On solving for C_{A_2}, C_{B_2}, C_{B_3}

$$C_{A_2} = \frac{(\gamma - 1)}{(\beta - \gamma)}\left(\frac{q_2}{VK}\right)$$

$$C_{B_2} = \frac{C_{A_1} q_1 VK(\beta - \gamma) - (1-\gamma) q_2^2}{KV q_2^2 (1-\gamma)}$$

$$C_{B_3} = \left(\frac{q_2}{q_E}\right) C_{B_2} = \frac{C_{A_1} q_1 (\beta - \gamma) VK - (1-\gamma) q_2^2}{KV q_2^2 (1-\gamma) q_E}$$