Putting all of these ideas together into a coherent linear program based on the Shortest Path linear program we end up with the linear program as described below:

$$
\begin{array}{lll}
 & max \sum x_v & \\
s.t. & \forall v : & depth(v) \leq n-1 \\
 & & p_v \leq \sum_{e \in Adj(v)} q_v \\
 & & p_v + b_v \leq 1 \\
 & & x_v \leq depth(v) + n^2 - b_v n^2 \\
 & & \sum_{e \in Adj(v)} q_e \leq b_v + p_v \\
 & \forall v, w \in E & b_v \leq b_w + p_w \\
 & & q_{v,w} \leq 1 \\
 & & q_{v,w} \leq b_v + b_w \\
 & & d_v \leq d_w + 1 + p_w(n-1) \\
 & & d_w \leq d_v + 1 + p_v(n-1) \\
 & p_v \in [0,1] & \\
 & b_v \in [0,1] & \\
 & q_{vw} \in 0,1 & \\
 & depth(v) \in \mathbb{N} &
\end{array}
$$

We then translate the above linear program into a form able to be processed by a computer in order to test whether or not the given linear equation does indeed solve our problem of approximating a solution to Politician's Firefighting on general graphs. In this case we have chose to translate it into a program readable by the Gnu Linear Programming Kit (http://www.gnu.org/software/glpk/), a linear program solver. The translated linear program can be seen below:

(Insert program here..)