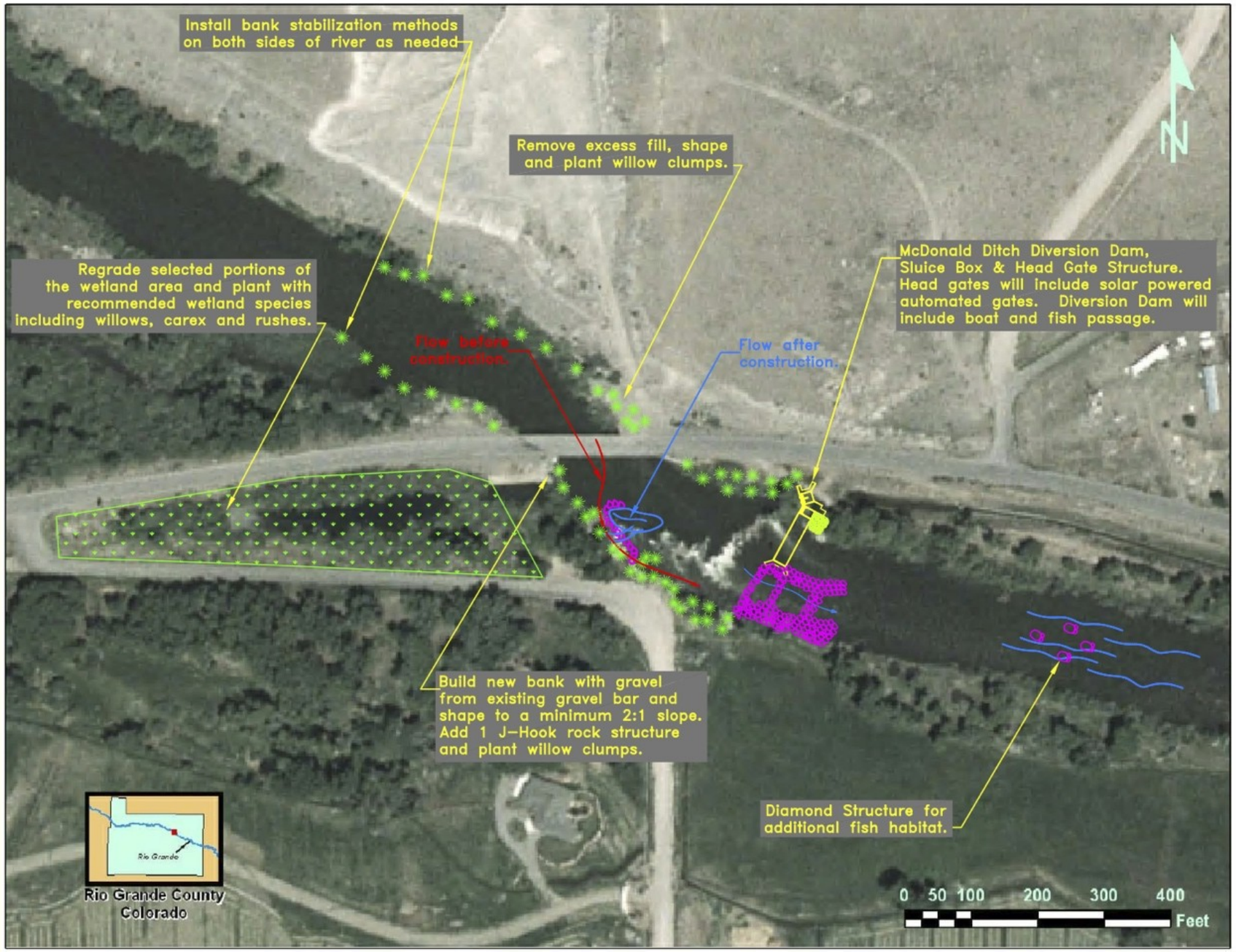
Typical Project Outcome

Typical Project Outcome

Where We're Headed

Where We're Headed

Addressing Multiple Objectives of the 2001 Study

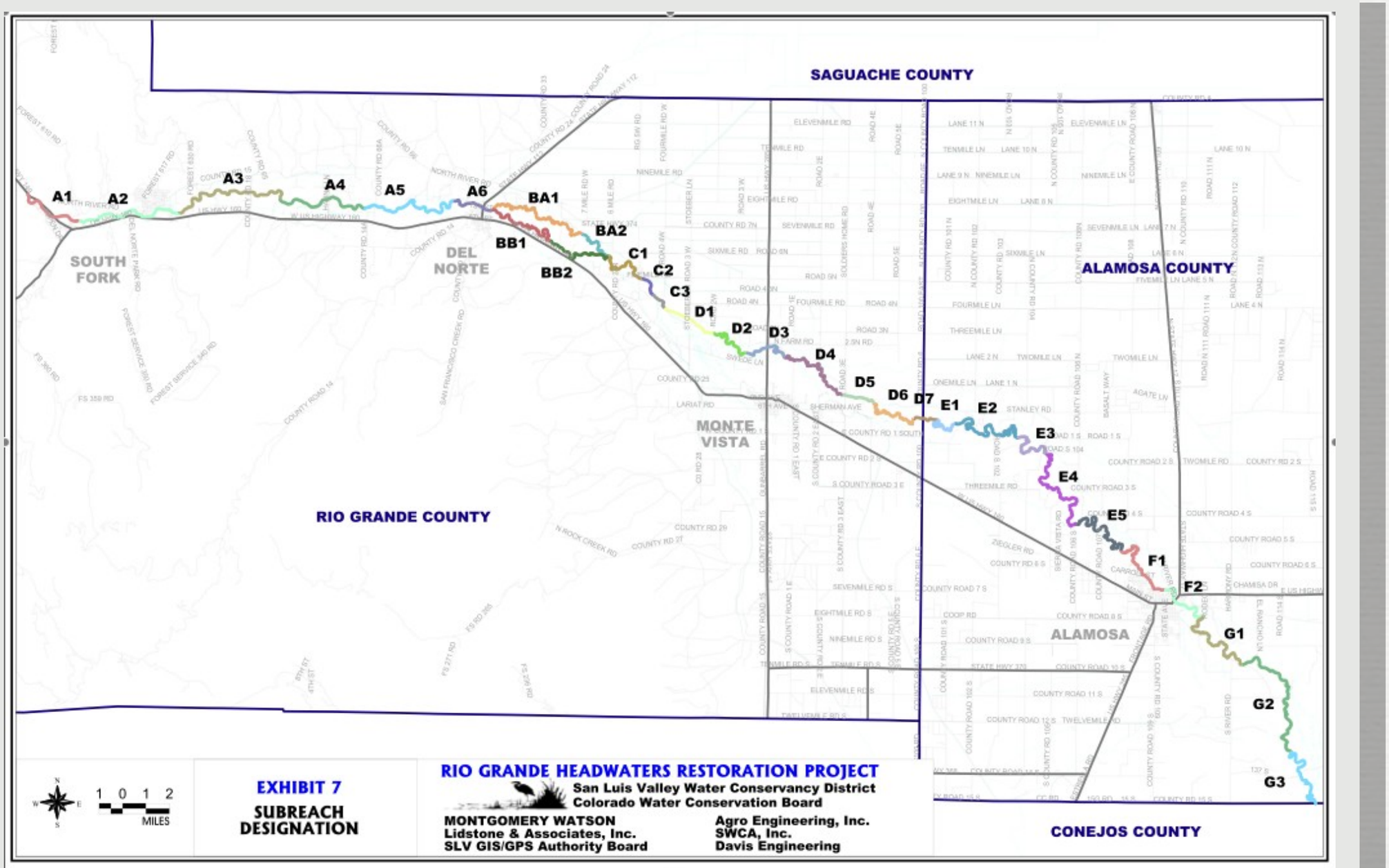


Successes and Lessons Learned

- Plan
- Organize
- Implement
- Monitor

Plan

- Success: Have a guiding document.



Plan

- Using guiding documents, identify priority areas and contact stakeholders:
  - Lesson: Often the target area isn't available or the landowners are not ready/interested.
    - Be opportunistic.
  - Lesson: Get buy in from landowners on both sides of the river.
- Success: We now have trust and a good reputation; more landowners are interested than we can accommodate.

Organize

- Get Funding!
- Lesson: Projects funded with a single source are a thing of the past.
  - Partnerships are critical and funding sources must be diverse.

Plan - Get the Funding

Example Budget

Budget for the Plaza Project - Phase II: McDonald Ditch Implementation Project												
Project Tasks	Total	Sources of Funds						In-Kind				Total
		EQIP (NRCS)	CPP (RGHRP)	CCPI (RGHRP)	WSRA (CWCB/RGHRP)	Landowners	Rio Grande County	NRCS	Rio Grande County	SLVREC	RGHRP	
Task 1: Finalize Design	101,500	-	-	-	8,000	-	-	93,500	-	-	-	101,500
Task 2: Diversion Replacement *	427,500	-	50,000	200,000	117,500	40,000	-	-	-	20,000	-	427,500
Task 3: Headgate Replacement *	222,500	150,000	-	-	42,500	30,000	-	-	-	-	-	222,500
Task 4: Channel Shaping / Streambank Stabilization*	40,000	-	-	-	25,000	-	-	-	15,000	-	-	40,000
Task 5: Wetland Reclamation *	65,000	-	-	-	55,000	-	10,000	-	-	-	-	65,000
Task 6: Monitoring	3,700	-	-	-	3,500	-	-	-	-	-	200	3,700
Task 7: Outreach and Education	3,500	-	-	-	3,500	-	-	-	-	-	-	3,500
Task 8: Administration	44,300	-	-	-	40,000	-	-	-	-	-	4,300	44,300
TOTAL	$ 908,000	$ 150,000	$ 50,000	$ 200,000	$ 295,000	$ 70,000	$ 10,000	$ 93,500	$ 15,000	$ 20,000	$ 4,500	$ 908,000
Percent of Project Cost		17%	6%	22%	32%	8%	1%	10%	2%	2%	1%	100%

** Denotes costs based on "Means Heavy Construction Cost Data" utilized by NRCS.*

Organize

- Get Funding!
  - Lesson: Always include money for administration and monitoring in the initial grant.

Implement

- Lesson: “This is applying science as art.”
- Identify the source of failure.
- Develop plan for addressing the issues.

Implement

- Bank Shaping
  - Lesson: Bank shaping is necessary.
  - Streambank stabilization.
  - Structure stability and function.

Implement

- Channel Shaping
  - Lesson: Channel shaping is critical.
    - Balance sediment transport and the width/depth ratio.

Implement

- Lesson: Structures vary depending on site conditions.
  - Must be compatible with bank materials and sediment load.
  - Use on-site materials.
  - Types of Structures
    - Bendway weirs
    - J-Hooks
    - Barbs
    - Fish Habitat
  - *Mix and Match!

Implement

- Lesson: Rock structures must be installed to design specifications.
  - Tightly constructed.
  - Footers are critical.
  - Keyed in.

Implement

- Lesson: Revegetation is one of the most important actions.
  - Early on, revegetation was not the priority.
  - Now, we are aggressive and experiment.
- Success: Techniques
  - Willow and Shrub Clumps**
  - Willow Bundles and Mattresses
  - Tree Revetments
  - Sedge Mats

Implement

- Lesson: The contractor is key.
  - Biggest inconsistencies = different contractors.
  - Some are artists; others are not so hot.
    - Training
    - Construction management.
    - Stake work limits.

Implement

- Operation and Maintenance
  - Lesson: Landuse should be taken into consideration.
    - Grazing plans and fencing may be needed.
  - Lesson: Leave materials on-site for maintenance.

Monitoring

- Monitoring is key to demonstrating project success.
  - Lesson: Develop a well organized monitoring plan before any ground work occurs.
    - Success: RGHRP plan includes cross-sections, photopoints, grazing BMP monitoring, and Stream Visual Assessment Protocol (SVAP).
- Lesson: Utilize experts from many disciplines.
  - Success: Technical Advisory Team.

Final Thoughts

- Lesson: “Understand objectives of all stakeholders.”
- If you don’t meet them, the project will fail.
- Perception is very important.

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