

# Supplementary figures for the paper: Infrastructure design for a hydrogen refuelling network with pipelines

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This document contains selected figures from computational results described in the paper: Infrastructure design for a hydrogen refuelling network with pipelines

## 1. Computational results

The best known solution for each scenario highlighted in §4 is illustrated graphically Figures 1–6 for the case where  $D_c = 20$ . In the figures, the red crosses are the sites which are inactive, the purple stars are activated sites with local hydrogen supply and the green dots are activated sites with central production supply. The blue edges are the hydrogen pipeline network extended from the blue triangles which are the hydrogen pipeline nodes and finally the orange edges illustrate a transport link from the orange squares which are the centralised production facilities to activated sites.

## 2. Sensitivity analysis

The best known solution for each choice of  $D_c$  corresponding to  $|Z| = 100$  and Seed = 42 highlighted in §4 is illustrated graphically Figure 7.

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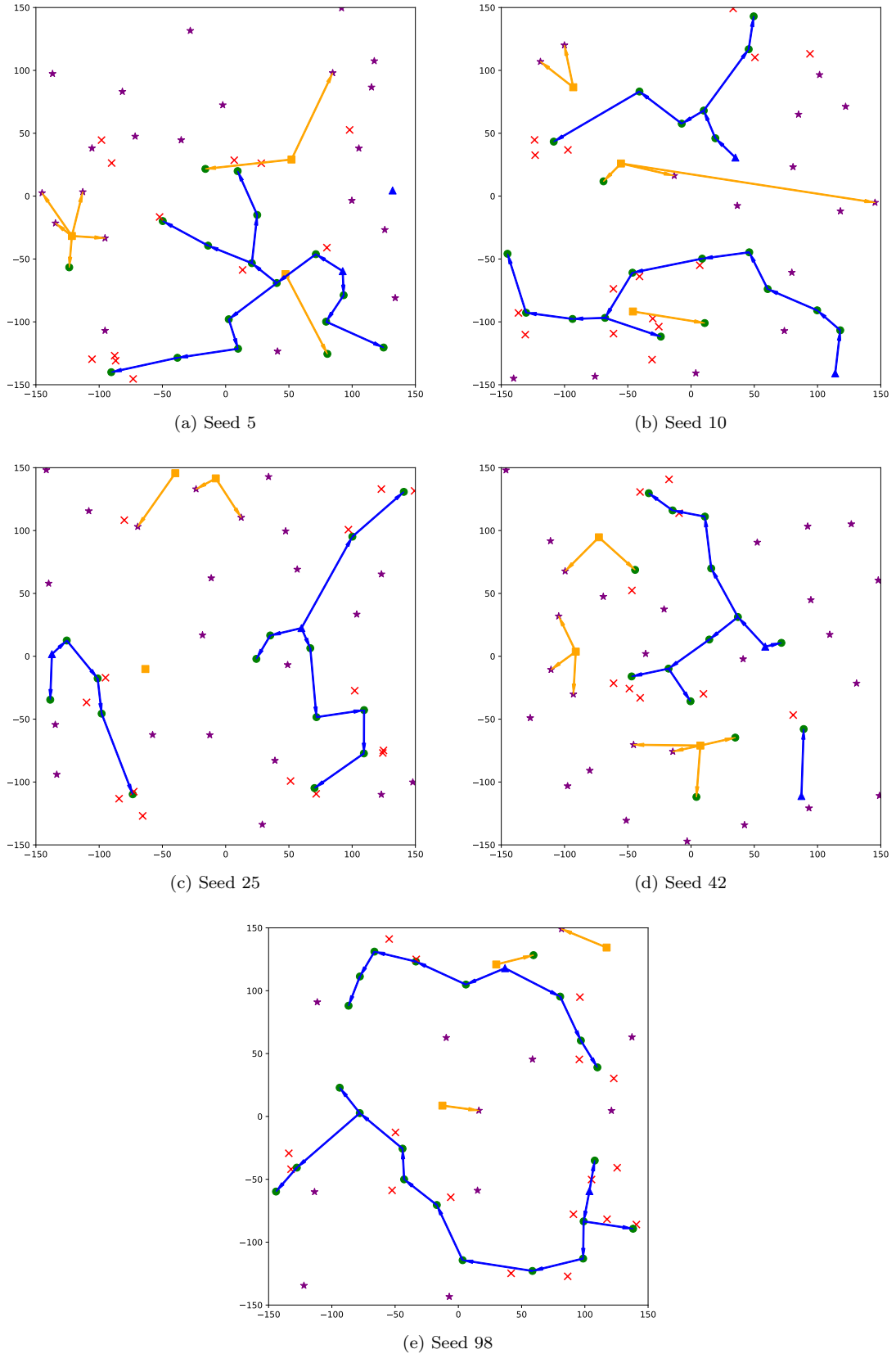
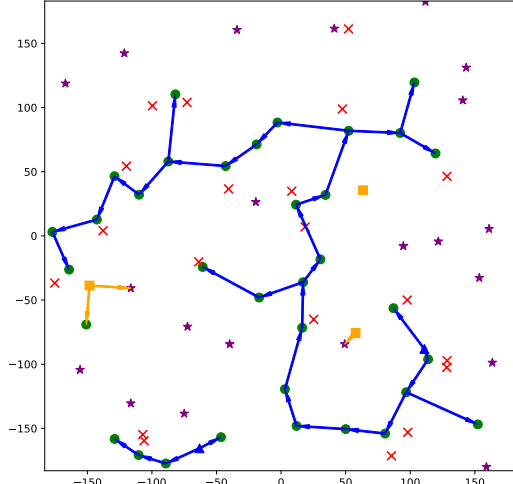
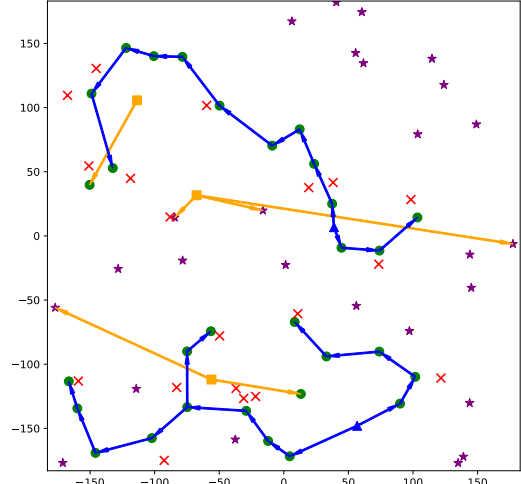


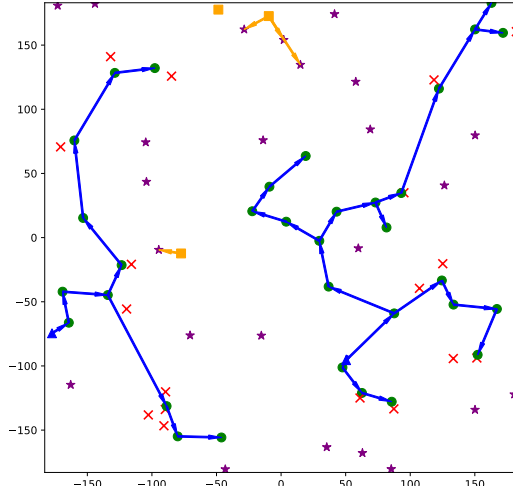
Figure 1: A graphical illustration of the optimal solution corresponding to the five datasets for  $|\mathcal{I}| = 50$ .



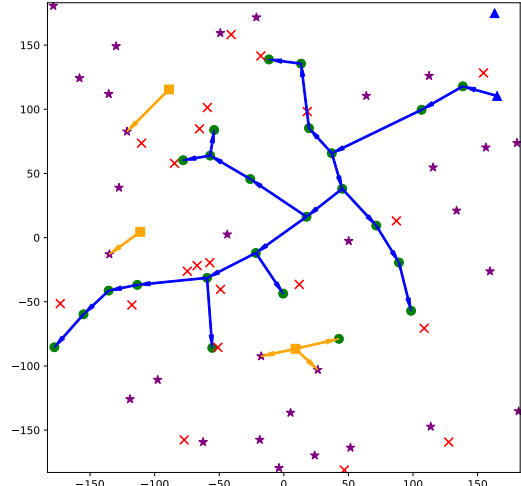
(a) Seed 5



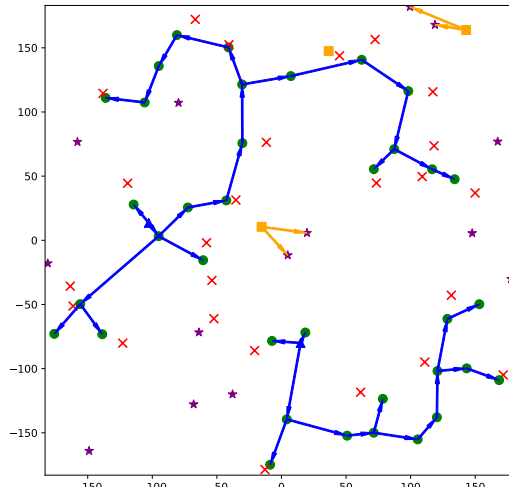
(b) Seed 10



(c) Seed 25



(d) Seed 42



(e) Seed 98

Figure 2: A graphical illustration of the optimal solution corresponding to the five datasets for  $|Z| = 75$ .

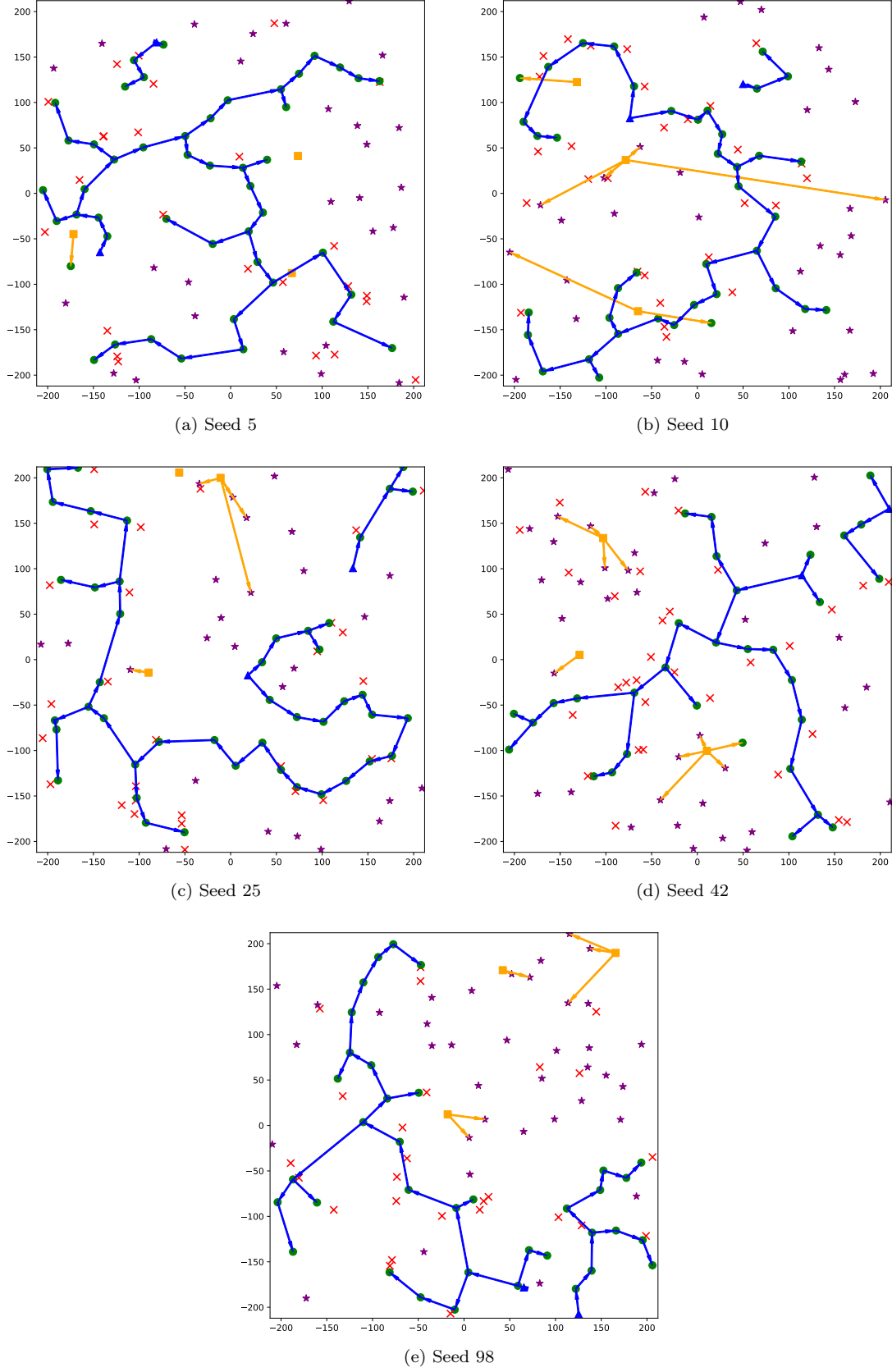


Figure 3: A graphical illustration of the optimal solution corresponding to the five datasets for  $|\mathcal{I}| = 100$ .

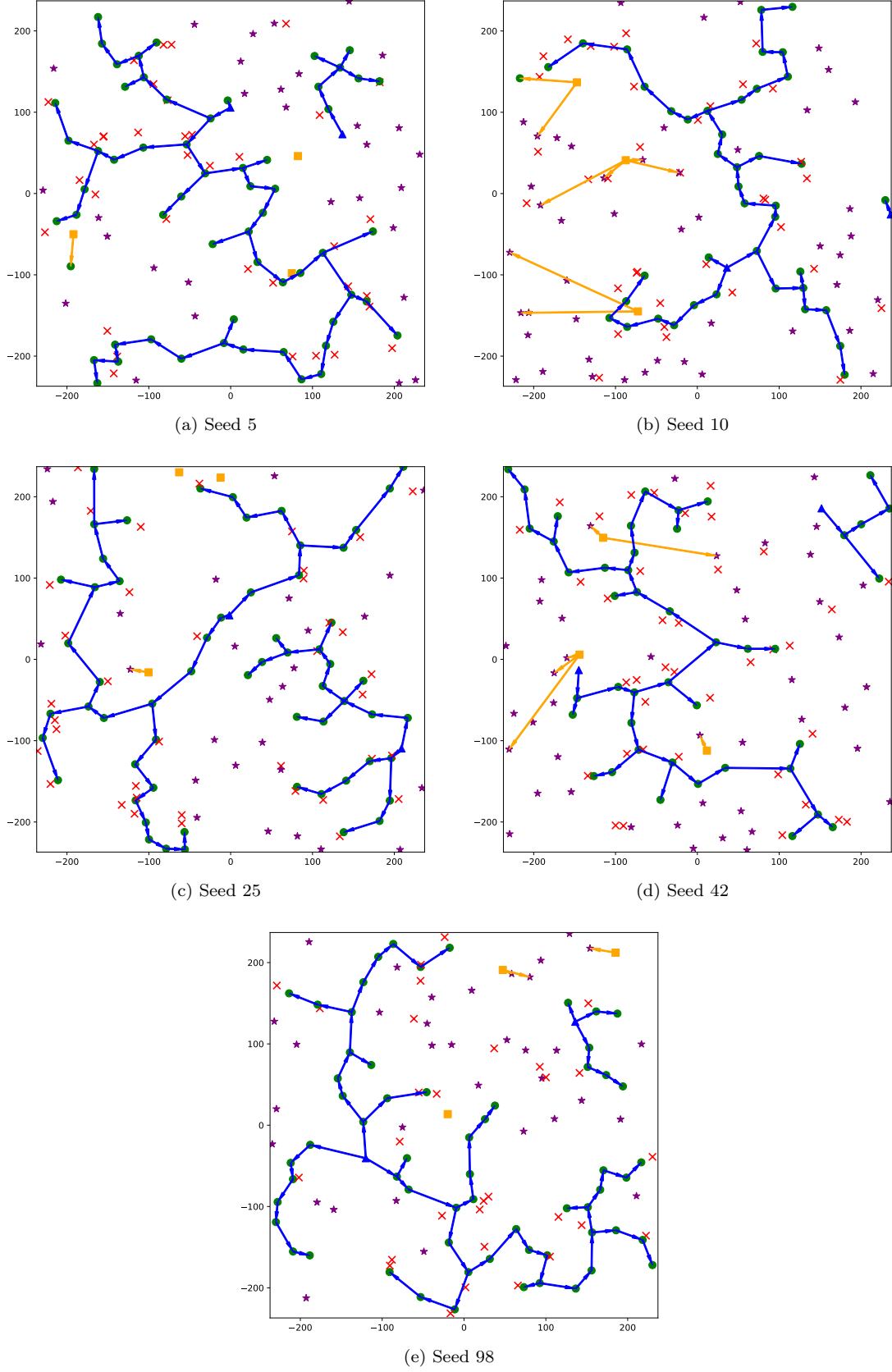


Figure 4: A graphical illustration of the optimal solution corresponding to the five datasets for  $|\mathcal{I}| = 125$ .

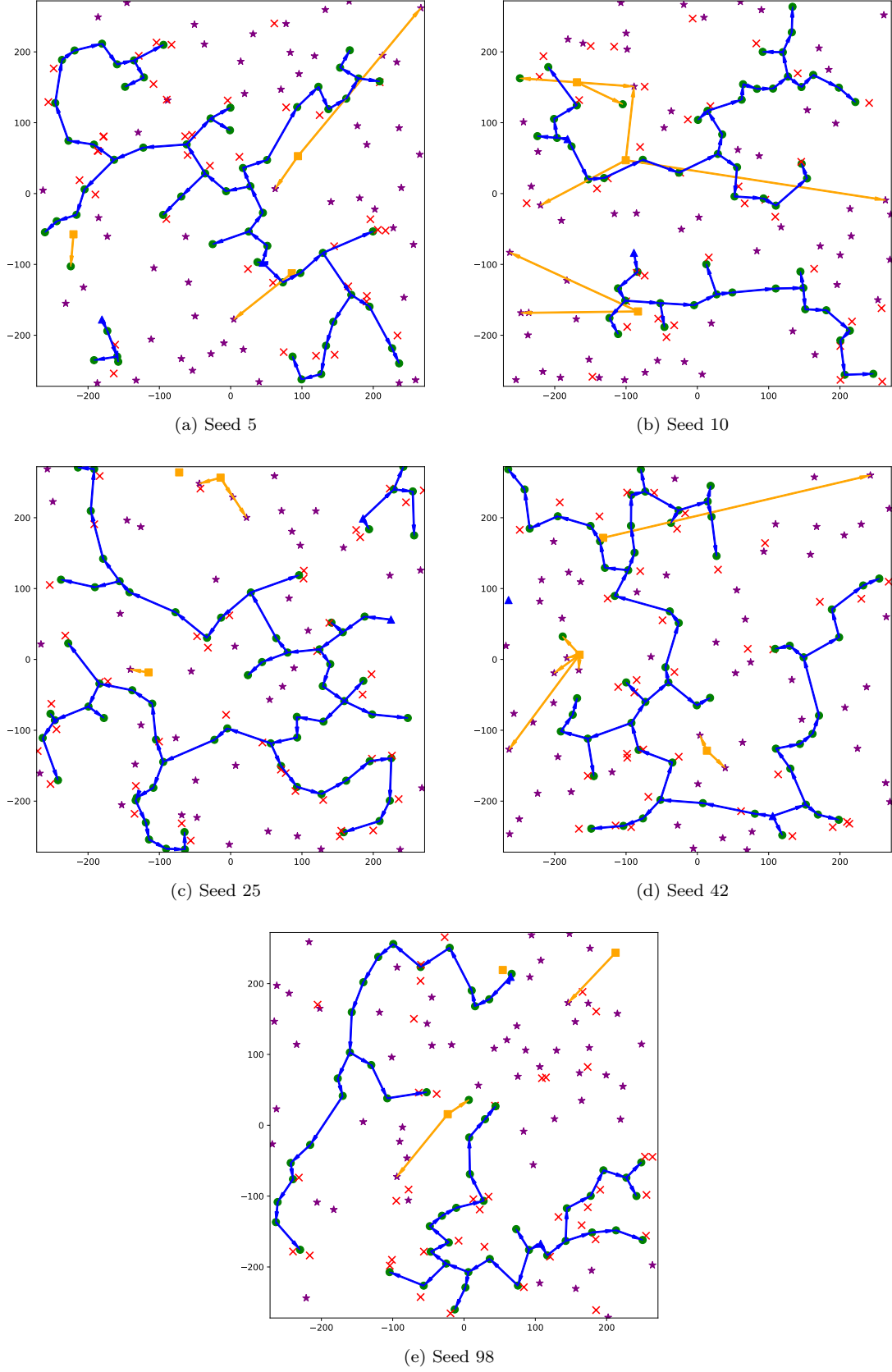


Figure 5: A graphical illustration of the optimal solution corresponding to the five datasets for  $|\mathcal{I}| = 150$ .

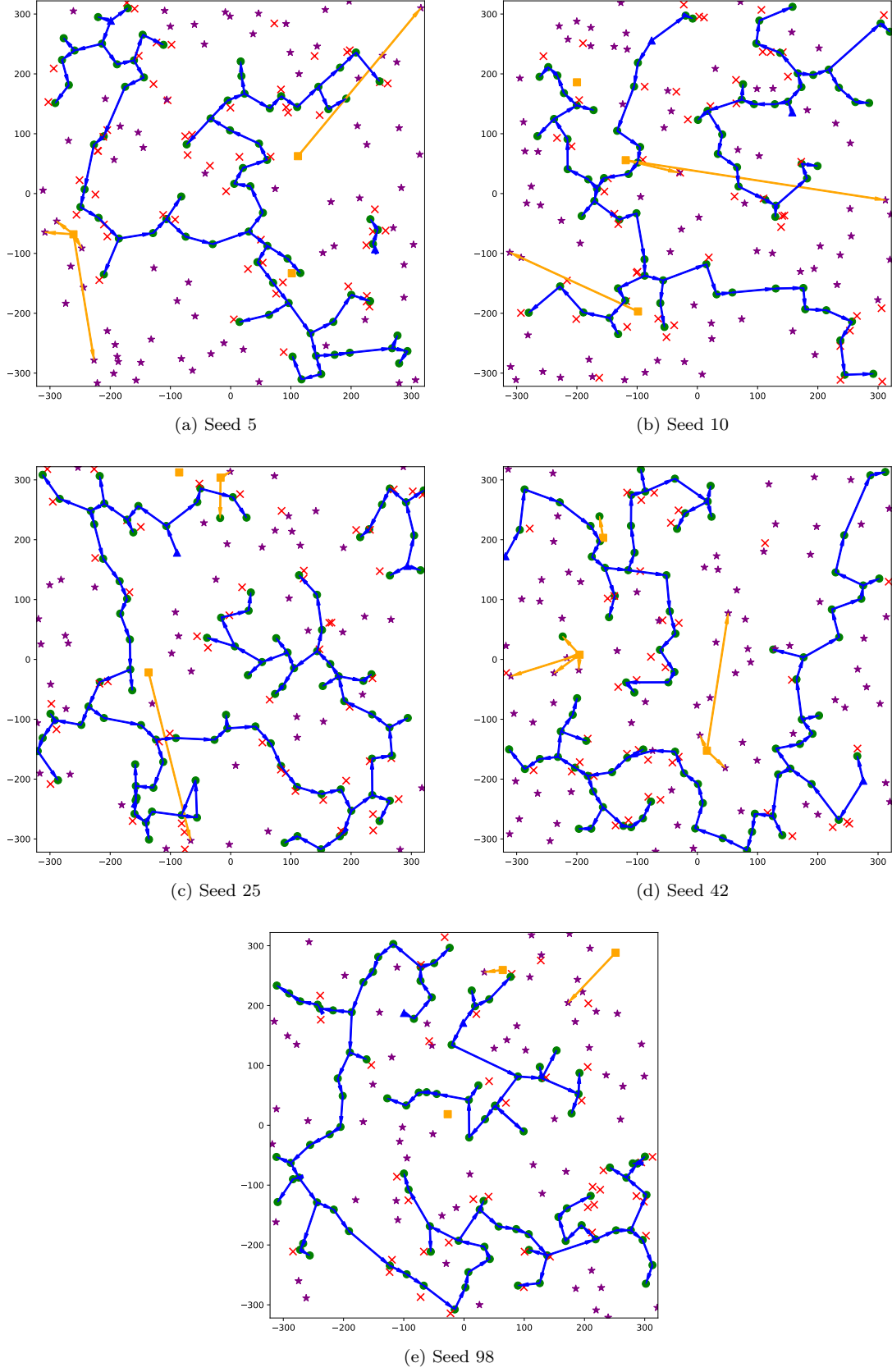


Figure 6: A graphical illustration of the optimal solution corresponding to the five datasets for  $|\mathcal{I}| = 200$ .

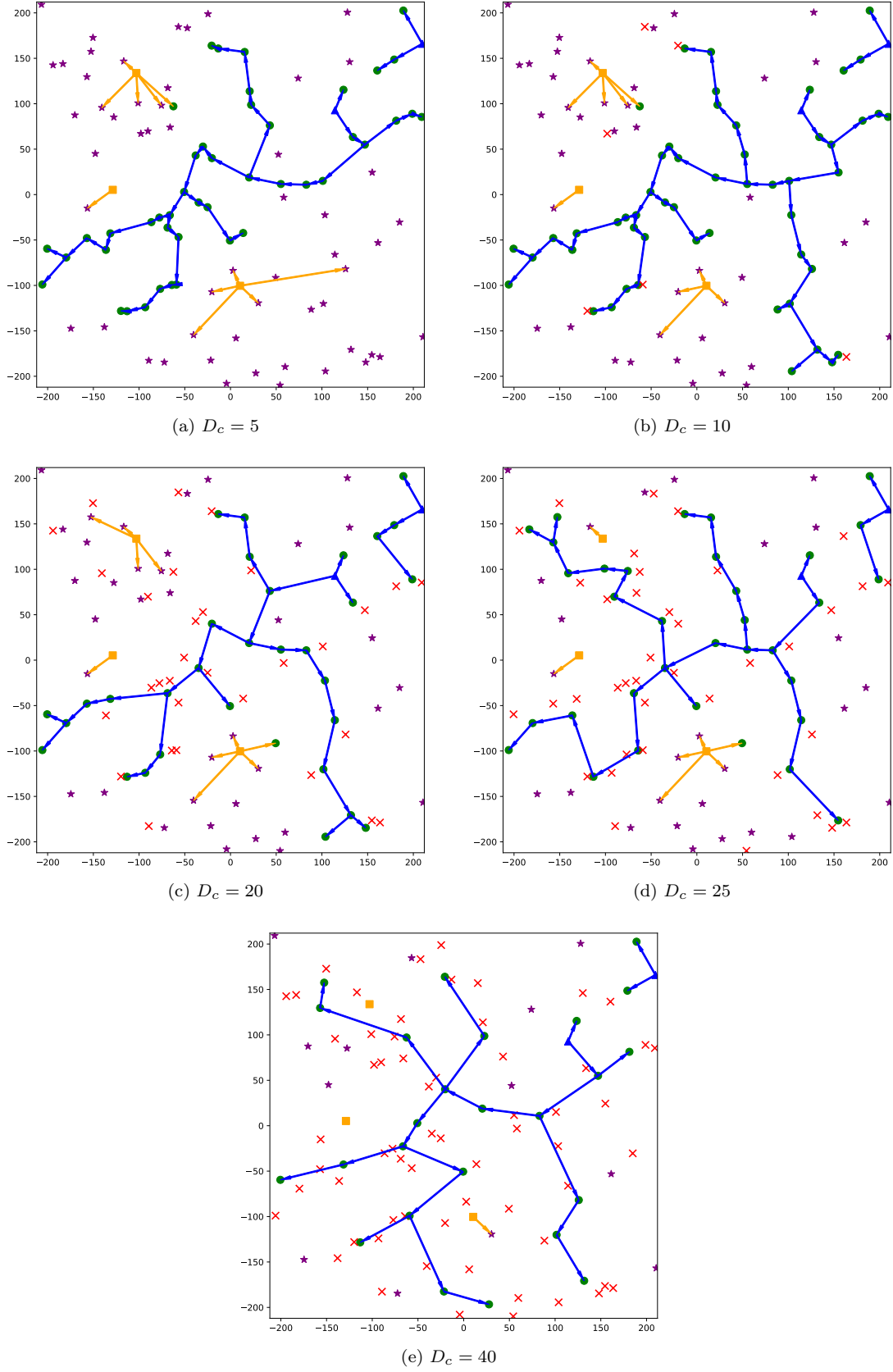


Figure 7: A graphical illustration of the optimal solution corresponding to Seed 42 for  $|\mathcal{I}| = 100$  and four different choices  $D_c$ .