Airborne hexavalent chromium (Cr-VI) is a known pulmonary carcinogen and can be emitted from natural and anthropogenic sources, including diesel exhaust. New Jersey Meadowlands (NJ ML) district is located close to NJ Turnpike (NJTPK), which has high truck traffic volume, and only several miles away from Kearny and Jersey City areas with more than 200 historic chromium waste sites. The Cr-VI contaminated particles may be transported to Meadowlands area and contribute to Cr-VI air pollution. However, Cr-VI was not measured in air quality monitoring programs in ML area. Also, the particle size distribution of Cr-VI in ambient air was not characterized. This pilot study measured the Cr-VI concentration in PM	extsubscript{10} for 2 weeks simultaneously at two sites, MERI site (~706 m from NJTPK) and William site (~50 m from NJTPK), during one summer and winter season. Cr-VI was detected in all of the field samples, with a mean±SD (median) of 0.52±0.32 (0.47) ng/m	extsuperscript{3} at the MERI site and 0.40±0.20 (0.35) ng/m	extsuperscript{3} at the William site. These values are marginally higher than Cr-VI in other NJ urban areas, but the difference in Cr-VI concentrations between the two sites was not significant. The Cr-VI distribution as a function of particle size at the William site was also determined by using a MOUDI sampler with 8 particle sizes, ranging from 0.18 to 18 µm. It was found that the Cr-VI was enriched in the particles with diameter less than 2.5 µm. The co-located PM	extsubscript{2.5} particles collected on Teflon filters will be analyzed for elemental concentrations and will be applied into a US EPA PMF (Positive Matrix Factorization) model to find potential sources contributing to the Cr-VI concentrations monitored in the NJ ML district.