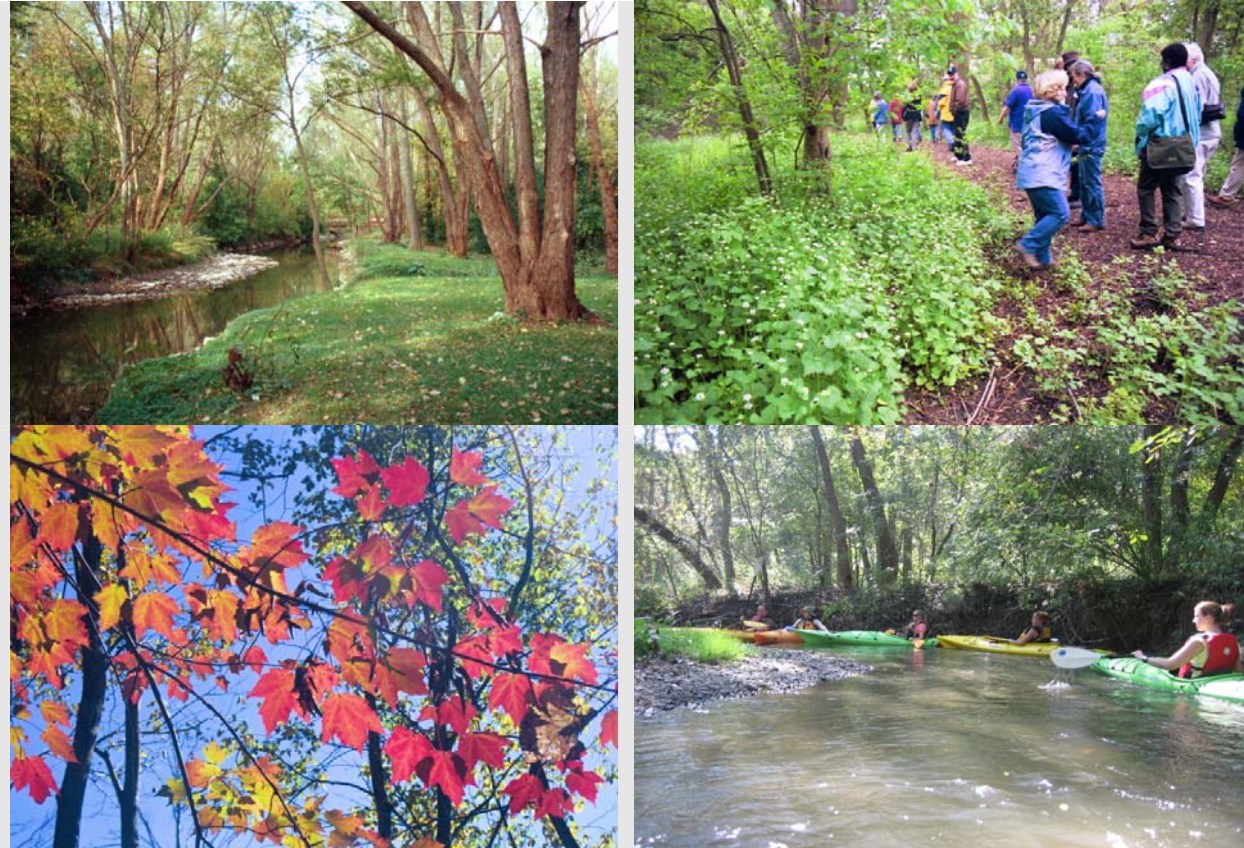


**DRAFT Rouge Green Corridor
Urban Habitat Conservation & Stewardship Project
5-year Habitat Implementation Plan
May 28, 2009**



**This document was prepared by Oakland County Planning & Economic Development Services
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Project Overview

The Rouge Green Corridor (RGC) is a stretch of the Rouge River that flows through the City of Birmingham, Village of Beverly Hills, and the City of Southfield. The riparian corridor of this area has retained significant natural character despite extensive and intense urban development in the surrounding watershed. Significant natural areas and aquatic resources within the RGC are at risk of deterioration and require ongoing maintenance and stewardship to retain their ecological values. The RGC provides an important community asset to a densely populated, urbanized area.

The *Rouge Green Corridor Urban Habitat Conservation & Stewardship Project* was conceived as a partnership between Oakland County Planning & Economic Development Services, City of Southfield, Village of Beverly Hills, City of Birmingham, the Southeast Oakland County Water Authority (SOCWA), Oakland County Office of the Drain Commissioner, Friends of the Rouge, the Oakland Land Conservancy, and concerned citizens (collectively, the RGC Steering Committee). The project is partially funded by a grant from the National Fish and Wildlife Foundation. The RGC Steering Committee contracted with *ASTI Environmental* to conduct a habitat inventory and management plan for the RGC. The *Riparian and Aquatic Inventory and Management Plan for the Rouge Green Corridor* was finalized on November 28, 2008.

RGC Urban Habitat Conservation & Stewardship Implementation Plan

The *Riparian and Aquatic Inventory and Management Plan for the Rouge Green Corridor* (Habitat Plan) begins with an extensive description of the habitat resources contained within the RGC (based on filed surveys and existing data), describes existing threats to habitat, sets specific restoration goals, identifies habitat target benchmarks for terrestrial and aquatic resources, and lists specific recommendations for conservation and stewardship of habitat in order to achieve those goals and benchmarks. The plan contains a total of 134 recommendations for 11 parks and preserves and other river areas. Some of these recommendations apply to the entire corridor while others apply to specific areas only.

This document is a distillation of that plan. It consolidates and prioritizes the recommendations to set a concise 5-year agenda for RGC partners to follow in implementing the Habitat Plan.

Recommendation Ranking Process

The RGC Steering committee conducted a workshop to prioritize the 134 recommendations contained in the Habitat Plan. Each recommendation was evaluated based on the following four criteria:

- ***Return on Investment:*** Is the cost for implementation worthwhile based on the expected return on investment? Return on investment was considered in terms of benefit to habitat (as opposed to monetary reward). For example, a costly project that would impact habitat only minimally was given less priority than an inexpensive project that would greatly benefit habitat.

- **Maintenance Cost:** A challenge to maintaining habitat is the limited resources that both public private landowners s with which to maintain projects. Therefore, projects with very high maintenance costs were prioritized below those with self-sustaining maintenance or inexpensive maintenance costs.
- **Ease of Implementation:** Several recommendations in the plan, while they would have benefit to habitat, are very difficult to implement. This is particularly true of recommendations that propose physical modification to private property. The RGC group prioritized projects that are relatively easy to implement. Difficult projects are not rejected; however as they will require greater resources to implement, the group chooses to focus initial efforts on “low-hanging fruit” to achieve a record of success to build on as they tackle the more difficult recommendations.
- **Restoration Goal Impact:** The Habitat Plan identifies 12 restoration goals (p. 53) for the RGC (listed below). Each recommendation was evaluated with regard to its impact on these 12 goals. Recommendations that would have significant impact on multiple goals were ranked higher than those that would have less impact or would impact only one or two of the goals.

The following matrix describes the scoring system:

	<i>Return on Investment</i>	<i>Maintenance Cost</i>	<i>Ease of Implementation</i>	<i>Restoration Goal Impact</i>
3 points	Favorable return on investment	Low maintenance cost	Easy to implement	High impact on restoration goals
2 points	Medium return on investment	Medium maintenance cost	Moderately difficult to implement	Medium impact on restoration goals
1 point	Poor return on investment	High maintenance cost	Very difficult to implement	Minimal impact on restoration goals

Implementation Strategies

The top 3-5 ranked recommendations for the entire corridor and each piece of geography evaluated in the study were selected for further implementation strategy. The RGC Steering Committee identified a role and an immediate strategy for each prioritized recommendation, identifying what will be done and who will be responsible for doing it. A timeframe was assigned to each recommendation. Short-term strategies will be implemented within 2 years; long-term strategies will be implemented within 5 years. Each strategy was assigned a program evaluation benchmark which will be used to determine if the strategy was completed.

Goals, Strategies and Evaluation Benchmarks

The habitat plan identifies 12 habitat restoration goals and associates each goal with target habitat metrics that can be used to measure the progress and achievement:

RGC Habitat Restoration Goals:

1. Connect river and floodplain (AHR, BSI, FC, RBFI, WQ, WFV)
2. Educate and involve residents in riparian corridor stewardship (no targets established)
3. Expand survey and monitoring efforts (AC, AHR, MC, WFV, WQ)
4. Improve in-stream aquatic habitat (AHR, FC, MC)
5. Improve water quality to meet TMDL and water quality criteria (FC, MC, WQ)
6. Manage invasive species (FQI, WFV)
7. Manage woody debris (AHR, BSI)
8. Promote the river and the RGC as a recreational asset (no targets established)
9. Reduce erosion and sedimentation (AHR, BSI, FC, MC, WQ)
10. Reduce flashiness (AHR, BSI, RBFI)
11. Restore wetlands (FQI, WFV)

Habitat Metric Targets for the Corridor

AC – Amphibian Community Increase average species count from 2 to 4
AHR – Aquatic Habitat Ranking “Acceptable” Procedure. 51 ratings
BSI – Bank Stability Index Improve to, or maintain at, “Stable”
FC – Fish Community “Acceptable” Procedure 51 ratings
FQI – Floristic Quality Index Minimum FQI of 20
Average % native species >75%
MC – Macroinvertebrate Community “Acceptable” (Procedure 51 rating)
RBFI – Richards-Baker Flashiness Index Halt trend to increasing flashiness
WFV – Wetland Functional Value Suitable for Floodflow Alteration
WQ – Water Quality
Average wet-weather TSS < 80 mg/L Dissolved oxygen > 5 mg/L E. coli bacteria < 130 mg/L

These habitat metrics include targets for the entire corridor (listed above) as well as metrics for each individual piece of local geography. Local targets may be more or less ambitious as site conditions dictate. This implementation plan document sets programmatic evaluation benchmarks which are different than and separate from the habitat evaluation benchmarks. While habitat metrics are used to measure overall progress toward restoration goals, program evaluation benchmarks simply measure whether an identified implementation strategy was achieved. Tracking of both sets of indicators is critical to evaluating progress in implementing the Habitat Plan.

Implementation Strategy

Each of the goals and strategies in the following table are associated with one or more of the above restoration goals and target habitat metrics.

Corridor-Wide

#	Time frame	Recommendation	Role	Implementation Strategy	Program Evaluation Benchmark
13	2-year	Develop and implement (Rouge Green Corridor Overlay Zone) ordinances/guidelines in each of the 3 RGC communities for activities impacting the river.	RGC Group	Research options/pursue development of funding to draft model river corridor overlay zoning ordinance.	Proposal document written and funding source identified to develop river corridor overlay zoning ordinance.
18		Develop land owner education strategy and materials and disseminate.	RGC Group	Conduct meetings to inventory resources and devise strategy for public education.	Meeting conducted and strategy document drafted.
21		Continue and expand volunteer water quality (macroinvertebrates) monitoring to provide coverage of main drainage network inputs. (\$5K)	RGC Group, Friends of the Rouge (FOTR)	Ask FOTR to add monitoring point on main drainage networks.	Monitoring locations have been added to each major drainage input.
22		Expand bird surveys to include all parks and preserves and to incorporate annual counts, where possible, to detect population changes.	RGC Group, Audubon/ SRRLC	SRRLC will coordinate bird census	Regular bird census has been established.
23		Continue frog and toad volunteer surveys. Expand frog and toad survey efforts to include wetlands in each of the 11 RGC parks and preserves	RGC Group, Friends of the Rouge (FOTR)	Work with FOTR to promote monitoring locations in wetlands in each of the 11 RGC parks and preserves.	Monitoring locations in wetlands in each of the 11 RGC parks and preserves have been established.
30		Develop a detailed invasive species inventory, database, and map for each park/preserve. Map locations and densities of rare plant species. Prioritize areas for management based on floristic quality and infestation risk.	SRRLC/ RGC Group	Conduct spring ephemeral monitoring. Contract with SRRLC or other private contractor for invasive management services.	Invasive management program is underway in all pars and preserves.
1	5-year	Review policies and procedures to capture, detain, and treat storm water. Revise to further reduce peak flow runoff.	RGC Communities	Comply with Phase II stormwater regulations.	Communities are in good standing with Phase II permits.
4		Identify where direct connections and outfalls can be daylighted or modified to improve stormwater treatment or infiltration. .	RGC Communities	Work with OCPEDS LID coordinator to identify opportunities/ draft concept plans.	Opportunities identified/project implemented.
24		Conduct follow-up mussel surveys every 5-10 years, expand sampling locations to identify other high-quality areas and monitor over time.	RGC Group	Apply for grant for mussel monitoring	Grant secured for mussel monitoring.
50		Develop a corridor-wide large woody debris management plan which establishes priorities, budgets, schedules, and on-going maintenance programs for clearing recreational access and stabilizing the worst erosion hotspots.	RGC Group	Apply for grant to develop LWD management plan.	Plan developed and implemented on regular basis.

City of Birmingham

#	Time frame	Recommendation	Role	Implementation Strategy	Program Evaluation Metric
Quarton Lake					
38	2-year	Develop and disseminate targeted land owner education materials regarding use of low/no phosphorus fertilizers and other ways to reduce nutrient and stormwater runoff:	City of Birmingham / SOCWA	Send personal letter to residents and place information on City's web site.	Letter sent, web site information posted.
42		Use only low/no phosphorus fertilizers on park lawns and avoid fertilizer use within riparian buffers.	City of Birmingham / SOCWA	Institute department policy.	Policy is in place.
41		Provide pet-waste bags, trash cans, and educational signage regarding proper disposal.	City of Birmingham	Install signage, place information on website and quarterly newsletter.	Signage installed, information posted and in newsletter.
39		Identify opportunities to redirect storm water outfalls upstream and downstream of the park to bioswales, rain gardens, or other treatment systems prior to discharge.	City of Birmingham	Request assistance from OCPEDS LID coordinator to ID opportunities, pursue grants/budget allocation for implementation.	Opportunities and funding identified.
44		Widen existing riparian buffer with additional native species plantings.			
--		Manage and monitor fish in conjunction with Quarton Lake maintenance plan.		Department of Public Services	See maintenance plan.

Booth Park Trail & Linden Park Trail
No location-specific recommendations different from corridor-wide recs for monitoring and invasive management.

Village of Beverly Hills

#	Time frame	Recommendation	Role	Implementation Strategy	Program Evaluation Metric
Hidden Rivers Preserve and Riverside Park					
60	2-year	Develop and disseminate targeted land owner education materials regarding use of low/no phosphorus fertilizers and other ways to reduce nutrient runoff.	Village of Beverly Hills	Brochures are being made in connection with \$2000 MDNR grant.	Brochures have been distributed to relevant property owners and posted to VBH website.
61		Conduct invasive species removal on the island in Riverside Park and involve riparian residents as a form of outreach and education.	SRRLC/ Village of Beverly Hills	Development of spring and summer workshops in progress	Workshops are implemented.
63	5-year	Hold public meetings regarding dam removal or impoundment management options.	Village of Beverly Hills	Research impoundment management options and coordinate meeting.	Meeting held and options/opinions recorded.
Douglas Evans Nature Preserve					
66	2-year	Actively manage invasive and woody species to maintain the planted prairie and wet meadow areas at the Douglas Evans Preserve.	SRRLC/ Village of Beverly Hills	Continue partnership with SRRLC to develop and implement invasive management program.	Invasive management program is in place.
67		Expand volunteer, consultant and/or agency staff surveys to include insects and herptiles.	SRRLC/ FOTR/ Village of Beverly Hills	Work with SRRLC and FOTR to incorporate insect and herpetile monitoring	Insect and herpetile monitoring has been incorporated.
69	5-year	Develop plan for stabilizing streambank and reducing erosion at high volume site near southern end of this reach.	Village of Beverly Hills	Contact property owners at this location to determine interest/willingness to participate.	Stabilization plan has been developed.

City of Southfield

Time frame	Recommendation	Role	Implementation Strategy	Program Evaluation Metric	
Valley Woods Nature Preserve at Streamwood					
82	2-year	Identify opportunities to eradicate or reduce early infestations on or near the Berberian Property before they can threaten rare plant species.	SRRLC/ City of Southfield	Conduct volunteer stewardship workdays.	Workdays are conducted.
87		Explore opportunities to purchase additional parcel across the river from the Berberian property.	City of Southfield	Negotiate with landowner and submit MNRTF application.	MNRTF Application submitted.
85		Explore opportunities for removing invasive species and restoring native species at the north end of the park, while allowing for planned parking and trails.	City of Southfield (with partner support)	Pursue grant opportunities for implementation.	Grant opportunities identified/application made.
97		Continue stream bank stabilization for high priority sites identified in the Franklin Branch Erosion Inventory.	City of Southfield	Pursue grant opportunities for implementation.	Grant opportunities identified/application made.
Valley Woods Nature Preserve at Civic Center Drive					
100	2-year	Consider conducting a fish survey within this reach to determine if previous efforts to provide fish cover were successful or if more should be done to enhance fishing opportunities.	City of Southfield/ MDNR	MDNR surveys every 5 years; work with MDNR to ascertain effectiveness of fish structures.	Fish survey conducted; conclusion on fish habitat reached.
101		Provide pet-waste bags and educational signage in park regarding proper disposal.	City of Southfield	Request to city.	Bags and signage installed

Time frame	Recommendation	Role	Implementation Strategy	Program Evaluation Metric	
Valley Woods Nature Preserve at 10 Mile Rd.					
110	5-year	Restore capacity of wetlands to store and detain stormwater by removing or blocking existing culverts and shallow ditches and placing rock-armored inlets at upstream end of park.	City of Southfield/ RGC Partners	Pursue funding for and develop wetland restoration feasibility study including land assembly, costs, and impacts.	Feasibility study completed.
111		Explore the potential for a conservation easement on the hillside owned by DENSO Corporation to facilitate restoration and protection activities.	City of Southfield/ SRRLC	Work with SRRLC and Conservation Stewards program to negotiate with DENSO	Conservation easement secured.
114		Continue partnership with DENSO Corporation. Encourage their participation in local monitoring and restoration activities, within the park and on DENSO property. Explore the potential for a conservation easement on the hillside owned by the DENSO Corporation to facilitate restoration and protection activities.	SRRLC/ City of Southfield	Continue to work with DENSO and SRRLC on easement and employee stewardship program.	Employee involvement ongoing. Conservation easement secured.
10 Mile to Beech Rd. @ Beechwoods					
115	5-year	Stabilize eroding gullies and crumbling infrastructure in all 3 of these reaches.	City of Southfield/ Private landowners	City will replace publicly held infrastructure as necessary. Work with city to incorporate sensitive design standards.	City has adopted sensitive design standards when replacing infrastructure and stabilizing erosion.
116		Enhance floodwater storage in former oxbows, meander channels and drained wetlands.	City of Southfield/ Private landowners	Pursue conservation easements to incorporate improvements in flood storage.	Conservation easements secured.
Beech Woods Park/Bridge Street Nature Preserve					
122	2-year	Work with golf course personnel to change management practices, particularly leaving a natural vegetation buffer along the river and reducing fertilizer use in proximity to river.	Southfield	Pursue streambank stabilization and establishment of vegetative buffer, and fertilizer management program.	Streambank stabilization and buffer implemented, appropriate fertilizer management program in place.

#	Time frame	Recommendation	Role	Implementation Strategy	Program Evaluation Metric
Valley Woods Nature Preserve South					
16	2-year	Utilize MDEQ maps to identify areas of former wetland or hydric soils. Develop priorities/strategies for restoring 85 acres of wetland in the RGC south of I-696 (1/2 the estimated acreage lost since European settlement).	OCPEDS/ SRRLC/ City of City of Southfield	Outlines scope and identify funding and resources to undertake a wetland preservation /mitigation plan.	Development of project scope document.
134		Remove logjams causing localized erosion and new channel formation.	City of Southfield	Initiate woody debris management and streambank stabilization program.	WDM and streambank stabilization programs implemented.
131		Remove invasive species near Bridge Street and restore areas as mesic to wet meadow.	SRRLC/ City of Southfield	Seek grants for professional work, coordinate volunteer work.	Invasive management program in place.
104	5-year	Work with MDOT to manage invasive species within their ownership as a continuous unit with other portions of this park to minimize potential for neighboring seed sources and to allow for wildlife movement.	City of Southfield	Contact MDOT on this issue.	Dialog with MDOT opened; management actions planned or implemented.
102		Create signage/kiosks in park to provide education on habitat	City of Southfield	Pursue grant	Interpretive signage installed in park.
109		Develop a dedicated walking trail connecting City of Southfield RGC parks and preserves between 12 and 10 Mile Roads.	City of Southfield	Apply for grants to complete trail system.	Grants applied.
105		Replace geo-grid erosion control and riprap where failed with vegetative stabilization to improve shoreline aesthetics, as resources allow.	City of Southfield	Apply for grants to complete	Grants applied.

List of Projects for Grant Funding

Habitat Restoration

1. ***Establish “Grow Zone”/ Riparian Buffers (Multiple Locations) (Costs outlined below)***

#	Location	Cost	Description
# 57	Birmingham Country Club (Bloomfield Township)	\$17K-\$34K for design, plants and labor	Design and plant deep rooted, native species to create no-mow buffer along stream and to replace the stabilizing effects of the trees that have been cut there.
# 71	13 Mile to Lahser	\$5K for design, plants and labor	Work with riparian landowner(s) immediately south of 13 Mile Road to establish deep rooted native plantings along river banks.
#77	Lahser to 12 mile Rd.	\$5K for design, plants and labor	Work with riparian landowner(s), encouraging reestablishment of cleared streamside vegetation.
#118	Beech Woods park (City of Southfield)	\$30-\$40-K/acre (5 acres) = \$150K-\$200K	Design and plant deep rooted, native species to create no-mow buffer along stream.

2. ***Implement LID Stormwater Management at Parks/Preserves (costs TBD on case-by case basis)***
Identify opportunities to redirect stormwater outfalls upstream and downstream of for LID
3. ***Restore Native Species in Parks & Preserves (costs TBD on case-by case basis)***
Remove invasive species and restore native species/habitats while allowing for planned parking & trails.
Priority: North Berberian Woods, Bridge Street
4. ***Stabilize Streambanks at Multiple Locations (costs TBD on case-by case basis)***
 - a. Pursue funding to implement stabilization at high priority areas identified in Franklin brand erosion Inventory.
 - b. Replace geo-grid erosion control and riprap where failed with vegetative stabilization.
5. ***Restore Wetlands Adjacent to DENSO (up to \$40K/acre- \$50-\$200K total)***
Restore capacity of wetlands adjacent to DENSO (Between Telegraph and 10 Mile) to store and detain stormwater by removing or blocking existing culverts and shallow ditches and placing rock-armored inlets at upstream end of park.

Monitoring

1. ***Mussel Surveys (Multiple Locations) (\$500/location- \$4-5K total)***
Conduct mussel surveys every 5-10 years.

Planning

1. ***Write Large Woody Debris Management Plan (Cost \$20-25k)***
Develop coordinated Large Woody Debris Management plan including inventory and management strategies and schedules. Incorporate maintenance into municipal annual budgets.

2. ***Write Invasive Species Management Plans at Each Park/Preserve (Cost \$15,000/ per park- \$165K total)***
Develop a detailed invasive species inventory, database, and map for each Park. Map locations and densities of rare plant species. Map aerial distribution of individual invasive species infestations, measure abundance, and track eradication efforts. Prioritize areas of highest floristic quality at risk of infestation. Weigh the merits of using available resources for invasive species management at Park against protection of higher quality resources elsewhere. If that analysis indicates that is a high priority, then cut, remove and/or treat invasive species while numbers, densities, and coverage are fairly low. Review past and existing invasive species management actions to identify the approaches that have worked the best. Share these successes with other RGC communities, natural resource agencies, and incorporate these techniques into detailed invasive species management plans for each park and preserve.

3. ***Develop Wetland Restoration Plan for 10 Mile Road South to 8 Mile Road (Cost TBD)***
Outline scope and identify funding and resources to undertake a wetland preservation /mitigation plan.

Land Acquisition

1. ***Berberian Property (Cost TBD)***
Explore opportunities to purchase additional parcel across river from Berberian property. Negotiate with landowner and pursue MNRTF funding. (Cost TBD)

Education

1. ***Educational Signage (\$2-3K/sign; \$20-30K total)***
Develop signage/kiosks in Parks/Preserves to educate users on habitat, the Rouge Watershed, and the Rouge Green Corridor.

Review & Evaluation Process

The following schedule for evaluating implementation progress is recommended:

Review of Implementation Plan at a 3 year interval (2012) - Evaluate progress of implementation plan. Review priority recommendations; add or delete recommendations and adjust strategies as needed.

Habitat Inventory and Review of Habitat Plan at a 10 -year interval (2019) - Conduct full habitat assessment of RGC to determine progress toward habitat benchmarks. Review habitat plan and adjust as needed.

Next Steps

Successful implementation of this plan will require the continued dedication and collaboration of the RGC partners. The following ongoing actions are recommended to retain established momentum and keep the process moving forward:

1. Continue to meet monthly with RGC steering partners to plan, strategize and coordinate plan implementation activities using this document as a guide.
2. Report activities and progress to City/Village councils/boards on an annual basis.
3. Create and update an RGC website where information about the RGC, including the full habitat plan and this document, can be accessed by the public.