

# Friends of the Rio de Flag Public Meeting

Thursday, April 6<sup>th</sup>

6-7:30pm

Montoya Community Center

# Agenda

- Updates/Intro to the Evening
- Master Rio Plan
- Stream Team Data Collection
- Flood Control Project
- Community Outreach
- Adopt-the-Rio
- Low Impact Development
- Volunteer Opportunities

# Evaluation Criteria for Watershed Planning

1. Restoration Opportunities
2. Preservation of Watercourses
3. Channel Maintenance
4. Development Standards
5. Flood Control Related Issues
6. Relationship to USACE Flood Control Project
7. Green Belt-Open Space Opportunities
8. Public Education and Civic Engagement
9. Desired Channel Morphology
10. Desired Water Quality
11. Invasive Weeds and Reintroduction of Native Species
12. Wildlife Habitat and Movement
13. Opportunities for Scientific Study
14. Return of Reclaimed Water and Water to Establish Perennial or Semi-Perennial Flows
15. Recreation

# 1. Restoration Opportunities

- Using the Stream Team data, property ownership information and other available data, identify specific areas within a reach where restoration opportunities exist.
- **Policy:** Whenever possible, high value stream reaches should be restored through either public or private funds. When possible restoration should be required for disturbances caused by new development. Evaluation of potential restoration opportunities should include land ownership, whether the reach is subject to City or County regulation, hydrology and site suitability. The best sites are publicly owned with water available and space enough to make a reasonable project work.

## 2. Preservation of Watercourses

- Examine City (rural floodplain map) and County requirements for dedication or preservation of primary watercourses.
- **Policy:** Jurisdictions should maintain an inventory of natural watercourses that will be protected from development and preserved in their natural condition. Jurisdictions should consider a funding source for the purchase of floodplains

# 3. Channel Maintenance

- Examine written policy for channel maintenance and ensure they are consistent with the following policy.
- **Policy** - Maintenance activities should:
  1. Preserve native vegetation whenever possible; preserve or enhance native vegetative diversity where possible
  2. Maintain native plants for erosion control
  3. Remove invasive species
  4. Include trash removal
  5. Include sediment removal and erosion concerns
  6. Maintain perennial reaches as perennial

# 4. Development Standards

- Wise development, wise maintenance practices, especially as per related to development on alluvial fans, are essential for stormwater management and maximizing ecosystem services. This plan will recommend LID standards for all new development and updates to existing infrastructure to meet these LID standards
- **Policy:** Establish and continue a 1” LID standard for new development

# 5. Flood Control Related Issues

- FoRio will advocate for a multi-stage, low flow channel and wide floodplain where possible to allow for a multi-use Rio where flood control and vegetation to coexist.
- **Policy 1:** Maintain existing flood carrying capacities of watercourses including vegetation maintenance, erosion control and excess sediment removal.
- **Policy 2:** For new flood control projects, utilize environmentally friendly techniques, including but not limited to:
  1. Use of native vegetation, especially native grasses, for slope stability
  2. Maintenance or creation of natural floodplain conditions
  3. Integration of amenities such as trails and other pedestrian access.
  4. Prohibition of the use of concrete in channel design
  5. Prohibit undergrounding of watercourses
  6. Where possible maintain enough capacity to allow for desirable vegetation in the watercourse.

## 6. Relationship to the USACE Flood Control Project

- The USACE Project is proposed to significantly change the conditions of the Rio in a large area of Flagstaff. The current design is not finalized at this time. There are concerns over the loss of existing floodplain conditions such as vegetation, stream morphology, flow regime, etc.
- **Policy 1:** Advocate for renewed EIS process that includes a redefined scope with an open channel design alternative, reconsidering of ecosystem services through a cost-benefit analysis, and public involvement
- **Policy 2:** Provide an assessment of the impacts of the USACE project on the existing watercourse and existing values, resources, and uses. Assess the Project for consistency with the criteria of this section.

## 7. Green Belt-Open Space Opportunities

- Opportunities may exist to provide for Open Space or a Green Belt. Some areas may have opportunities and some may not depending on property ownership and adjacent development. Consider multiple opportunities for things like flood control, urban trail, open space, wildlife habitat.
- **Policy:** Advocate for an Open Space designation or similar for existing watercourses under public ownership and where possible private ownership. Expand existing public ownership to include floodplain overbank areas and/or escarpments.

# 8. Public Education and Civic Engagement

- Provide for opportunities for spaces and facilities within the Rio or neighboring overbank areas for educational activities and recreation and restoration. Public outreach should be integrated to help with prioritization of projects along the Rio de Flag. Public education should be provided as related to flooding concerns, litter control, and property boundaries and rights, etc. Each reach may have specific challenges related to education, and these should be identified. Expansion of the Adopt-the-Rio de Flag Stewardship program along the entire stem of the Rio through partnerships with community members, neighborhoods, and schools should be prioritized. FoRio needs to maintain and continuously update the FoRio website to inform residents of current, past, and future projects along the Rio with opportunities for participation advertised.
- **Policy 1:** Identify specific issues related to the reach (e.g., littering from specific properties, unauthorized use of the Rio, flooding, etc.) which can be mitigated with education. Identify areas of public ownership that could be used for “outdoor classrooms” or other areas for civic engagement or other public uses. Consider regulatory constraints per the Floodplain Regulations. Each reach should be evaluated for educational opportunities including proximity to schools and site of exceptional educational value (Frances Short Pond, Willow Bend, etc.).
- **Policy 2:** Develop public outreach and education for the entire reach with emphasis on specific issues identified.
- **Policy 3:** Identify funding source to support education and engagement at identified “outdoor classrooms”. Funding should be allocated to develop signage identifying the Rio de Flag and its history, ecology, etc.

# 9. Desired Channel Morphology

- Natural floodplain function with a low flow channel and an area for widespread overbank shallow flooding is the desired morphology (i.e., stepped channel design). These areas presently exist in undeveloped lands away from urbanization. The City has protected these portions of the Rio with a Zoning Code designation known as “Rural Floodplains” which prohibits development of the 100-year floodplain. In urbanized areas, typically the channel has been constructed as a trapezoidal channel with property lines extending to near the top of the bank of the Rio. In these instances, restoration to a natural floodplain condition may be limited. In urban floodplain take advantage of existing opportunities to improve flood control, conduct restoration, and provide for recreation and education recognizing opportunities in urban floodplain will be limited.
- **Policy:** Given constraints of property ownership, provide recommendations for channel construction that is as close as possible to natural floodplain conditions. Dedication of additional lands to the Public should be considered to fulfill this goal.

# 10. Desired Water Quality

- Floodplains act as a pollutant mitigation through vegetative uptake of pollutants. The more natural the floodplain function, the better the pollutant mitigation. There can also be point-source pollutants that enter a watercourse from surrounding uses, such as industrial areas and streets.
- **Policy 1:** Encourage native vegetation and floodplain function in recommendations for specific reaches. Identify any point-source pollutants and suggest mitigations.
- **Policy 2:** Grade A quality of effluent released at wastewater plants. Since the Rio de Flag is a recharge zone, increase research to improve our understanding of the connections between effluent and drinking water sources especially understanding of Compounds of Emerging Concern (CECs) and endocrine disruptors (EDCs). Advocate for highest standards for reclaimed water in order to reduce potential environmental health impacts.

## 11. Invasive Weeds and Reintroduction of Native Species

- In addition to general invasive removal addressed in “Channel Maintenance” above, it is desirable to establish a native plant community that will thrive in the floodplain environment. FoRio will refer to geomorphological and water regime data to determine appropriate plant communities (using schematic suggested by Natural Channel Design). We will work with landowners and nearby residents and businesses to reduce and eventually eliminate invasive weeds. FoRio will collaborate with Natural Resource Conservation District on invasive weed management (as well as the San Francisco Peaks Weed Management Area).
- **Policy:** Assess the existing plant community and provide for replacement or addition of native species. Restore where possible to native plants while operating within limits imposed by flood control and other considerations.

# 12. Wildlife Habitat and Movement

- The movement and habitat of wildlife is critical to the ecosystem of the Rio. The preservation or improvement of existing corridors is necessary. Opportunities to create wildlife habitat should be identified
- **Policy:** Utilizing the wildlife corridor map as provided in *Appendix X*, assess current wildlife movements for specific reaches and recommend preservation or enhancements to corridors. Identify areas for the establishment of additional wildlife habitat, given the constraints of floodplain regulations. In the assessment of corridors and their relationship to proposed improvements, avoid “dead-ends” that could restrict wildlife movement.

# 13. Opportunities for Scientific Research

- Areas for scientific study should be identified for appropriate reaches. Floodplain Regulations will not allow these activities to occur where they may cause an obstruction. However, depending on the specific study item, opportunities may exist in overbank areas, or wide floodplain areas with low velocities. We should recommend wide channels where restoration gene banking or research opportunities may exist (e.g., Tom Witham lab). Tie ins with educational sites and schools may permit use of the Rio and surrounding open space from grade school to university research.
- **Policy:** Identify any areas within a specific reach that may be used for scientific study. Recommend streamlining obtaining permits and permission for conducting research on the Rio; Recommend that FoRio archive Rio research.

# 14. Return of Reclaimed Water to Establish Perennial or Semi-Perennial Flows

- The City produces reclaim water and discharges these waters at certain locations. Opportunities exist at these discharge points to increase discharges to provide for a perennial flow in the Rio. These discharge points include Frances Short Pond, the I-40 wetlands (Rio Plant) and the main discharge at Picture Canyon from the Wildcat Treatment Plant. The City has minimum obligations to discharge at all 3 locations, but flows generally do not extend downstream, with the exception of the Wildcat Plant.
- **Policy:** For reaches that contain a discharge point, discuss general discharge obligations and recommend for increased flows to provide downstream perennial sections. Note any constraints. The goal would be to provide for a small (5 to 10 %) guaranteed return of reclaimed water to natural or near natural systems. This is compatible with groundwater recharge objectives of the City and our objectives for restoration and gene banking. Refer back to need for understanding and addressing CECs and EDCs in considering perennial options.

# 15. Recreation

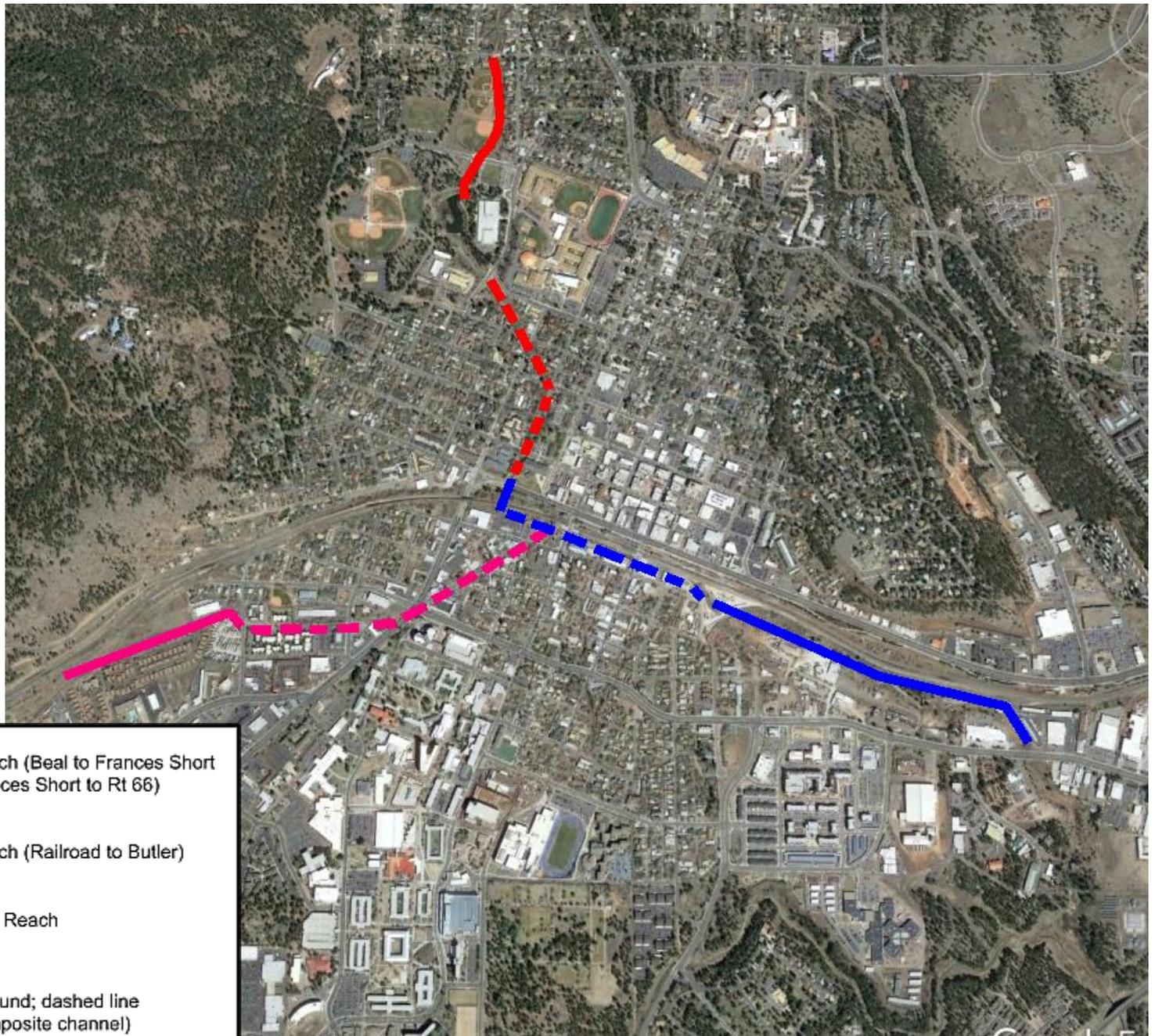
- Recreational opportunities should be identified for each reach. Passive recreation is more suited to in or near the Rio, while active recreation is more suited to overbank areas. Use the Rio de Flag as a backbone for Flagstaff Open Space system.
- **Policy:** Each reach should be evaluated for existing, planned and potential recreation including FUTS, Parks and other recreational uses. Advocate for creating connectivity using the FUTS along the Rio where possible and along any new development along the Rio or its tributaries.

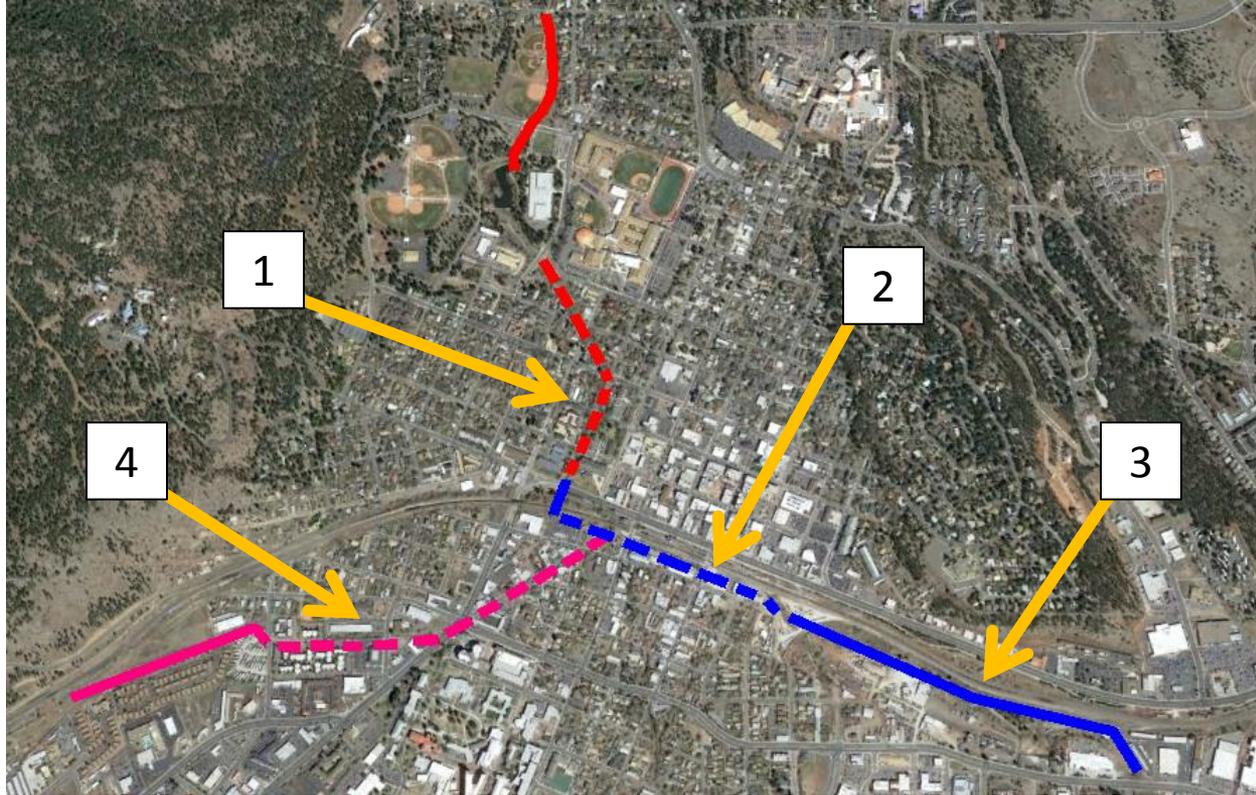
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# Map of USACE Rio de Flag Flood Control Project Design

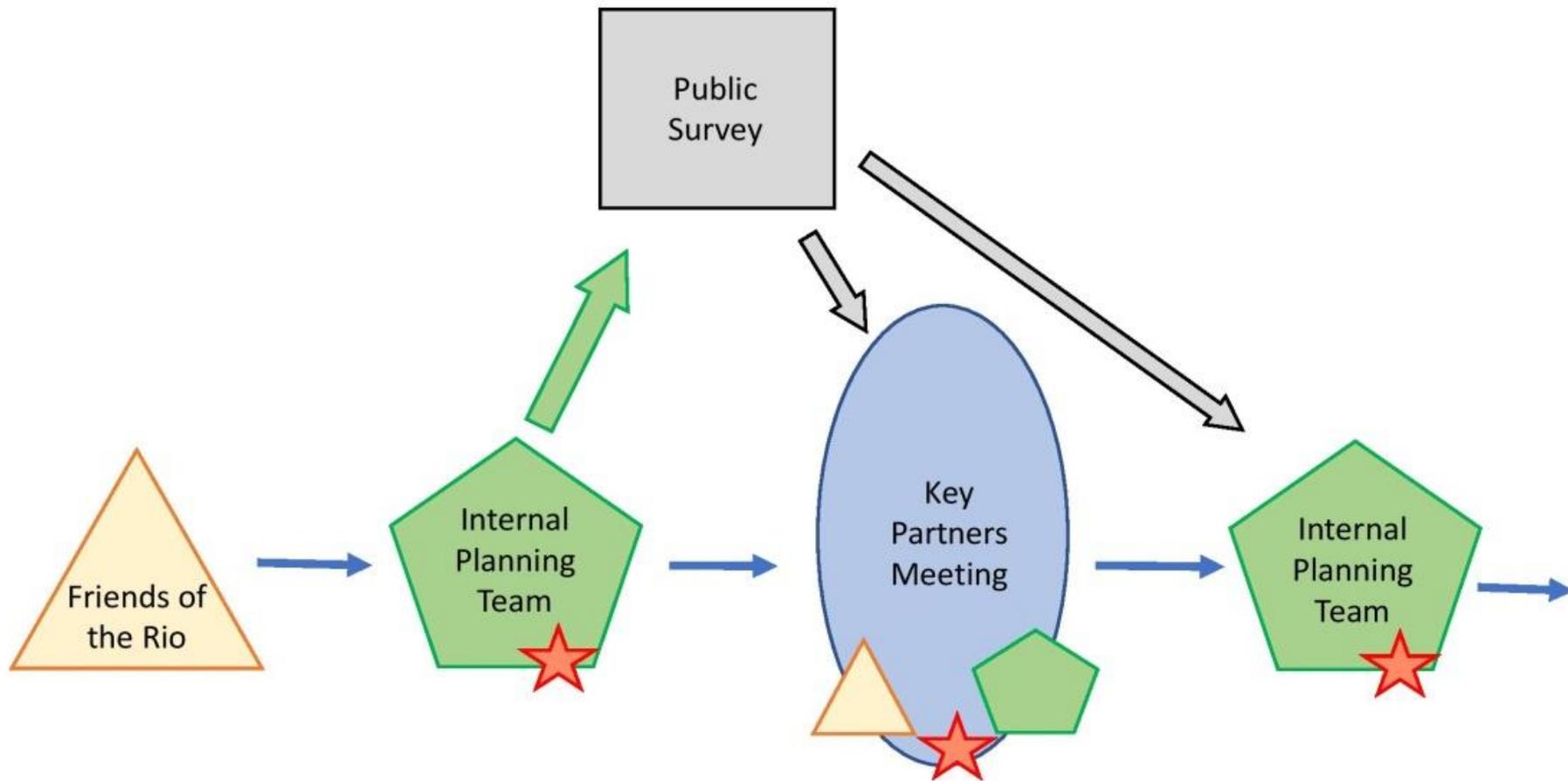
\*The current  
USACE design  
**does not**  
include a low  
flow channel





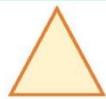
| # on Map | REACH                              | USACE DESIGN                      | FoRIO DESIGN ALTERNATIVE                        |
|----------|------------------------------------|-----------------------------------|---|
| 1        | Frances Short Pond to Rt 66        | Rio underground                   | Open, stepped channel design w/low flow channel |
| 2        | Rt 66 to east boundary of railroad | Rio underground                   | Remain as planned                               |
| 3        | Railroad east boundary to Butler   | Reinforced Vegetated open channel | Open, stepped channel design w/low flow channel |
| 4        | Clay Wash Reach                    | Underground                       | Remain as planned                               |

# Rio de Flag Watershed Management Process



Spring 2017

Summer 2017



Friends of the Rio Board



Friends of the Rio Board, City of Flagstaff, Coconino County, and other key partners



Facilitation

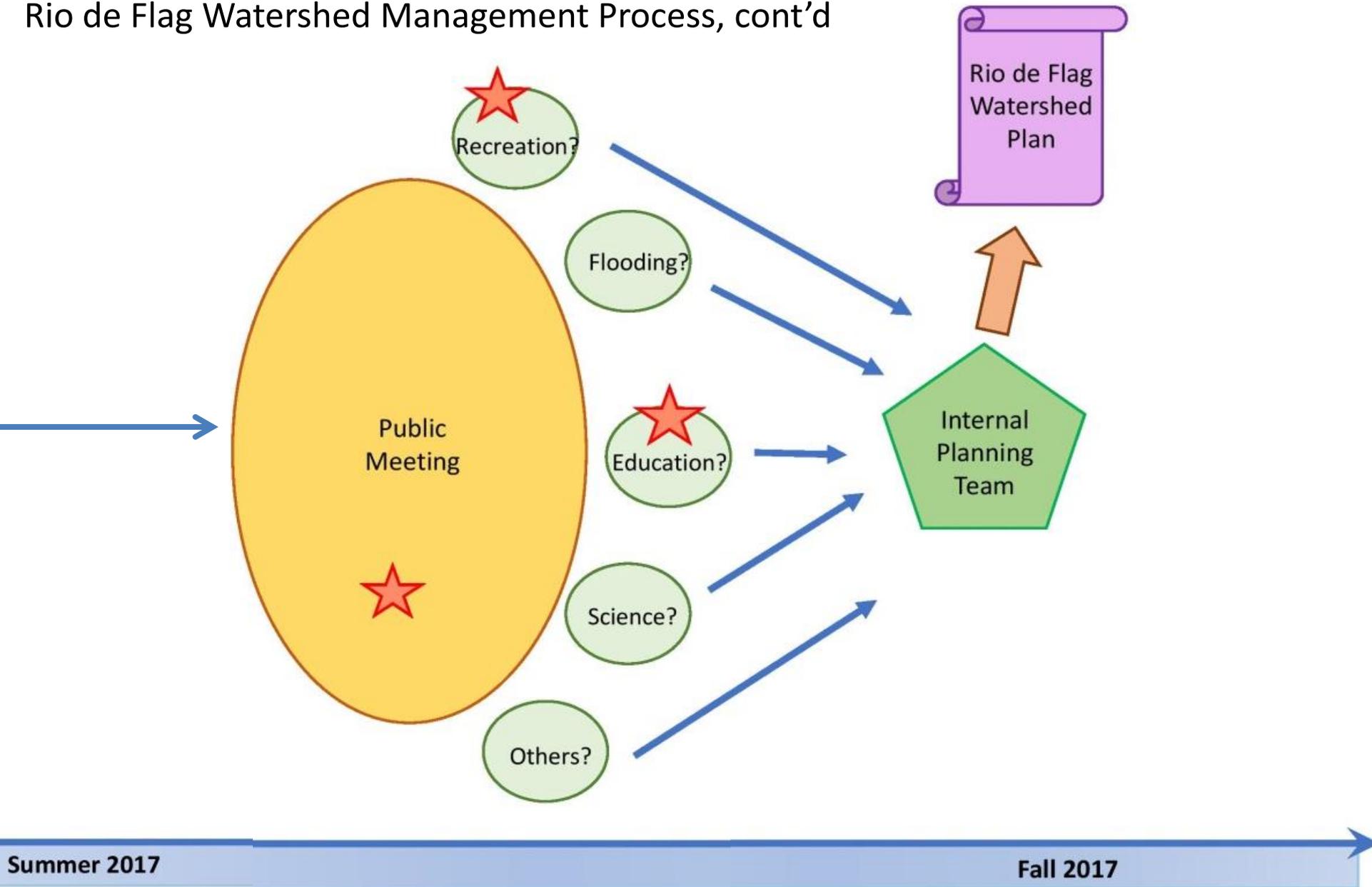


Friends of the Rio Board, City of Flagstaff, Coconino County



Example Watershed Plan Working Groups

# Rio de Flag Watershed Management Process, cont'd



 Friends of the Rio Board, City of Flagstaff, Coconino County

 Facilitation

 Example Watershed Plan Working Groups

# Adopt-the-Rio



Students from Flagstaff Junior Academy collect trash near Frances Short Pond in March 2017

- Seven schools enrolled
- GoFundMe campaign: nearly 60% of \$4,500 goal reached – deadline to donate is April 22<sup>nd</sup>
- Chelsea to do presentations on Rio de Flag at Flagstaff High School and Sinagua Middle School

# Volunteer Opportunities

- April 22<sup>nd</sup>: Earth Day Cleanup
  - 9-11am; Heritage Square
  - Event from 11am-2pm
- April 29<sup>th</sup>: Arbor Day at Picture Canyon (see flyer for more dates)
  - 9am-12pm
- Coming soon: Stream Team training and data collection events
- Also coming soon: Summer Rio Restoration Projects!
- Potentially: Conduct interviews on Southside late 2017; Stakeholder meeting to guide watershed planning sometime in 2017?

Reminder: Next membership meeting is Thursday, May 4<sup>th</sup> at 6pm