Stephen G. Hartke* (hartke@math.uiuc.edu), Department of Mathematics, University of Illinois, Urbana, IL 61801-2943, and Jennifer Vandenbussche and Paul Wenger. Further results on bar $k$-visibility graphs. Preliminary report.

A bar visibility representation of a graph $G$ is a collection of horizontal bars in the plane corresponding to the vertices of $G$ such that two vertices are adjacent if and only if the corresponding bars can see each other along an unobstructed vertical sightline. In a bar $k$-visibility graph, a bar can see another bar if there are at most $k$ intervening bars along a vertical sightline. Bar $k$-visibility graphs were introduced by Dean, Evans, Gethner, Laison, Safari, and Trotter in 2005. In this talk, we present several new results about bar $k$-visibility graphs, including a sharp upper bound on the largest size of a complete bar $k$-visibility graph, forbidden induced subgraphs, and regular bar $k$-visibility graphs. (Received September 28, 2005)