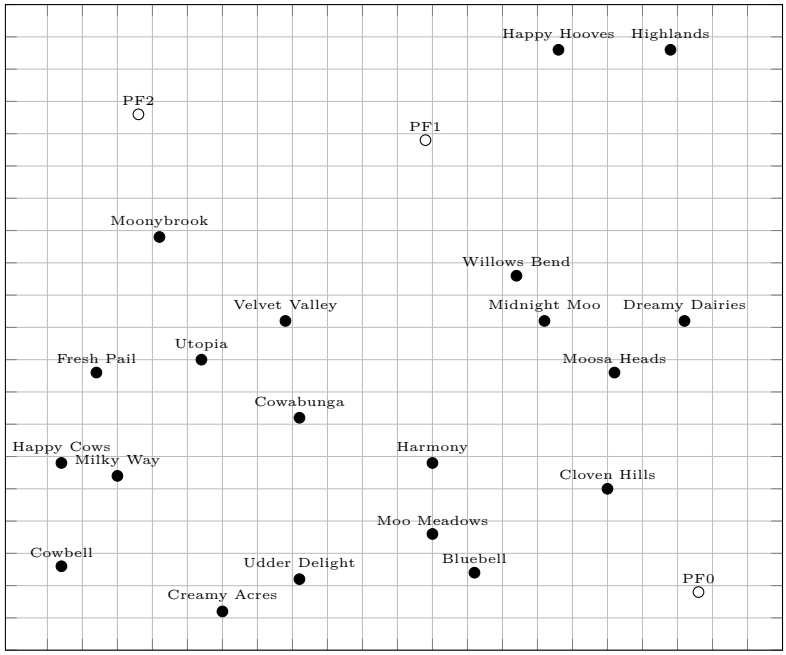
Section A: Internal Report

We were once again consulted by Teal Cow Dairy to maximise the profit of their business subject to certain constraints. An outline of the problem and our resultant mathematical formulations are given in this report. We have also made the Python code available for your perusal.

Problem Summary

Teal Cow Dairy are in the process of expanding their operations since their previous communcation. They now have additional farms and processing facilities which are depicted in the below map:



Each of processing facilities has a fleet of 5 tanker trucks which are used to transport collect milk from the supplying farms and transport it to the processing facilities. The client aims to optimise the use of these tankers in consideration of the cost of running them.

Communication 7

Communication 10

Section B: Report to the client

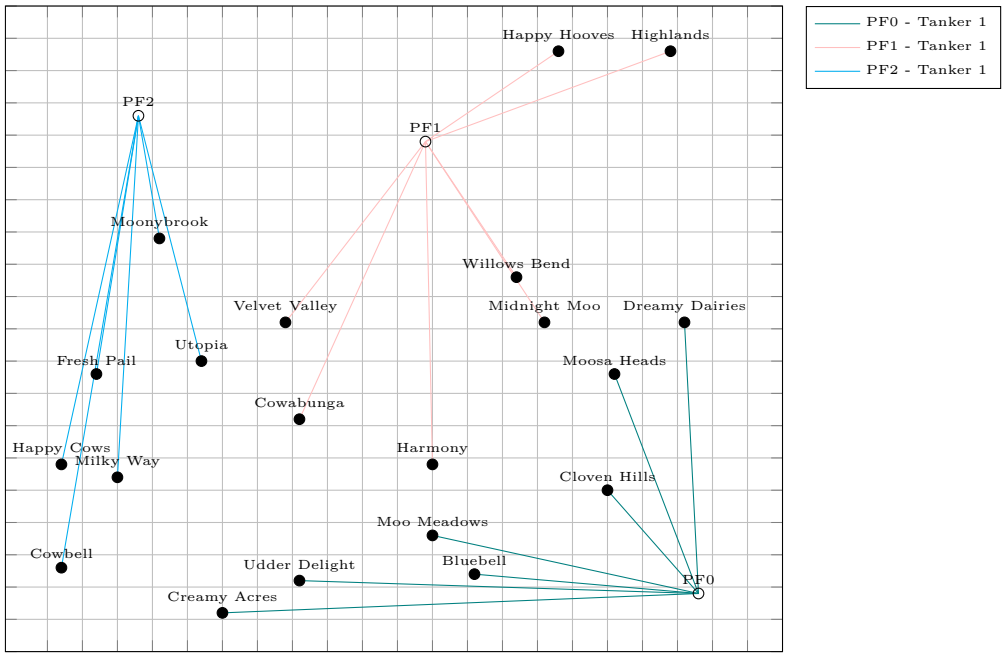
Communication 6

Based on the communicated information, the minimum total cost of travel such that the supply of all dairy farms is collected and transported to processing facilities is $4,555. Broken down by processing facility, the cost of collection is as follows:

Table 1 - Breakdown of transport costs per processing facility

	Cost ($)
Processing Facility 0	1590
Processing Facility 1	1445
Processing Facility 2	1520

The routes which should be chosen are depicted below:


PF0 - Tanker 1
PF1 - Tanker 1
PF2 - Tanker 1
Happy Hooves
Highlands
PF2
PF1
Moonybrook
Willows Bend
Velvet Valley
Midnight Moo
Dreamy Dairies
Utopia
Fresh Pail
Moosa Heads
Cowabunga
Happy Cows
Milky Way
Harmony
Cloven Hills
Moo Meadows
Cowbell
Udder Delight
Bluebell
PF0
Creamy Acres