

Site Scale Green Infrastructure in Cook County

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Green Infrastructure (GI)

- "the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters."
 - Water Infrastructure Improvement Act
- Need:
 - Climate change \rightarrow heavier winter and springtime precipitation in Midwest
 - Stormwater runoff \rightarrow carries chemical, biological, physical pollutants
 - Surface runoff into combined sewer systems → combined sewer overflows into local waterways during heavy precipitation events
- Scales:
 - Site scale
 - Neighborhood scale
 - Landscape or watershed scale

Green Infrastructure Vision (GIV)

- Part of "On to 2050" plan to improve community, prosperity, environment, governance, and mobility
- GIV represents the Chicago Wilderness Biodiversity Recovery Plan
 - Goals:
 - Increase biodiversity by connecting natural habitats to allow for migration
 - Increase ecosystem services (including flood protection)
- Mapping ecological networks, protected lands, and streams
- Neighborhood and landscape scale green infrastructure



Protected Lands and Ecological Networks in Cook County

Distribution of Protected Lands and Ecological Networks Percentage Protected Lands and Ecological Networks Per Municipality



Regional Flood Susceptibility Index (FSI)

- Identifies areas with conditions associated with flood damage reports
 - Poor stormwater management system
 - Combined sewer overflow
 - High stormwater runoff
 - High impervious cover
 - Low-lying depression
- Risk categorization
 - High Risk: 8-10 FSI
 - Moderate Risk: 4-7 FSI
 - Low Risk: 1-3 FSI
- Preserved lands are excluded from FSI

Flood Risk Compared to Protected Lands and Ecological Networks in Cook County

Flood Risk Distribution

Flood Risk by Municipality

Percentage Protected Lands and



Flood Risk vs. Neighborhood and Landscape Scale Green Infrastructure



Site Scale Green Infrastructure

- Green Parking: Bioretention (Rain Gardens)
 - Parking lots usually designed for peak usage during peak season rather than average usage → underutilized space can be used for GI
 - Sites: Land use codes with parking, registered parking under Cook County Parking Lot & Garage Operation Tax
- Green Roofs
 - Sites: Commercial, multifamily residential, industrial land use codes
 - Cost of installation decreases with size → implement on buildings with at least 1015 square meters
- New Developments
 - Sites: vacant lots and sites under construction
 - Consider site scale GI during development

Green Infrastructure Opportunities in Cook County



Recommendations for Site Scale GI

Green Parking	 High density of parking spaces that could be evaluated for rain garden implementation in Chicago and high flood risk, western areas of Cook County
Green Roofs	 Greater roof area in high flood risk, western areas of Cook County Wide distribution of smaller roof areas in other high flood risk areas
New Developments	 Wide distribution of new developments in high flood risk areas Less applicable to high flood risk, northern areas of Cook County