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MEMORANDUM

TO: Ali Elhassan, PE, PhD, MCES
Emily Steinweg, MCES

FROM: Christopher Larson, SEH

DATE: September 17, 2020

RE: Potential Next Steps Study Examples
NW Metro Regional Water Supply System Study

A preliminary draft of the *Northwest Metro Area Regional Water Supply System Study* (Northwest Metro Study) was issued in March 2020. The report evaluated various water supply options for the Cities of Ramsey, Rogers, Dayton, and Corcoran; primarily looking at combining the Cities into a single water system and providing them with treated surface water or lime softened groundwater. The costs of connecting all four cities to a central water treatment plant is significant. The purpose of this memo is a preliminary evaluation of options that would reduce the initial capital costs. A way to reduce costs would be to reduce the trunk watermain necessary by not connecting all four cities and picking cities that are in close proximity to each other. The following sections identify two potential reduced scale options.

Option 1 – Connect Ramsey, Rogers, and Dayton – Phase 1

For Option 1, it is assumed that the water treatment plant that is going to be constructed in Ramsey is converted to a surface water treatment plant. The 2040 maximum day demands for the three cities is estimated to be 18.5 MGD.

Phase 1 of Option 1 would include a 20 MGD surface WTP in Ramsey, a river crossing, and approximately 4.5 miles of 36” trunk watermain. This scenario is depicted on Figure 1 (attached). The concept level costs for Option 1 are included on the following table.

| Item | Quantity | Units | Unit Cost | Total Cost |
|------------------------------|----------|----------|------------------------------|----------------------|
| 20 MGD Surface WTP | 1 | Lump Sum | \$60,000,000 | \$60,000,000 |
| River Intake | 1 | Lump Sum | \$2,000,000 | \$2,000,000 |
| 36” Raw Watermain | 22,000 | Feet | \$500 | \$11,000,000 |
| River Crossing | 2,000 | Feet | \$4,000 | \$8,000,000 |
| Easements/ Land Acquisitions | 10 | Acres | \$100,000 | \$1,000,000 |
| Environmental | 6 | Miles | \$50,000 | \$300,000 |
| | | | Subtotal | \$82,300,000 |
| | | | Contingency (30%) | \$24,700,000 |
| | | | Eng/Admin/Legal (20%) | \$16,500,000 |
| | | | Total | \$123,500,000 |

Engineers | Architects | Planners | Scientists

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A risk of this scenario is that there is only one river crossing, however, Rogers has 7 wells and Dayton will have 4 wells soon which could be used in the event of an emergency. For comparison purposes, Approach 1 in the Draft NW Metro report which was a 25 MGD surface WTP connecting the four Cities was **\$224 million**.

Option 2 – Connect Dayton and Rogers – Phase 1

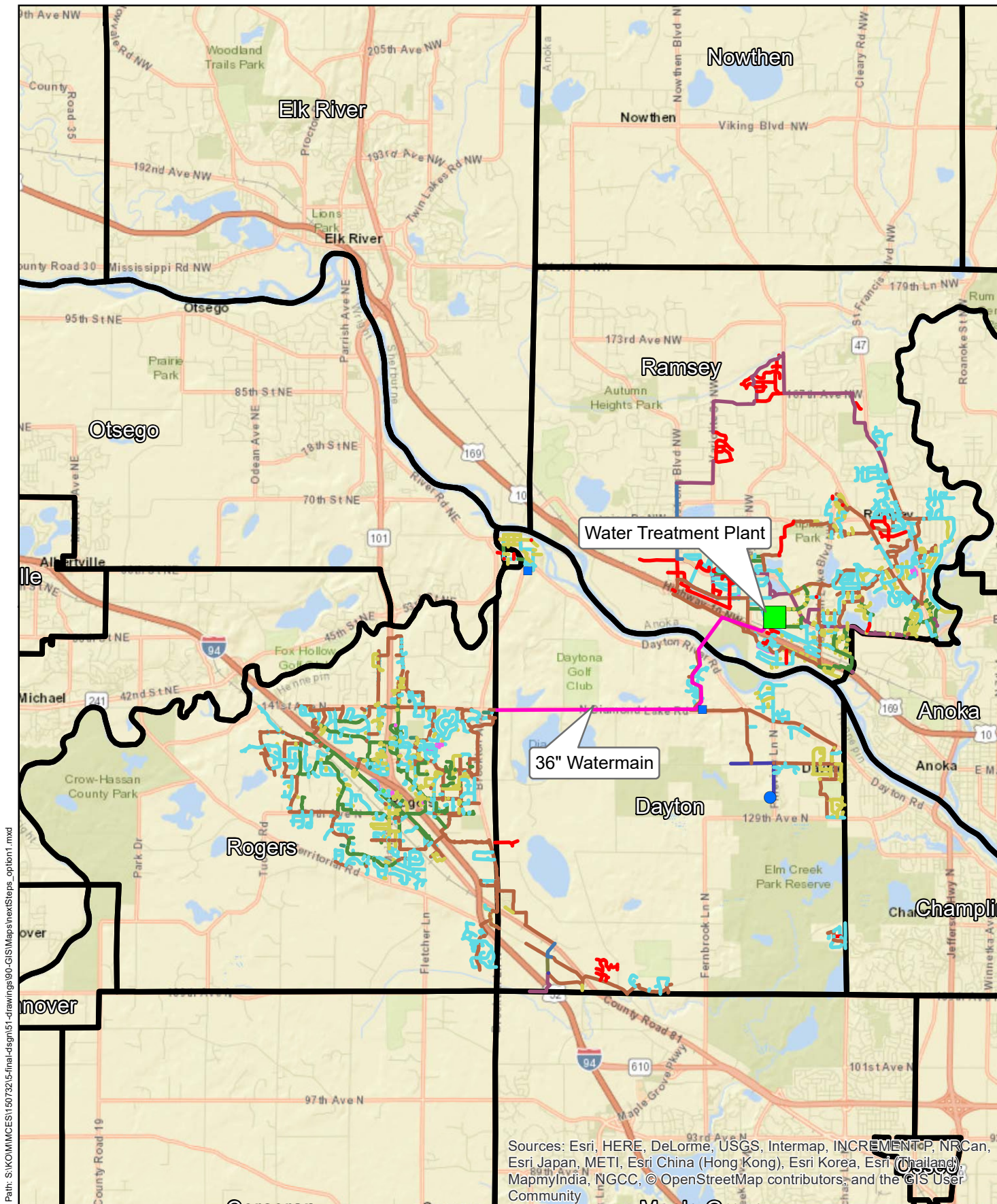
Option 2 assumes that a surface water treatment plant is constructed in Dayton and serves the Cities of Dayton and Rogers. The 2040 maximum day demands for the two cities is estimated to be 8 MGD.

Phase 1 of Option 2 would include a 10 MGD surface WTP in Dayton and approximately 2.7 miles of 24” trunk watermain. This scenario is depicted on Figure 2 (attached). The concept level costs for Option 1 are included on the following table.

| Item | Quantity | Units | Unit Cost | Total Cost |
|-------------------------------------|----------|----------|------------------------------|---------------------|
| 10 MGD Surface WTP | 1 | Lump Sum | \$42,000,000 | \$42,000,000 |
| River Intake | 1 | Lump Sum | \$2,000,000 | \$2,000,000 |
| 24” Raw Watermain | 14,000 | Feet | \$400 | \$5,600,000 |
| Easements/ Land Acquisitions | 10 | Acres | \$100,000 | \$1,000,000 |
| Environmental | 4 | Miles | \$50,000 | \$300,000 |
| | | | Subtotal | \$50,900,000 |
| | | | Contingency (30%) | \$15,300,000 |
| | | | Eng/Admin/Legal (20%) | \$10,200,000 |
| | | | Total | \$76,400,000 |

Future Phases

The intent with a smaller scale initial NW Metro water supply project is that it could be expanded to add additional communities in the future. Interim watermain connections could also be made prior to making 2040 or ultimate demand connections. An example of an interim connection would be to connect Corcoran to the Rogers distribution system as discussed in the draft Northwest Metro Study.



Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

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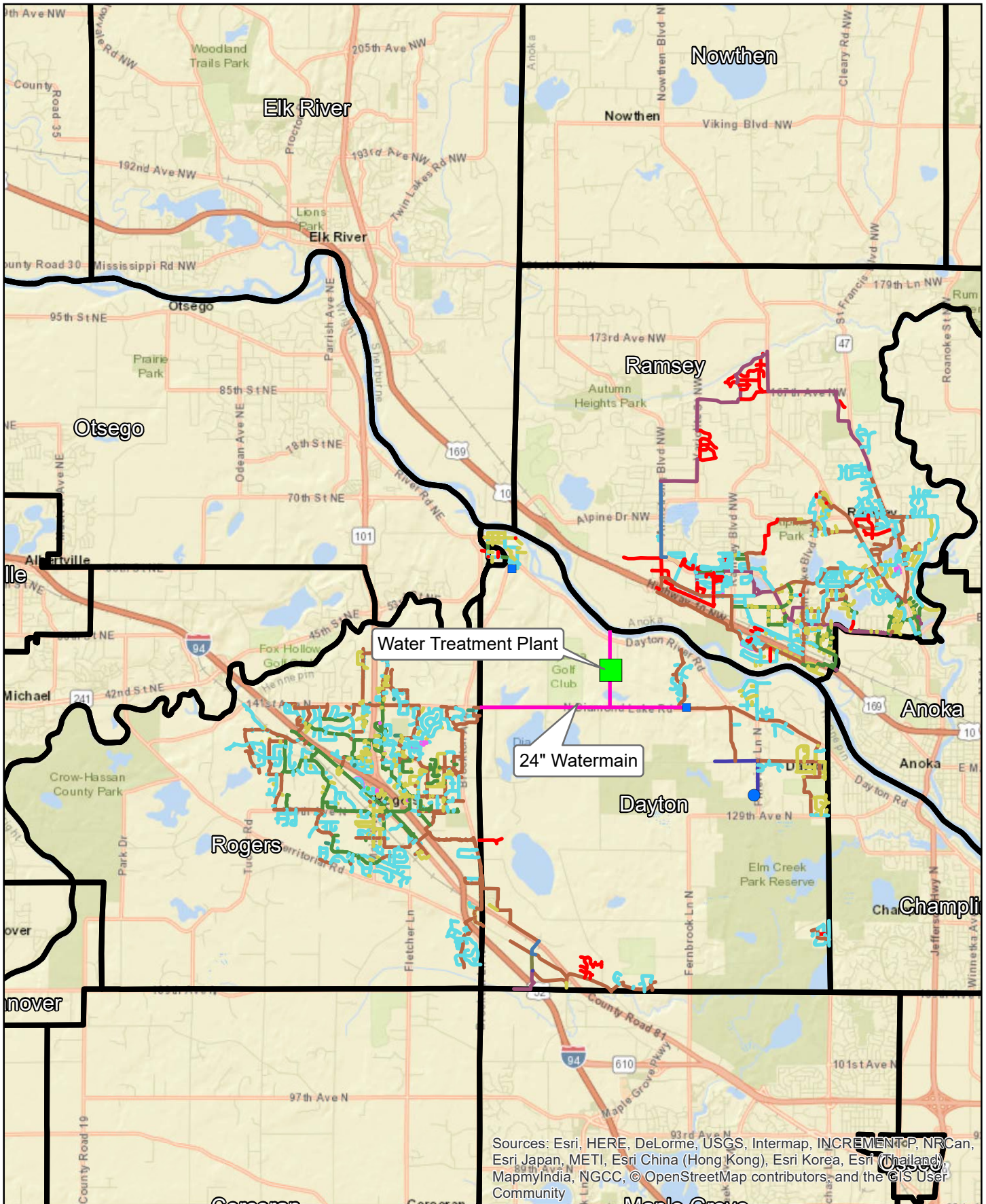
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NEXT STEPS - OPTION 1
Connect Rogers, Ramsey, and Dayton


Figure
1

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|---|---|------------------------------|---|---------------------|

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