

**Pima County Regional Flood Control District
Water Resources Division**

Riparian Habitat Mitigation Plan (RHMP) Submittal Checklist for Development Projects

Applicability: Pursuant to Chapter 16.30.050.A of the Pima County Floodplain and Erosion Hazard Management Ordinance No. 2010-FC5 (Ordinance), if an applicant demonstrates to the satisfaction of the District that alteration of regulated riparian habitat cannot reasonably be avoided, a Riparian Habitat Mitigation Plan (RHMP) shall be submitted to the District for approval when more than 1/3 acre (14,520 square feet) of regulated riparian habitat (RRH) is disturbed. If the 1/3 acre (14,520 square feet) disturbance lies within either an Important Riparian Area (IRA) or Hydroriparian/Mesoriparian (Class H) habitat, and exceeds 5% of the total RRH on the property, the RHMP will require Pima County Board of Supervisors (Board) approval.

Plan Review Timeframes: Review times are dictated by Development Services Subdivision Coordination and Development Review Division. The Subdivision Coordination website can be viewed at: <http://www.pimaxpress.com/SubDivision/Default.htm>. When Board approval is required, additional time may be necessary for final approval, which averages 3-4 weeks. The schedule for Board regular session meetings as well as the Clerk of the Board (COB) deadline for agenda submittals may be viewed at: <http://www.pima.gov/cob/schedule.htm>.

The RHMP should be submitted as early as possible during the development review process, as a final RHMP must be approved prior to disturbance of RRH. For subdivision plats and development plans, a RHMP will be required at the Tentative Plat or Development Plan submittal, unless special circumstances exist. Subject to District approval, an applicant may request to submit a Preliminary RHMP with the Tentative Plat or Development Plan if circumstances exist that would require delay of a final RHMP until the Improvement Plan (Grading, Paving and/or Sewer Plan) or Final Plat. In any case, the RHMP must be approved prior to disturbance of RRH.

The Preliminary RHMP, if allowed, must include the following information: location and extent of disturbance relative to RRH, location of mitigation areas, inclusion of field mapping/onsite vegetation survey information, and other checklist items noted in grey and with asterisk below. For the final RHMP, the checklist items in black must be added to the preliminary RHMP.

A Final RHMP must be approved prior to RRH impacts (i.e., depending upon sequence of development, prior to approval of the Final Plat, Development Plan or Improvement Plan), and shall include all items noted on this checklist. If the Final RHMP will be submitted with the Improvement Plan, an appropriate note must be placed on the Tentative Plat or Development Plan notifying Development Service Department reviewers of this requirement.

An exception to the submittal process noted above is when Board approval is required. In this situation, the Final RHMP shall be submitted with the Tentative Plat or Development Plan. Board review and approval is required for impacts to IRA and Class H, as noted above, and offsite mitigation proposals. This exception is to prevent unnecessary expense and effort on behalf of the applicant, should the Board request changes to the RHMP and/or site design.

Please note that revisions to the plat or development plan affecting an approved RHMP will require submittal of a revised RHMP for review and approval.

Submittal Requirements: The RHMP shall follow the requirements outlined in the *Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines* (Guidelines), which can be viewed at: <http://rfcd.pima.gov/rules/>.

Avoidance Justification:

- *During the planning phases of the project, the location and extent of RRH on the project site shall be evaluated for the proposed use. Site improvements shall be designed to avoid and/or minimize disturbance to riparian areas. If the parcel to be developed contains developable areas outside of the RRH, but improvements are encroaching into RRH, evidence that no reasonably practicable alternative exists to the proposed impacts and evidence that the impact has been minimized to the maximum extent practicable will be required at the time of RHMP submittal. The applicant shall provide justification regarding why RRH could not be avoided. Examples of why RRH could not be avoided include site constraints, such as steep slopes which are regulated under the Zoning Code or public health and safety considerations such as traffic control (location of access roads relative to major roadways).

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RHMP Checklist – This checklist serves as a list of general requirements for the RHMP as outlined in the Guidelines. Additional information may be requested upon a detailed review of the RHMP:

- *The RHMP shall be prepared at the same scale as the plat or development plan, as feasible, or at a standard engineering scale that shows all required details. Provide one copy on 24” x 36” size paper and one electronic copy in pdf format.
- *Provide a scale, north arrow, location map, brief description of site location, project number and other general information as appropriate for the project.
- *Label the plan “Riparian Habitat Mitigation Plan”
- *Show site specific limits of the RRH. Show each RRH classification type on the plan and provide a legend that describes each line type. Use the following line type and legend descriptions:

<u>Line Type Description</u>	<u>Legend Description</u>
IRA/XA-D, H	Important Riparian Areas (with underlying class...)*
H	Class H habitat*
XA -D	Xeroriparian Class (A, B, C, or D) habitat*
* add (rectified or field verified) if applicable	

- *Existing site topography (1 or 2 foot contour interval), if available.
- *Proposed finished grades within the mitigated area. Finished grades shall be depicted by contours (1 or 2 foot contour interval) or by another method that clearly depicts the finished grades and slope conditions.
- *Limits of disturbance/grading limits, including building envelopes, septic systems, utilities, drainage infrastructure, off-site improvements, etc. Temporary disturbance, such as equipment staging areas, shall also be included in the limits of disturbance.
- *Most recent available aerial photograph. The preferred method of meeting this requirement is to use an aerial photograph as a base for your plan. The aerial photograph required for the Native Plant Preservation Plan may be used, or if unavailable, aerial photographs are available through the Pima County MapGuide website: <http://gis.pima.gov/maps/>. Aerial photographs are also available from the private sector.
- The mitigation area shall be shown as a detailed planting plan which indicates locations of individual trees and shrubs. For the Preliminary RHMP submittal, it is acceptable to delineate the mitigation area as a general location on the plan. When using plant replacement amounts outlined in the Guidelines, the mitigation area shall be a minimum of 70% the size of the area disturbed (see Section 2 of the Guidelines). For example, if you will be disturbing 1 acre of Xeroriparian habitat, the actual size of the mitigation area must be at least 0.70 acres. Alternatively, if an onsite vegetation survey has been performed (Appendix F and G of the Guidelines), use planting densities determined by the survey and mitigate the area at a 1:1 ratio (1 acre of disturbance = 1 acre of mitigation). If it is demonstrated that the full mitigation requirement cannot be completed onsite, a combination of onsite and offsite mitigation will be allowed. Subject to approval by the District, if you will be enhancing existing riparian habitat, space the trees and shrubs within the undisturbed area, according to the individual plant species mature canopy width.

Onsite mitigation shall be located to the extent practicable in a manner that enhances the overall function of natural open space and contributes to the overall value of riparian habitat protected within the project area. This can be accomplished by locating your mitigation area adjacent to existing habitat and/or enhancing existing habitat. The chosen location must be sustainable over the long-term, once irrigation is removed, and account for existing plant densities and available water. Subject to approval by the District, if you chose to enhance existing riparian habitat, ensure trees and shrubs within the undisturbed area are spaced according to the individual plant species mature canopy width. If this option is not possible due to site constraints, the mitigation area shall be placed in locations that receive sufficient water to facilitate growth and maintain healthy habitat (i.e., drainage swales, low-lying areas, detention basins, water harvesting basins, etc.) with the goal of replacing lost habitat function by establishing vegetation of similar density and structure. The mitigation area shall be one continuous area in a density that creates habitat, as the

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site allows. Mitigation areas are to be located away from improved areas, to prevent the desire to maintain in a manner similar to adjoining landscaped areas. For residential developments, placement of mitigation areas and protected riparian habitat within common areas maintained by the Home Owners Association (HOA) shall be required. Common areas containing mitigation plantings shall be delineated and labeled separately from “landscaped” common areas on the tentative and final plats.

- Mitigation plantings shall be installed per the approved planting methods outlined in the Guidelines. The following note shall be placed on the RHMP, “*Mitigation area(s) to be left in a natural state. No disturbance shall occur within the mitigation area(s) without RFCDD review and approval. Such disturbance includes but is not limited to secondary impacts such as the presence of livestock, fencing, landscaping, etc*”
- *Calculations and quantities for disturbance and mitigation. Calculations shall include the following:
 1. Total area of RRH on the project site, by class of habitat
 2. Area of disturbed RRH, by class of habitat
 3. Minimum required mitigation area, by class of habitat (Xeroriparian Classes A-D are mitigated at a 1:1 ratio, Class H and IRA are mitigated at a 1.5:1 ratio)
 4. Actual mitigation area, by class of habitat (provide only if minimum mitigation area and actual mitigation area are different)

Disturbance and mitigation calculations shall be in acres, to the nearest hundredth (ex., 0.33 acres).

Plant quantities shall be calculated using plant densities obtained from either the Guidelines (Section 2) or through an onsite plant survey (Technical Procedure TECH-116), multiplied by the area of proposed disturbance. For Class H habitat or IRA, the area of disturbance shall be multiplied by 1.5 prior to calculating the quantity of trees and shrubs.

- Provide a planting list or schedule that identifies plant species, quantities and sizes at the time of installation. The planting schedule shall list a minimum of 3 tree species, no more than 75% of any one species and 5 shrub species, no more than 35% of any one species. This requirement may be modified upon submittal of an onsite plant survey performed by a qualified professional (Appendices F and G). A list of approved plant species can be viewed in Appendix B of the Guidelines. Tree and shrub sizes shall be in accordance with Guideline requirements (see Section 2).
- Seeding requirement. Mitigation area is to be seeded with a minimum of 12 species from the approved plant list (see Guidelines, Appendix B). Of the 12 species, 4 shall be shrubs, 4 shall be annuals/perennials/vines, and 4 shall be grasses. Seeding methods include; hydroseeding, drill seeding with crimped straw mulch or broadcast seeding and raking into seedbed with straw or other approved mulch. List plant species used in the seed mix on the RHMP and add the following note, “*Mitigated area will be (insert method of seed placement) with a minimum of 12 species from the approved (Class H or Xeroriparian) plant list found in Appendix B of the “Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines.” If plant species listed on the mitigation plan are unavailable, replacements species from the approved plant list may be selected based upon availability. Of the 12 species, 4 shall be shrubs, 4 shall be annuals/perennials/vines, and 4 shall be grasses. Any changes to the seed mix shall be noted on the first monitoring plan submittal.*” The applicant is encouraged to consult with a seed vendor prior to selecting plant species for the seed mix. If plant species and/or seeding rates change after approval of the RHMP, the applicant shall provide information regarding changes to the original RHMP with the first monitoring plan submittal (“as-built” RHMP).
- *Method of irrigation. Irrigation method shall include an automatic system such as drip, sprinklers, or other automatic irrigation system. The method of irrigation must demonstrate that adequate water will be provided to the new plants during plant establishment. Use of water harvesting methods is encouraged as a supplement to irrigation in addition to providing long-term benefits to the plants. A note shall be placed on the RHMP that identifies how mitigation plantings will be irrigated, including identification of an irrigation water source.
- Plant establishment. Native plants are well adapted to annual rainfall amounts in the Tucson Basin and can typically survive without supplemental irrigation, once established. To create a successful mitigation area, initial plant establishment is essential. Once a healthy root system is established (one to three years for most plant species, but

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possibly longer depending upon the species and/or establishment within areas of shallow groundwater), plants shall be “weaned” from supplemental irrigation. The intent is to adjust the irrigation schedule until plants can survive on natural rainfall. This can be accomplished by decreasing the frequency of irrigation each year. While decreasing supplemental irrigation, monitor plant health, especially during times of drought, when plants may require additional irrigation. Establishment of the mitigation area will be considered successful when 80% of the plants are living and actively growing (without significant die back or loss) after one year without supplemental irrigation. Place the following note on the RHMP: *“Once plants have established (approximately 1 to 3 years after installation), supplemental irrigation will be decreased in accordance with Appendix C of the Guidelines.”*

- Identify construction methods that protect riparian habitat to be left unaltered, such as protective fencing or other methods.
- Place the basic statement of maintenance on the RHMP as outlined in Section 2 of the Guidelines, “Required Maintenance”.
- *Identify the entities or individuals responsible for implementation of the RHMP, monitoring of the mitigation area, and long term ownership and management of the mitigated area(s).
- Place the following note on the RHMP, *“Riparian Habitat Mitigation plan implementation shall be completed by the first growing season following completion of construction, which is projected to be (select one season) March-May, 20XX/July-September, 20XX/September-November, 20XX.”* If the development will occur in phases or planned completion is unknown, provide a general note that approximates date of completion. A good rule of thumb to follow is that once riparian habitat has been impacted, mitigation must occur.
- The mitigation area must be maintained and monitored for five calendar years following RHMP implementation. The monitoring requirement is to ensure the mitigation area is meeting the 80% success criteria by the end of the five year maintenance period (see Section 3 of the Guidelines). The mitigation area shall be documented by establishing photo monitoring points. Photo monitoring points will be based upon site constraints, so that the entire mitigation area(s) is documented. A minimum of one photograph per monitoring point is required. If the mitigation area cannot be captured by one photograph, several points shall be used. Use a close ended arrow to show the location and direction of photo monitoring points on the RHMP. The monitoring plan shall be noted on the RHMP as follows, *“A monitoring plan, in accordance with the monitoring schedule outlined in Section 3 of the Guidelines, will be submitted over a five year period following implementation of the riparian habitat mitigation plan (RHMP). Any changes from the approved RHMP shall be noted on the monitoring plan submittal.”* Submittals shall be labeled “Annual Monitoring Report for P12XX-XX” and sent to the following address: Pima County Regional Flood Control District, ATTN: Water Resources Division Staff, 97 E. Congress Street, 2nd floor, Tucson, AZ 85701. **Note address for sending monitoring plan submittals on the RHMP.** The individual or entity responsible for implementation and monitoring of the mitigation area shall provide an “as-built” RHMP with the first monitoring plan submittal (see monitoring report submittal requirements in Section 3 of the Guidelines).
- *Provide a note on the RHMP describing any deviations from requirements as outlined in the Guidelines. Describe any special site conditions, such as presence of noxious and/or invasive species, previous disturbance, etc.

*When a preliminary RHMP is allowed, this item must be included in a preliminary RHMP submittal

Resources:

Chapter 16.30 of the Floodplain and Erosion Hazard Management Ordinance No. 2010-FC5
<http://www.pima.gov/cob/code/>

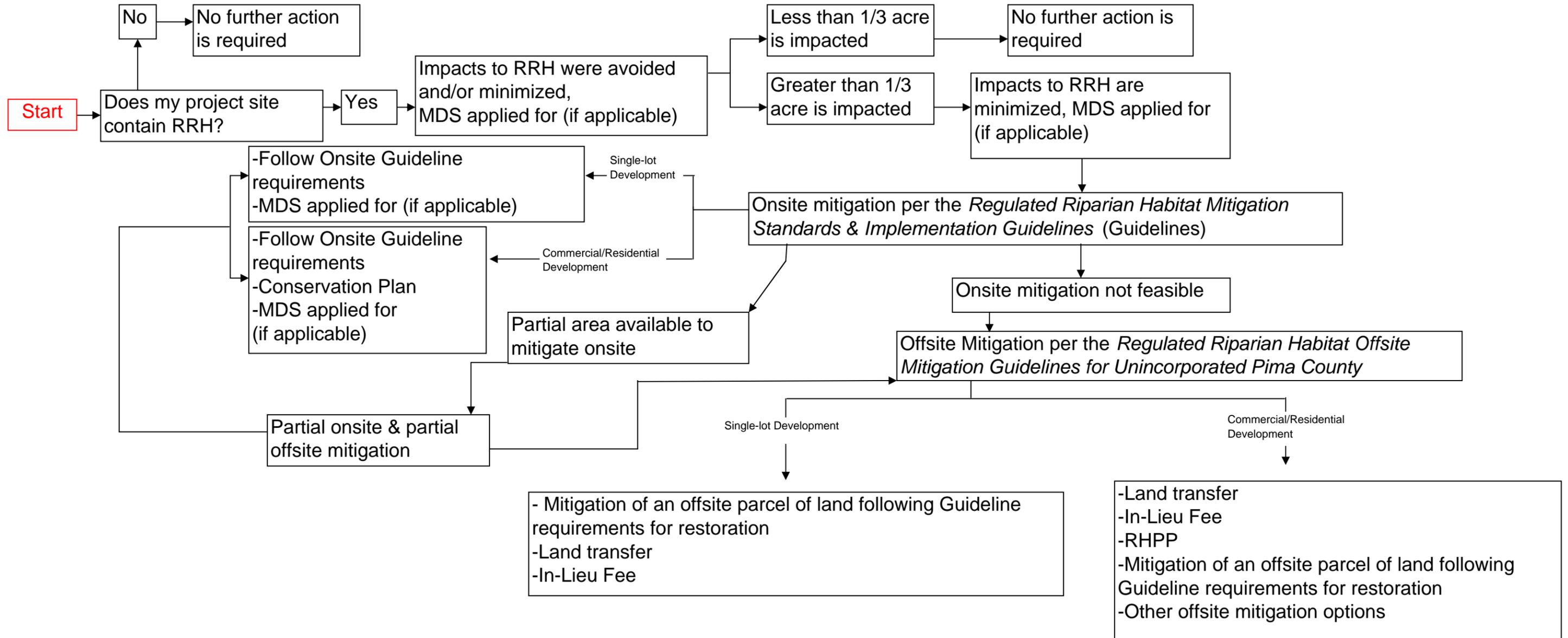
Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines
<http://rfcd.pima.gov/rules/>

Pima County Mapguide to view Regulated Riparian Habitat
<http://gis.pima.gov/maps/>

Chapter 18.07.080 of the Zoning Code for information on modified development standards
<http://www.pima.gov/cob/code/>

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Regulated Riparian Habitat (RRH) Mitigation Options



MDS = Modified Development Standards per Zoning Code requirements
 RHPP = Riparian Habitat Preservation Plan
 RRH = Regulated Riparian Habitat



Mitigation Options Available for Disturbance of Regulated Riparian Habitat (RRH)

Mitigation Options	Single-lot Development		Commercial/Residential Development		Comments
	Onsite*	Offsite**	Onsite*	Offsite**	
Onsite mitigation	X		X		Enhancing or restoring onsite riparian habitat function by replanting with native vegetation
Partial onsite mitigation/partial offsite mitigation (see offsite mitigation options)	X	X	X	X	Allows more flexibility when riparian function can't be replaced entirely on the project site/subject parcel. See the "offsite" column to determine which offsite mitigation options would apply
Offsite mitigation		X		X	Includes mitigation at an "offsite" location for single lot development, or all the offsite mitigation options noted in the "offsite" column for commercial/residential development
Conservation Plan			X		Flexible tool to preserve the project site's (onsite) natural resources. Allows for alternative onsite mitigation measures such as: - stewardship to remove system stressors, such as invasive species - preserve unique ecosystem features - preservation of unmapped areas to provide buffer for high value riparian habitat - preservation of unmapped riparian habitat
In-lieu Fee		X		X	Monetary contribution used to preserve, protect, or restore habitat
Riparian Habitat Preservation Plan (RHPP)				X	Flexible tool offering opportunity to preserve offsite natural resources; offsite version of the "Conservation Plan", sharing many elements
Restoration of an offsite mitigation parcel		X		X	Enhancing or restoring riparian habitat function by replanting with native vegetation on a offsite parcel in accordance with onsite mitigation guideline requirements.
Land transfer		X		X	Additional tool for protecting riparian habitat function. Land containing riparian habitat is acquired and conveyed to the District in exchange for impacts to regulated riparian habitat.
Other offsite mitigation options				X	Additional options allowing for the preservation of riparian function through: - purchase of water rights - other options?

**"Onsite" = mitigation occurring within the project boundaries and/or subject parcel
 ***"Offsite" = mitigation occurring outside the project boundaries and/or subject parcel

