and where the work has been faithfully done they have stood well and are as tight and perfect now as when first executed. There have been however, a very great number of failures and old joints are even now sometimes blown out. As the pressure in your pipes will not be excessive such joints will answer the purpose if you can get good and faithful workmen to do the work. They will not answer at all if the work is done by contract as it is sure to be slighted in that case. The best method and the one which I would recommend is the use of "turned and bored" joints: they are superior to either of the others, and are cheaper than the ordinary lead joints. The cost on the whole of your works will not probably exceed $500 more than if the wooden joints are used, whereas the cost of the leaden joints above the wooden ones would be about $2,500.

The entire length of your main by the direct route will be about 17,800 feet, and by the accompanying plan the distribution pipes are arranged in the following manner:

| Name of Street. | 8-in. pipe Lgt. in ft | 6-in. pipe Lgt. in ft. | 4-in. pipe Lgt. in ft. |
|---|---|---|---|
| Streets in suburbs south of the town summit. | | 1,000 | |
| King st..... ..... | 1,800 | | |
| Water st..... .... | 1.200 | 400 | |
| Avon st .. .... ..... | | 480 | |
| Chestnut st ..... | | 270 | |
| Albert st..... ..... .. . | | 2,030 | 800 |
| Stannus st ..... | | 1,750 | |
| Gerrish st... .. ..... | | 1.820 | |
| Victoria st..... ..... | | 940 | |
| Gray st..... ..... | | 1,250 | 550 |
| Street to railway crossing | | 1,300 | |
| Totals. | 3,000 | 10,240 | 1,350 |

By this arrangement no fire hydrant will be supplied off a pipe of less than 6 inches diameter, to which it is advisable you should adhere.

I may be accused of extravaganes in making provision for such a comparatively large number of fire hydrants as are shown upon the plan, viz. 41, but I may remark that as the buildings are so scattered you need every one of them in order to be thoroughly protected against the ravages of fire. Each hydrant, represents an engine ready for use at a moment's notice, and if you should place fewer of them and at greater distances apart there might when needed be delay in getting sufficient length of hose to reach a building on fire, besides which there would be considerable loss of pressure from the friction of the water passing through long lengths of hose.

The following estimate of the cost is for a compound main of 10 and 9 inches diameter, it embraces the whole cost of the works, including all the distribution pipes and fire hydrants shown upon the plan and also the branch service pipes laid to the houses for their domestic supply.

ESTIMATES.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.000 | feet of | 10 | inch | pipe, | 1-2 | inch | thick. | at $1.43 | $5,720 |
| 4,000 | " | 10 | " | " | 7-16 | " | " | " 1.27 | 5,080 |
| 5,000 | " | 9 | " | " | 1-2 | " | " | " 1.29 | 6,450 |
| 4.800 | " | 9 | " | " | 7-16 | " | " | " 1.17 | 5.616 |
| 3.000 | " | 8 | " | " | 7-16 | " | " | " 1.05 | 3.150 |
| 10.240 | " | 6 | " | " | 3-8 | " | " | " .77 | 7.885 |
| 1,350 | " | 4 | " | " | 3-8 | " | " | " .62 | 837 |