Suppose the two cities are A and B. The water treatment facility is built on C. So the cost of building pipes would be length of AC and BC. Now notice that, if we reflect city B with respect to the x-axis, then we get a new city at point X. The length of BC and XC is equal. So we can just ignore B and work with point A, C and X.

Now connect the city A with city X. It will cross the x-axis at certain point. That point is our answer, because the shortest distance between two points is a straight line. Using two points to form a line equation ( see below ), and then putting y = 0 in it will give us the result. Use Euclidean algorithm to get the answer to irreducible form.

Line Equation: (y-y1) = m\*(x-x1), where m = (y2-y1)/(x2-x1)

If you are still skeptical, draw some diagrams on paper. Notice that CX and CB length is always equal and ACX will always cut the x-axis.