A configuration for a maximum possible distance through a straight non-overlapping walks (defined in this paper) on a square grid graphs is one of the key questions addressed. An area $S \in \mathbb{R}^2$ either with even number of cells $(2n \times 2n)$ or with odd number of cells $((2n + 1) \times (2n + 1))$ is placed on a grid graph, $G$, which is a subset of an infinite graph, $G^\infty$. Our main result says, when $S$ has dimension $2n \times 2n$ ($n > 1$) then there always exists at least one configuration for which the walk between $K(i, j)$ and $K(i', j')$ is maximum, i.e. $(2n)^2 - 1$ units, under the hypotheses of straight walk and non-overlapping walk and when $S_{ij}(i, j)$ and $S_{i'j'}(i', j')$ have two common vertices between them or $S_{ij}(i, j)$ and $S_{i'j'}(i', j')$ are adjacent cells. If $S_{ij}(i, j)$ and $S_{i'j'}(i', j')$ are non-adjacent cells then there doesn’t exists a configuration under the same hypotheses for which the walk between $K(i, j)$ and $K(i', j')$ is maximum. We also pose an open problem on multiple walks on finite grid graphs. (Received August 12, 2013)