(b) Special Relativity

The Lorentz transformation for time is $t' = \gamma(t - vx/c^2)$. The Lorentz factor is $\gamma = \frac{1}{\sqrt{1-v^2/c^2}} = \frac{1}{\sqrt{1-0.6^2}} = \frac{1}{0.8} = 1.25$. Event 1 (Red flash): $(x_1, t_1) = (0, 0)$. In S', $t'_1 = \gamma(0 - 0) = 0$. Event 2 (Blue flash): $(x_2, t_2) = (x_B, 9.50 \times 10^{-6}\,\text{s})$. In S',

$$t'_2 = \gamma\left(t_2 - \frac{vx_B}{c^2}\right) = 1.25\left(9.50 \times 10^{-6} - \frac{0.6c \cdot x_B}{c^2}\right)$$

B sees the blue flash before the red flash, so $t'_2 < t'_1$.

$$1.25\left(9.50 \times 10^{-6} - \frac{0.6x_B}{c}\right) < 0$$

$$9.50 \times 10^{-6} < \frac{0.6x_B}{c}$$

$$x_B > \frac{(9.50 \times 10^{-6})c}{0.6} = \frac{(9.50 \times 10^{-6})(3.00 \times 10^8)}{0.6} = \frac{2850}{0.6} = 4750\,\text{m}$$

So, $x_B > 4.75\,\text{km}$. **Answer:** The range of values is $\mathbf{x_B > 4.75}\,\text{km}$.