

NATURAL SYSTEMS AND ECOLOGY (NS)

NS Prerequisite: Ecosystem Assessment

Required

This prerequisite applies to

- ▶ Cities
- ▶ Communities

Intent

To assess existing ecosystem conditions and services provided by ecosystems, built landscapes, and other open spaces to inform the city development along with conservation and restoration efforts.

Requirements

CITIES, COMMUNITIES

Complete and document an ecosystem assessment for the entire city or community boundary that includes the following topics:

1. **Topography**- Contour mapping, unique topographic features, slope stability risks.
2. **Soils**- Natural Resources Conservation Service soils delineation, U.S. Department of Agriculture prime farmland, unique farmland or farmland of statewide or local importance, healthy soils, soils disturbed by previous development and degree of disturbance (local equivalent standards may be used for cities or communities outside the U.S.).
3. **Vegetation and Habitat**- Total existing vegetated area, primary vegetation types, native plants and plant communities, significant tree mapping, identification of top three threatened species as per The IUCN Red List of Threatened Species⁵ or local or regional standards, habitat for threatened or endangered species, unique habitat, identification of top three invasive plant species and mapping of degraded vegetation and habitats as applicable.
4. **Hydrology and aquatic ecosystems**- Special Flood Hazard Areas (SFHA) as determined by FEMA's Flood Insurance Rate Map (FIRM) (or local equivalent for cities or communities outside the U.S.), wetlands, lakes, streams, shorelines; Precipitation, rainwater collection and reuse opportunities including overland water flow, water quality, storage capacity of the watershed conditions, potable and non-potable water sources; Pollution sources and pollutants. Map areas with degraded aquatic ecosystems as applicable.

Explain how the identified conditions and resources will influence the sustainable design.

Note: Not all topics apply to every area, and each city may contain additional important unique elements that are not explicitly addressed here.

References:

LEED v4 BD+C SS Credit: Site Assessment
SITES v2 Section 2: Pre-Design Assessment + Planning

⁵ <http://www.iucnredlist.org/> , accessed on December 17, 2018.

Guidance

Behind the Intent

An ecosystem assessment evaluates environmental features that the cities and communities should take into consideration. It identifies assets, such as favorable wetlands, lakes, streams, shorelines, steep slopes and healthy plant populations, as well as liabilities, such as unhealthy soils, blighted structures, pollution sources, , and water quality. Performing an ecosystem assessment is part of an integrative planning process to account for a site’s ecological context. This assessment must address the city or community’s topography, soil, vegetation and habitat. Moreover, hydrology and aquatic ecosystems are important because they can significantly influence the city strategy and performance.

Further Explanation

Required Documentation

Documentation	All cities and communities
Annotated ecosystem assessment report highlighting sections addressing all of the required topics	X
Overlay maps for each of the ecological systems	X
Narrative describing how the findings of the ecosystem assessment have informed the planning and design	X

Exemplary Performance

This prerequisite is not eligible for exemplary performance.