Transverse distributions of the pion cloud of the proton\footnote{This work is supported by NSF Grant No. 1516105 and by the M. J. Murdock Charitable Trust.} MARY ALBERG, ETHAN PURCELL, ENRIQUE SANCHEZ, MACQUARRIE THOMSON, Seattle University — The pion cloud of a proton is generated by its fluctuations into pion/baryon pairs. For fast-moving protons, this cloud is contracted into a disk transverse to the proton’s longitudinal momentum. We construct a two-body light cone wave function $\psi(y, k_\perp)$ to represent a fluctuation in which a pion has longitudinal momentum fraction $y$ and transverse momentum $k_\perp$. We then use a 2D Bessel transform to calculate the transverse spatial probability distribution $\rho_\pi(y, b)$ with $b$ the transverse position coordinate. We compare our results to the expected spatial extent of the cloud, $\sim 1/m_\pi$, and to other theoretical transverse spatial distributions.