Goal of project: The Lindenwood-Barraud Park Living Shoreline project seeks to restore tidal marsh along 2,500 linear feet of urban shoreline in the headwaters of the Lafayette River to meet goals of coastal resilience, water quality, and wildlife habitat.

Monitoring approaches for Marsh Restoration and/or Living Shorelines

Marsh Restoration and/or Living Shorelines					
Metric (include units)	**Difference to Recommended Methods and Protocols (if any)**	**Spatial extent of metric monitoring**	**Baseline year**	**Frequency/ Timing**	**Data Limitations/ Considerations**
Percent Cover of biomass by species or cover type (% ranging from 0-100)		At each of 24 quadrant (4 transects with 6 quadrants on each)	2019	Annually in July/August pre-construction and for a minimum of two years post-construction	4 transects along 2500 linear feet and 1.68 acres of marsh seemed appropriate. Quadrants at 6 locations along each transect: 1) channelward edge of low marsh, 2) in low marsh, 3) at low/high marsh interface, 4) in high marsh, 5) at high marsh/buffer interface, and 6) in forested/meadow buffer
Elevation (cm)	Pre-construction elevations may be based on previously collected survey data during design.	At 10 total benchmarks on along two transects in associated quadrants	2019	Annually in July/August, as well as after up to two major storm events each year for a minimum of two years post construction (ie: tropical systems or large nor'easters) when visual post-storm inspections indicates likely changes reasonable to survey	Number of proposed benchmarks exceeds recommended 1 / acre to provide additional data on changes in different marsh zones. RTK GPS is proposed, but other methodologies may be used by City Survey teams if deemed more accurate for the conditions.
Shoreline Position		At 4 quadrants located on channelward end of transects	2019	Annually in July/August for a minimum of two years post construction	

Water level	MLW is channelward of rock sill and installation of a sensor below MLW may not be possible. Staff will site sensor towards end of construction based off observed conditions.	At one location between rock sill and MLW, or further channelward if possible	2020/2021 (post-construction)	Between 6-15 minute intervals for between one month to at least one year.	Pressure sensor-style water level logger will be installed beyond channelward edge of rock sill by contractor as part of construction. Sensor will be maintained by City staff for as long as possible post-construction.
Oyster reef restored (acres)[if applicable]		At sill location channelward of each of 4 transects	2020/2021 (post-construction)	Annually in July/August pre-construction and for a minimum of two years post-construction	Oyster restoration is not proposed as a specific aspect of project, but spat-set on off-shore sill is likely and will be noted during monitoring