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Brett C. Smith* (bcsmith@wesleyan.edu), Wesleyan Dept. of Mathematics and CS, Science Tower 655, 265 Church Street, Middletown, CT 06459. *Planar Graphs of Fixed Tree Width*. Preliminary report.

In their series of papers, Graph Minors, Robertson and Seymour introduce a tree decomposition of a graph. This definition leads to a useful graph property called tree width. The $n \times n$ -grid graph is the classical example of a planar graph of tree width n . We prove this graph is not minimal in the sense that it contains a proper minor which also has tree width n , and we characterize the edges in the $n \times n$ -graph whose removal reduces the tree width. Furthermore, we prove that the n -triangular-grid graph also has tree width n . These graphs provide insight into the family of minor-minimal planar graphs of tree width n . (Received September 13, 2013)