1125-03-1963 **Stephen Flood** and **Matthew Jura*** (matthew.jura@manhattan.edu), 4513 Manhattan College Parkway, Riverdale, NY 10471, and **Oscar Levin** and **Tyler Markkanen**. *The reverse mathematics of a theorem of Steffens.* Preliminary report.

A *matching* of a graph $G = (V, E)$ is a set $M \subseteq E$ of pairwise disjoint edges. A *perfect matching* of a graph G is a matching M of G such that $V(M) = V$. In 1977, Steffens discovered a necessary and sufficient condition for a countable graph to possess a perfect matching, which he called "condition (A)." We say that a graph G satisfies condtion (A) if for every matching M and for every vertex $s \in V(G) \setminus V(M)$ there exists an M-augmenting path which starts at s. Steffens' Theorem states that a countable graph has a perfect matching if and only if it satisfies condition (A). We classify the proof-theoretic strength of a number of principles related to Steffens' Theorem in the context of reverse mathematics. (Received September 19, 2016)