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Guide to City of Fort Collins Ecological Monitoring Guidance

Natural Habitat Buffer Zones (NHBZs) are an important tool to protect sensitive natural habitats and features, maintain and improve wildlife movement corridors, allow ecological functions to continue, and provide natural spaces for Fort Collins residents to enjoy in perpetuity. Substantial effort is needed to properly plan, implement, and maintain NHBZs in an appropriate and sustainable manner.

Environmental Planners in the Community Development and Neighborhood Services Department (CDNS) utilize an adaptive management approach to ensure proper implementation and maintenance of NHBZs. Appropriate habitat management will change depending on the stage of the NHBZ, varying climatic pressures, human pressures, etc. The critical mechanisms for adapting management practices to the changing challenges is monitoring and communication. Monitoring is important to identify changes and challenges, and communication is critical to disseminate the findings of the monitoring so that action can be taken.

Below are some guidelines to create monitoring plans that address the most common challenges related to the establishment and maintenance of NHBZs. Please note - wildlife monitoring is species-specific, and the Environmental Planner should be consulted to ensure compliance with City, State, and Federal guidelines.

Monitoring plans should address the following:

- **What** is being monitored? Clearly define the variables to be monitored.
 - Vegetative cover and/or composition (nearly all projects, including all with upland NHBZs)
 - Key species (sensitive species, hydrophytic species, noxious weeds, etc.)
 - Survival rate of woody species (i.e., trees and shrubs as detailed by the Landscape Plan)
 - Erosion indicators (rilling, etc.)
- **Define** the monitoring goals, action points and thresholds, and success criteria.
 - What are the monitoring goals for the first, second, and third years of monitoring?
 - What are action points and/or thresholds? For example, what percent cover of noxious weeds will trigger special control measures? Or what percent cover will trigger the need for a re-seeding?
 - What is the feedback mechanism so that all appropriate stakeholders are informed in a timely manner? For example, if noxious weeds become a problem, then how will the appropriate contractor be alerted in a timely manner to address the outbreak?
 - Site-specific success criteria are defined in each project's Development Agreement. Standard success criteria are $\geq 70\%$ vegetative cover, $< 10\%$ noxious weed cover, $\geq 80\%$ woody plant survival, no bare spots $> 1 \text{ ft}^2$, and no erosion

indicators in the form of rills or gullies. Success criteria should be repeated in the monitoring plan as well.

- **How** will the monitoring be accomplished? Define the methodology(ies) to be used.
 - Quantitative methods are preferred for most variables, especially vegetative cover monitoring, as they are generally more objective than qualitative methods. Line point intercept is the City's preferred as it is the most accurate, and it is also the method specified in the Development Agreement to be used when evaluating success criteria for security deposit release.
 - Qualitative methods can be used on a project-specific basis for certain variables. Consult with the Environmental Planner to determine applicability.
 - Photo monitoring over time, whether fixed- or non-fixed point, can be an impactful way of telling the story.
 - Define the number of surveys over the course of each year and the number of points, transects, etc. Be as specific as possible while still allowing for flexibility to increase or decrease survey efforts according to the stage of the project. Consult with the Environmental Planner for wildlife surveys.
 - How many times per year will the site be visited? The number of visits should be based on the specific circumstances of the site and project. What are the ecological pressures (i.e., noxious weed pressure, species of noxious weeds, etc.)?
 - Frequency of monitoring can be different based on the stage of the project. For example, monitoring should be more frequent when revegetation is anticipated versus three years post-revegetation.
 - How many vegetative monitoring points or transects will be used? This is dependent on the size of the NHBZ(s) and the number of habitats within the NHBZ(s).
- **When** will the monitoring occur? **Frequency** and **timeline** of both field monitoring and report submission should be defined. Projects involving vegetative establishment and wetland mitigation require at least three years of monitoring prior to evaluating for success. Also
 - Vegetative cover assessments are required to be performed during the growing season.
 - Cover should ideally be measured during the peak of the growing season (i.e., mid-summer to early fall).
 - Emergent density monitoring can occur in late spring to early summer.
 - Water level monitoring should occur over the course of the growing season (April 1 to Oct 31).
 - Appropriate timing of wildlife monitoring is dependent on the species. Consult with the appropriate Colorado Parks and Wildlife guidance and the Environmental Planner.
- **Who** will be handling which tasks? Who will be communicating with who?
- **Recommendations** should be provided for the next steps and timeline. Monitoring can be modified as necessary to ensure appropriate actions are taken in a timely manner.