

San Francisco River Revitalization Plan Consultant Work Scope

The Consultants provides planning information on Trails and Access to River. (See Table 1, Items 5, 6, 8, 12-16, and 24). Recreational opportunities in regards to Trails and River Access will be suggested to increase Tourism and to improve local quality of life. The complete final report will outline a coordinated San Francisco River Revitalization Plan with River Access and Trails a significant part.

Business and dwelling unit development within the flood plain, provided by others, will be part of the final Plan. Consultants may work individually or together to complete the project.

The following is from the Community Investment Grant Scope

“The San Francisco River Floodplain Revitalization Master Plan (SFRRP) combines recreational, commercial and residential development to meet Clifton’s General Plan.¹ Future funding (from grants and private investment) for small business and high density housing will be used for construction. *Any income from*¹ Development, helps defray maintenance costs and boosts sustainability.

“Since the 1983 flood, much of the shoreline and surrounding areas (*the flood plain*) is financially under-used generating little (*commercial or recreational*) economic activity.

“Currently water rights are well established and land ownership in the flood plain is set but subject to discussion (*uncertain*). *Each project including Consultant suggested work will need the owner’s concurrence.*

“The SFRRP helps develop a regulatory compliant, economical, socially engaging, and sustainable model. Goals include using existing facilities to the best advantage by creating links between existing facilities; replacing undesirable vegetation with species that are native, adding at least one new park, water features, and trails while providing accessible recreational attributes.

Historical overview

The Spanish and Mexican Governments claimed the mining district area beginning in 1540 until the Mexican American War ended in 1848 although the region was Apache Land. Growth was severely limited by warlike conditions and by numerous legal issues. After the 1872 Mining Act, legal conditions improved although native American issues continued, rich copper ore bodies were opened, mined and ore smelted. The desire by European settlers for riches and glory far outweighed the risks associated with native American hostilities.

The Arizona and New Mexico Railroad arrived in 1884 which economically connected Clifton to the outside world. Previously, all transportation was by pack train or freight wagon over trails or primitive roads. “Civilization” slowly overcame the lawlessness of the wild west. Clifton became the Greenlee County Seat in 1909. By 1934 when underground operation ceased, millions of

¹*Italic text is additional grant verbiage*

pounds of copper had been produced. The mining district had survived the boom bust economy although, as today, copper prices, labor issues, and floods plagued operations. Open pit mining began in 1937. Today, the Morenci Mine remains highly rated and productive regardless of the metric used.

Clifton was founded in 1873 to support the Clifton Morenci Mining District. Clifton grew around the Arizona Copper Company smelter at Chase Creek and the San Francisco River (SFR) confluence. Legal niceties including land ownership were not often considered. Businesses prospered on the SFR flood plain with early residential interspersed. Later, residences were built on the slopes leading out of the flood plains. The steeper canyon walls were unsuitable for expansion. Other companies built smelters including locations on Smelter Hill, Shannon Hill, and Morenci.

Until the flood of record in 1983, clean up from floods was a normal part of life as floods occurred periodically. Thereafter Government regulations stilled Clifton growth and recovery. Much of the San Francisco River Flood Plain is now underutilized. To make matters worse, a depressed copper market led to a labor strike from 1983 to 1986 including social upheaval with union decertification. As a result the Clifton population decreased from 5,100 in 1978 to less than 2,500 in 1986. The County's 1983 population estimated at 12,000 has slowly recovered to just less than 10,000 people (including more than 50 businesses) over the last 40 years. As copper production has increased, the demand for housing and commercial property has increased. The lack of private land suppresses population and business growth.

Table 1 - Public Input concerning Needs and Dreams - Suggested Measures to Revitalize SFR Flood plain as suggested during public input.

Special emphasis should be given to low cost, low maintenance construction. No particular priority will be given to any project. Project implementation will occur as funding becomes available.

Any stated measurements are goals. The measures represent long-term goals. Goals will change responding to market forces. Additional ideas may be added and ideas may be deleted or considered infeasible.

Item Measure and Summary

- 1 Plan commercial residential structures on lands² which are vacant within the flood plain. Structures must comply with local, state, and Federal flood plain regulations. In the “**Floodway**” Zone, any structure must not increase water surface elevation or restrict flow. Establishing the structural bottom of the first floor (above ground level) 3 feet above the water surface elevation of the US Army Corps of Engineers (ACOE) Standard project flood increases have an impact in location, design considerations, and utilities. Private developer assistance to overcome hurdles could be considered. Vehicle parking depressed below current ground level may help accommodate restrictions caused by building structures. The goal is to provide at least one residential dwelling (or an apartment) for each dwelling removed as a result of flooding. Verify that land must be “used” for a public purpose. The goal is to provide housing for 2,600 people (about 1,000 dwellings) and about 200 guest (hotel) rooms.²
2. Plan commercial structures³ on lands which are vacant parcels within the flood plain. The goal is to provide at least 5,000 sf for about 50 business lost due to the 1983 flood. Flood plain restrictions are the same at Item 1. Mitigate risks to structure owners. Verify that land must be “used” for a public purpose.
3. In Items 1 and 2 encourage mixed use structures. May require zoning changes.
4. Develop hot springs that are located between the Clifton splash pad and just downstream of the US 191 Bridge.
5. Provide a continuous trail/path/sidewalk system connecting to areas adjoining existing facilities on both sides of the SFR.⁴ Coordination with and inclusion of existing parks and trails, extreme low maintenance design provides extreme resistance to high water events and resilience.
6. Provide access points to the SFR Stream as a part of trail system. Local drainage pipe provide points and help maintenance. Stream bank changes lead to possible damage due to scour during higher flow events.

²In providing additional dwelling units within the Town of Clifton outside of the floodplain, our 2022 estimated cost is \$300,000 per person. For 1,000 dwelling units and 100 commercial sites, the cost would be more than \$400,000,000. This number is provided only as a comparison to costs associated with buildings proposed by SFRRP.

7. Create laminar and turbulent regimes in river. Consider damage caused by higher flows and regulations.
8. Show open shelters and rest points along trails. All improvement must be low maintenance and connected by vehicular access for maintenance, flood flow resistant
9. Replace non-native vegetation with native species. Minimize maintenance
10. Provide vegetative sheltered pools for fishing. Maintenance after high water events
11. Provide sheltered pools for aquatic threatened and endangered species. Maintenance after high water events, limit access by public and exclude predator species.
12. Reduce railroad conflicts. Close Zorilla Street RR crossing. Add Chase Creek / US 191 Intersection and US 191 to Frisco Avenue connector.³
13. Make vehicular system more efficient. Modify intersections at Park Avenue and US 191 and US 191 Go Go Gas. Special attention should be given to the safe continuity of pedestrian traffic.
14. Rebuild Park Avenue and include trail on river side and eliminate rock fall issues.
15. Build in trail safety - provide lighting and a system for security
16. All Terrain Vehicle use considerations
17. Reconstruct Riverside Avenue during development of adjoining lands.
18. Suggest Zip Line locations and other associated businesses, such as Kayak rentals, etc.
19. Provide care facilities for Seniors and affordable housing within the mixed use
20. Facilities need to be ADA compliant as much as possible
21. Remove Clifton dump - (Brown Fields project?) - located off US 191 and road to Clifton Treatment Plant. The dump is within an AE Zone of San Francisco River and could be subject to breaching during the project flood. Excavated materials would be placed in the Loma Linda Landfill. Also, the land could be used for housing.
22. Use bottom lands near Treatment Plant for orchard(s)
23. Provide park use in flood plain at ADOT US 191 gabions - downstream from Ward Canyon
24. Provide adequate parking for proposed uses.
25. Consider appropriate sites for rock climbing.
26. Zip Lines

³ Suggest adding a parallel track(s) on the westerly side American Legion Building to make train switching more efficient and less disruptive to traffic through Clifton.

Table 2
from Flood Control Measures Considered during the Table 3-1 ACOE Feasibility Studies⁵
modified to reflect 40 years of changes

<u>Measure</u>	<u>Summary evaluation</u>
1. No action	No change in status quo, was not adopted
2. Relocation on site	Limited by availability of land.
3. Relocation off site	Some residents moved to other locations away from Clifton, population reduced, politically extremely unpopular.
4. Evacuation and Flood warning Plan	Plan prepared by the ACOE and provided in GDM Appendix. The local/state warning system provided failed and the Greenlee County developed replacement flood warning system.
5. Flood proofing	Used both wet and dry systems. Systems have not been tested and some structures remain unrepaired
6. Flood insurance	Available to local residents, but not affordable to low income residents and for commercial properties
7. Flood management	Federal Insurance Rate Maps in place, does not account for historic structures flood proofing, local administrator and public officials change frequently resulting in the continued need for training. Untrained personnel results in inconsistent administration of flood ordinance
8. Channel clearing	None, limited debris in channel and debris is not a significant factor in flood damages but creates commutative effects that have not been evaluated.
9. Sediment build up at bridges	Little impact on flood water surface elevation. See channel clearing.
10. Bridges	Hydraulic jumps at bridges with significant back waters. Bridges may still have significant damages during high water events. Significant and consistent maintenance is needed
11. Complete current flood wall system	Little impact on flood damages, possible increase in damage at breaches
12. Expand channel area	Insufficient room, not effective to reduce water surface elevation,

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|------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13. | Raise and extend South Clifton flood wall | Engineered levee constructed, inadequate training of operational and maintenance personnel. Funding lacking for proper maintenance and operation. RV Park reduction in size reduced expected income and population drop significantly reduced tax revenues. |
| 14. | Concrete lined channel | High construction cost and long term maintenance cost, environmentally questionable |
| 15. | Raise flood walls | High cost and questionable stability, safety concerns |
| 16. | Replace flood walls | High cost and questionable stability, safety concerns |
| 17. | Install flap gates on local drainage | Needed to control localized flooding, subject to maintenance and operational concerns and costs. Provides an opportunity to build access points to river while encouraging better maintenance practices. |
| 18. | Use US 191 as flood bypass channel | High cost and operational feasibility (commercial uses along road hindered or prohibited by costs). |
| 19. | Straighten river | Little flooding impact, long term stability |
| 20. | Channel clearing and excavation | Often suggested, little flood damage prevention due to continued high sediment loading, long term maintenance to continually remove sediment as over bank areas continually aggrade during moderate flow events, environmentally difficult |
| 21. | Levees | Too costly except in South Clifton where a levee was built |
| 22. | Upstream dam(s) | Too costly, environmentally unacceptable |
| 23. | Modify main bridges | Little impact on flooding, too costly, Railroad bridge unfeasible to change |

The ACOE GDM focused exclusively on providing flood control and protection. Economic impacts from floods including population relocations, business relocations and closure are not mentioned. The National Flood Insurance Program resulted in increased oversight of and a long period for recovery efforts. Clifton has never recovered from the 1980's.

Table 3
Flood Control Measures in place after the ACOE Feasibility Studies
modified to reflect 40 years of changes

<u>Measure</u>	<u>Summary evaluation</u>
1. Relocation off site	Some residents moved to other locations away from Clifton, population reduced, politically extremely unpopular

2. **Evacuation and Flood warning Plan** **Plan prepared ACOE Appendix __. Local/state warning system failed and the Greenlee County developed flood warning system.**
3. **Flood proofing** **Used both wet and dry systems, systems have not been tested and some structures remain unrepaired**
4. Flood insurance Available to local residents, but not affordable to low income residents and for commercial properties
5. Flood management Federal Insurance Rate Maps in place. Local administrator and public officials change frequently resulting in the continued need for training. Untrained personnel results in inconsistent administration of flood ordinance
6. Install flap gates on local drainage Needed to control localized flooding, subject to maintenance and operational concerns and costs. Some gates do not function. Provides an opportunity to build access points to river while encouraging better maintenance practices.
7. **Levees** **Too costly except in South Clifton where a levee was built. In 2013, the levee failed due to human inaction.**

Revitalization time frame

Revitalization will largely depend on how well the project is marketed and how quickly the public sector embraces the varied opportunities. Some have opined that trails and commercial development could be completed in 10 years. Public recreational improvements will be funded with grants. The business/commercial opportunities will be funded by entrepreneurs with public assistance possible to cover increased costs due to flood plain issues including elevating buildings, utilities, and improvement to roads, etc. A private non-profit board is suggested foster developments. No project order is implied. The order of construction will depend upon funding.

The final Consultant work scope, costs, and final deliverables will be part of the Agreement(s). Public hearings on the Consultant work will be needed.

The Consultant shall include a time schedule to complete the work (suggested at no more than 6 months) and an estimate of costs. Failure to provide either will be considered non-responsive.

Proposals will be accepted until a satisfactory agreement is reached.

1. Clifton General Plan - Internet searched, address unknown
2. Hotel Feasibility Study for Greenlee County, Arizona
<https://bloximages.chicago2.vip.townnews.com/eacourier.com/content/tncms/assets/v3/editorial/4/91/4918c6b8-4615-11ea-93ef-9bbf8672de7b/5e375dd99a6ae.pdf.pdf>
3. Greenlee County Housing Feasibility Study
<https://bloximages.chicago2.vip.townnews.com/eacourier.com/content/tncms/assets/v3/editorial/4/91/4918c6b8-4615-11ea-93ef-9bbf8672de7b/5e375dd99a6ae.pdf.pdf>
4. Southern Greenlee County Trails Study
https://apps.azdot.gov/ADOTLibrary/Multimodal_Planning_Division/Planning_Assistance_for_Rural_Areas_Studies/PARA-Southern_Greenlee_Trails-1410-ES.pdf
5. Final General Design Memorandum (GDM) October 1991, US Army Corps of Engineers (ACOE) LA District. (Copy available at Clifton Library.)