DECEMBER, 1994

WORTHINGTON, LENHART and CARPENTER, INC.
CONSULTANTS:
ENGINEERING, LAND SURVEYING AND LAND PLANNING

EXECUTIVE SUMMARY OF LEVEL 1 MASTERPLAN STUDY
OF TOWN OF LUSK'S WATER SUPPLY SYSTEM

Prepared For:
WYOMING WATER DEVELOPMENT COMMISSION
EXECUTIVE SUMMARY

LEVEL 1 - MASTERPLAN STUDY OF THE
TOWN OF LUSK’S WATER SUPPLY SYSTEM

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INTRODUCTION

This executive summary describes the report of the "Level I Masterplan Study Of The Town Of Lusk's Water Supply System." The report, dated November 1994, was prepared by Worthington, Lenhart and Carpenter, Inc. (WLC) for the Wyoming Water Development Commission, under Contract #05SC0290H79.

In Chapter 1, the report looks at economic and population forecasts.

In Chapter 2, the report looks at projections for Lusk’s growth area and land use.

In Chapter 3, the report evaluates Lusk’s existing water system.

In Chapter 4, the report lists water system modifications, makes recommendations of proposed improvements, and provides Opinions-Of-Probable-Construction-Cost for the recommended improvements.

Recommended Improvements

(a) Drill a new water well and construct new pumps ($245,185.25).

(b) Repair both of Lusk’s water tanks and construct a new 200,000 gallon tank ($412,741.00).

OR

Repair Lusk’s 400,000 gallon tank and construct a new 400,000 gallon tank ($435,068.75).

(c) Construct new water transmission pipelines ($531,007.30).

(d) Construct new water distribution system improvements ($965,330.85).
ECONOMIC AND POPULATION FORECASTS

(a) Economic Forecasts

Lusk experiences cyclical growth and decline. The cycles are economically driven, and Lusk's economy is directly influenced by the economy of Niobrara County.

Historically, Niobrara County's population peaked in 1920 and in 1940. However, for the last 70 years the population of Lusk has been relatively stable, fluctuating less than 500 people.

For at least the last 20 years, Niobrara County’s employment has been very stable. In May 1993, the County had 2.1% unemployment, and in May 1994, the County had 3.4% unemployment. These figures indicate that Lusk has a "tight" economy in which virtually everyone is employed, but few new jobs are created without outside stimulation.

Two economic forecasts are listed in WLC's report:

Forecast #1 Is based on traditional growth patterns, and predicts a growth rate of 0.5%.
Forecast #2 Is based on a sudden "boom" in non-traditional growth, and predicts an annual employment growth of over 6%. This forecast predicts the need for specialist planning and expanded infrastructure.

(b) Population Forecast

Through the year 2030, Lusk is anticipated to have a population varying from 1,890 people ("Low Projection") to 4,300 people ("Boom Projection"). A "Moderate Growth Projection" of 2,594 people by the year 2030 is the recommended projection.
The report looks at a 35 year planning period (through 2030). Based on an average of 2.2 people per dwelling in Lusk, it is anticipated that by the year 2030 Lusk will need from 127 to 1,240 new dwelling units.

There is approximately 1,360 acres of economically developable land in the immediate area of Lusk. This area is adequate to handle even the boom projection (which anticipated the need for 1,135 acres by the year 2030). To ensure that growth occurs adjacent to Lusk and adjacent to Lusk’s water and sewer systems, it is recommended that The Town Of Lusk update its Land Use Plan and directs growth into suitable areas.
EVALUATION OF LUSK’S EXISTING WATER SYSTEM

(a) Existing Water Supply System

Lusk obtains its municipal water from two water wells. Currently, there are potential losses between the quantity of water pumped from the wells and the amount billed by The City of Lusk.

During the consultant’s study period, a large leak was discovered and repaired. Losses from the leak could have been as high as 172,810 gallons per day.

It is likely that one of Lusk’s wells (Well #3) is influenced by surface water. It is recommended that this well be abandoned, and a new well drilled in the vicinity of Lusk’s other well (Well #8).

Lusk’s existing water system is shown overpage on Plate #1.

(b) Future Water Supply System

If Lusk drills a new well next year, it is anticipated that additional water supply sources will not be needed, at least, until the year 2020.

(c) Current Water Storage

Currently, Lusk has two water storage tanks. One holds 440,000 gallons and the other holds 225,000 gallons. Currently, Lusk has a 37,000 gallon shortfall in its water storage capacity.

(d) Future Water Storage

By the year 2030, it is anticipated that Lusk’s water storage needs will increase to 759,230 gallons capacity (based on moderate growth).

(e) Existing Water Distribution System

Based on old maps and anecdotal information, the consultant mapped Lusk’s existing water distribution system. The degree of reliability of this mapping is unknown.
PROPOSED WATER SYSTEM MODIFICATIONS, RECOMMENDATIONS, AND COSTINGS

(a) Proposed Water System Modifications

The report lists proposed modifications to Lusk’s existing water system. The improvements will improve flows within the distribution system, will service expanded areas of development, and will provide additional storage for future development.

Existing Well #3 will be abandoned and:

1. A new well, located in the area of Well #8, will be drilled.
2. A new 400,000 gallon storage tank will be constructed.
3. Construction of eight new watermains.

(b) Recommended Water System Improvements

1. Drill a new water well and install new pumps.
2. Add new telemetry from water wells to storage tanks, and between storage tanks.
3. Either repair both existing tanks and construct a new 200,000 gallon tank at a later date; or repair the 400,000 gallon tank and construct a new 400,000 gallon tank at a later date.
5. Construct new valving and telemetry.
6. Construct new chlorination facilities.
7. Construct 9,975 feet of new water distribution pipe.
8. Remove and replace 25 fire hydrants.
### OPINIONS OF PROBABLE CONSTRUCTION COST FOR RECOMMENDED IMPROVEMENTS

<table>
<thead>
<tr>
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<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>I</td>
<td>Drill, develop, and test new water well</td>
<td>$106,629.70</td>
</tr>
<tr>
<td>II</td>
<td>Furnish and install new pumps, telemetry, and associated appurtenances</td>
<td>$138,555.55</td>
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<td>III</td>
<td>Repair both existing water tanks, and construct a new 200,000 gallon tank</td>
<td>$412,741.00</td>
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<td>OR</td>
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<td></td>
<td>Repair only the existing 440,000 gallon tank, and construct a new 400,000 gallon tank</td>
<td>$435,068.75</td>
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<tr>
<td>IV</td>
<td>Construct new water transmission pipelines</td>
<td>$965,330.85</td>
</tr>
<tr>
<td>V</td>
<td>Construct new water distribution system improvements</td>
<td>$965,330.85</td>
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**TOTAL $2,154,264.20 OR $2,176,592.15**