

MEMORANDUM

To: Jim Parks

From: Tom Gooch

Date: May 7, 2005 File: NTD02182:\T\Task 4 – Water Mgmt Strategies\M_Region C per Capita.doc

Project: NTD-02182 – Region C Water Plan

Subject: Projected Per Capita Water Use for Region C

Introduction

In 2004, the Texas Water Conservation Implementation Task Force prepared a *Report to the 79th Legislature* on water conservation issues in Texas. Among other recommendations, the Task Force suggested that when establishing water conservation targets and goals, a water supplier should consider “a minimum annual reduction of one percent in total gpcd, based upon a five-year rolling average, until such time as the entity achieves a total gpcd of 140 or less.”

Several aspects of this suggested long-term per capita use goal of 140 gpcd should be emphasized:

- It applies to individual water suppliers.
- The goal applies to water supplied as potable water by the water utility to retail water users, which may include municipal, manufacturing, and other uses. Self supplied manufacturing water, wholesale sales, and non-potable water (raw water and reuse) do not count in the computation of per capita use.
- As emphasized repeatedly in the Water Conservation Implementation Task Force report, goals are voluntary and are to be set by the water supplier.
- The suggested per capita use goal includes a credit for reuse, so that water supplied by reuse does not count against the per capita use.
- Since the per capita use goal is based on a five-year moving average, it applies to normal water use rather than dry-year water use.

This memorandum compares the per capita water use that would result from implementation of the 2006 *Region C Water Plan* to the suggested voluntary goal of 140 gpcd.

Region C Per Capita Municipal Water Use

The overall per capita municipal water use in Region C in the year 2000 was 203 gallons per capita per day. Since 2000 was a dry year, the normal-year per capita municipal use

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in Region C would be somewhat less. In addition, some of the municipal use in Region C in the year 2000 was supplied by reuse. After crediting for reuse as required by the Water Conservation Implementation Task Force *Report to the 79th Legislature*, the year 2000 per capita municipal use in Region C was 197 gpcd.

The 2006 *Region C Water Plan* will recommend significant conservation efforts and the development of substantial new supplies from reuse. Table 1 summarizes the projected per capita municipal water use for Region C with the implementation of the 2006 *Region C Water Plan*. Figure 1 is a graph of the data from Table 1. The figure and the table show the following:

- With no conservation or reuse at all, the projected dry-year per capita municipal water use in Region C would be 211 gpcd in 2060.
- Implementation of the plumbing code requiring the use of low-flow plumbing fixtures had already reduced the per capita use in Region C by 3 gpcd as of the year 2000. It is expected to reduce per capita use by another 12 gpcd, to a total of 15 gpcd, by 2060.
- The recommended water conservation measures in the 2006 *Region C Water Plan* will reduce the projected 2060 per capita municipal use by an additional 20 gpcd.
- The existing and recommended municipal water reuse projects will reduce the projected 2060 per capita municipal use by an additional 39 gpcd, to 140 gpcd.
- The projected normal year per capita use would be 10-15 percent lower than dry-year use, well under the recommended goal of 140 gpcd.
- Many of the recommended reuse projects in the 2006 *Region C Water Plan* are proposed for implementation between now and 2030, leading to a rapid reduction in per capita use in Region C after crediting for reuse.

Region C Per Capita Municipal and Manufacturing Water Use

The Water Conservation Implementation Task Force recommended goal of 140 gpcd is based on municipal use and manufacturing use supplied as potable water. In Region C, a part of the manufacturing use is supplied as potable water, and a part is self-supplied or supplied as non-potable water. Therefore, the region-wide per capita use that should be compared to the recommended goal of 140 gpcd will be between the region-wide per capita municipal use and the region-wide per capita municipal and manufacturing use.

The overall per capita municipal and manufacturing water use in Region C in the year 2000 was 213 gallons per capita per day. Since 2000 was a dry year, the normal-year per capita municipal and manufacturing use in Region C would be somewhat less. In addition, some of the use in Region C in the year 2000 was supplied by reuse. After crediting for reuse as described in the Water Conservation Implementation Task Force

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Report to the 79th Legislature, the year 2000 per capita municipal and manufacturing use in Region C was 207 gpcd.

Table 2 summarizes the projected per capita municipal and manufacturing water use for Region C with the implementation of the 2006 *Region C Water Plan*. Figure 2 is a graph of the data from Table 2. The figure and the table show the following:

- With no conservation or reuse at all, the projected per capita municipal and manufacturing water use in Region C would be 218 gpcd in 2060.
- Implementation of the plumbing code requiring the use of low-flow plumbing fixtures had already reduced the per capita use in Region C by 3 gpcd as of the year 2000. It is expected to reduce per capita use by another 12 gpcd, to a total of 15 gpcd, by 2060.
- The recommended water conservation measures in the 2006 *Region C Water Plan* will reduce the projected 2060 per capita municipal and manufacturing use by an additional 20 gpcd.
- The existing and recommended water reuse projects will reduce the projected 2060 dry-year per capita municipal and manufacturing use by an additional 40 gpcd, to 146 gpcd.
- The projected normal year per capita use would be 10-15 percent lower than dry-year use, well under the recommended goal of 140 gpcd.

Summary

1. The Water Conservation Implementation Task Force has recommended that water suppliers consider a goal of 140 gallons per capita per day for total potable water supplied to retail water users. The Task Force defines total potable water supplied to exclude water supplied by reuse. The goal is based on a five-year rolling average, which equates to normal-year use.
2. Because of the substantial conservation and reuse projects included in the 2006 *Region C Water Plan*, the Region C plan will achieve this recommended goal for the region as a whole.
3. The per capita use for individual water suppliers will vary.

Table 1
Projected Per Capita Municipal Water Use for Region C

| | Actual 2000 | Projected from the 2006 Region C Plan | | | | | |
|--|----------------|---------------------------------------|-----------|-----------|------------|------------|------------|
| | | 2010 | 2020 | 2030 | 2040 | 2050 | 2060 |
| Basic Data | | | | | | | |
| Population | 5,254,722 | 6,625,282 | 7,966,389 | 9,093,847 | 10,246,795 | 11,559,990 | 13,087,849 |
| Municipal Demand without Low Flow Plumbing (Acre-Feet) | N/A | 1,567,870 | 1,895,672 | 2,158,182 | 2,423,574 | 2,729,449 | 3,092,074 |
| Municipal Demand with Low Flow Plumbing (Acre-Feet) | 1,196,452 | 1,534,703 | 1,828,831 | 2,060,118 | 2,294,491 | 2,574,265 | 2,915,773 |
| Recommended Municipal Water Conservation (Acre-Feet) | 0 | 45,226 | 104,244 | 152,158 | 195,232 | 239,173 | 292,850 |
| Current Municipal Reuse (Acre-Feet) | 36,376 | 40,240 | 41,176 | 42,387 | 43,324 | 44,574 | 45,923 |
| Recommended Municipal Reuse (Acre-Feet) | 0 | 256,330 | 416,471 | 497,618 | 506,077 | 516,416 | 527,439 |
| Per Capita Use (Gallons per Capita per Day) | | | | | | | |
| Dry-Year with No Conservation or Reuse | 206 | 211 | 212 | 212 | 211 | 211 | 211 |
| Dry-Year with Plumbing Code | 203 | 207 | 205 | 202 | 200 | 199 | 199 |
| Dry-Year with Plumbing Code and Recommended Conservation | 203 | 201 | 193 | 187 | 183 | 180 | 179 |
| Dry-Year with Recommended Conservation and Reuse | 197 | 161 | 142 | 134 | 135 | 137 | 140 |
| Normal-Year Use (Assumed 12 Percent Lower than Dry Year) | 176 | 144 | 127 | 120 | 121 | 122 | 125 |

Table 2
Projected Per Capita Municipal and Manufacturing Water Use for Region C

| | Actual 2000 | Projected from the 2006 Region C Plan | | | | | |
|---|----------------|---------------------------------------|-----------|-----------|------------|------------|------------|
| | | 2010 | 2020 | 2030 | 2040 | 2050 | 2060 |
| Basic Data | | | | | | | |
| Population | 5,254,722 | 6,625,282 | 7,966,389 | 9,093,847 | 10,246,795 | 11,559,990 | 13,087,849 |
| Municipal Demand without Low Flow Plumbing (Acre-Feet) | N/A | 1,567,870 | 1,895,672 | 2,158,182 | 2,423,574 | 2,729,449 | 3,092,074 |
| Municipal Demand with Low Flow Plumbing (Acre-Feet) | 1,196,452 | 1,534,703 | 1,828,831 | 2,060,118 | 2,294,491 | 2,574,265 | 2,915,773 |
| Manufacturing Demand (Acre-Feet) | 58,289 | 72,026 | 81,273 | 90,010 | 98,486 | 105,808 | 110,597 |
| Recommended Mun. and Man. Water Conservation (Acre-Feet) | 0 | 45,226 | 104,376 | 153,688 | 197,489 | 241,630 | 295,468 |
| Current Municipal and Manufacturing Reuse (Acre-Feet) | 37,474 | 41,338 | 42,274 | 43,485 | 44,422 | 45,672 | 47,021 |
| Recommended Municipal and Manufacturing Reuse (Acre-Feet) | 0 | 266,259 | 431,555 | 512,878 | 521,346 | 531,685 | 542,708 |
| | | | | | | | |
| Per Capita Use (Gallons per Capita per Day) | | | | | | | |
| Dry-Year with No Conservation or Reuse | 216 | 221 | 221 | 221 | 220 | 219 | 218 |
| Dry-Year with Plumbing Code | 213 | 216 | 214 | 211 | 208 | 207 | 206 |
| Dry-Year with Plumbing Code and Recommended Conservation | 213 | 210 | 202 | 196 | 191 | 188 | 186 |
| Dry-Year with Recommended Conservation and Reuse | 207 | 169 | 149 | 141 | 142 | 144 | 146 |
| Normal-Year Use (Assumed 12 Percent Lower than Dry Year) | 185 | 151 | 133 | 126 | 127 | 129 | 130 |

Figure 1: Projected Per Capita Municipal Water Use for Region C

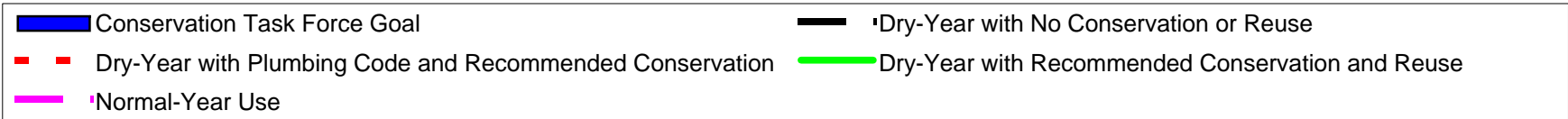
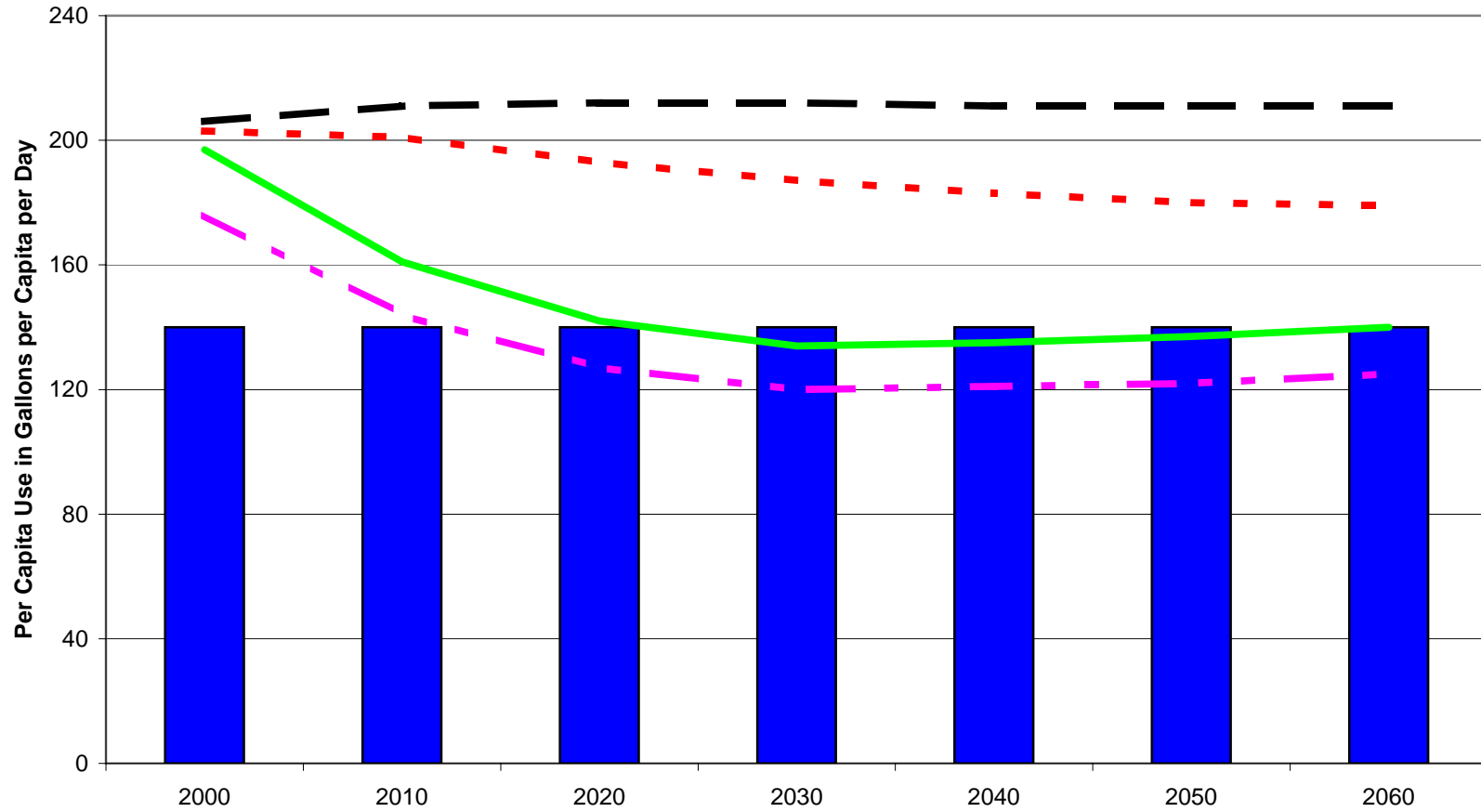


Figure 2: Projected Per Capita Water Municipal and Manufacturing Use for Region C

