

## Memo

**DATE:** March 7, 2011

**TO:** 10-41-025.0 File (1) Nashville

**CC:** Andrew Lynn - CDM Houston

**FROM:** Bo Butler Fort Lauderdale

**RE:** Franklin IWRP – Reclaimed Water Demand Projections Sarasota

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The Franklin Reclaimed System Report, dated February 2009 was updated for current population and development projections. Residential and commercial developments were re-evaluated for progress that has been made since 2009. The Franklin Development Report, prepared by the Franklin Planning Dept., was used to gauge progress and to project development for the next few years. The tables in the 2009 report have been combined where appropriate and narratives updated as included in this memo. Memphis

**Table 2** lists existing system customers as of March 1, 2011. Average daily and maximum daily demands have been taken from reclaimed water sales records obtained from the City of Franklin where possible. Other flows are estimates based on potential irrigated area. However, some of the customers in this list have, after initial use, either cut back or discontinued use of reclaimed water because of significant rainfall or problems in their individual storage and on-site irrigation systems. It is anticipated during dry periods of the year that all eight of these customers will be on-line and using the water as shown in the demand chart. Phoenix

Updated average daily demand for existing customers is estimated to be 1.55 mgd, with maximum daily demands approximately 6.85 mgd. Dallas

**Table 2**

| <i>Franklin Reclaimed Water System</i>            |                           |                              |                                |                               |                          |
|---|---------------------------|------------------------------|--------------------------------|-------------------------------|--------------------------|
| <i>Existing System Customers (as of 5/1/2008)</i> |                           |                              |                                |                               |                          |
| <i>No.</i>  | <i>Name</i>               | <i>Customer Type</i>         | <i>Ave. Daily Demand (GPD)</i> | <i>Max Daily Demand (GPD)</i> | <i>Distribution Line</i> |
| <i>1</i>  | Legends Club              | Recreational                 | 500,000                        | 2,100,000                     | Legends                  |
| <i>2</i>  | Westhaven                 | Residential,<br>Recreational | 117,000                        | 2,000,000                     | Westhaven                |
| <i>3</i>  | Franklin High School      | Institutional                | 156,000                        | 525,000                       | Westhaven                |
| <i>4</i>  | BGA                       | Institutional                | 150,000                        | 385,000                       | Legends                  |
| <i>5</i>  | Harpeth Village Merchants | Commercial                   | 77,000                         | 150,000                       | Westhaven                |
| <i>6</i>  | Carlisle Lane Residents   | Residential                  | 100,000                        | 250,000                       | Westhaven                |
| <i>7</i>  | John Deere Landscaping    | Commercial                   | 385,000                        | 1,300,000                     | Westhaven                |
| <i>8</i>  | Williamson County Rec.    | Recreation                   | 60,000                         | 124,000                       | Westhaven                |
| <b>Totals</b>                                     |                           |                              | <b>1,545,000</b>               | <b>6,834,000</b>              |                          |

**Table 3** lists potential system customers for the existing Franklin reclaimed water system as of March 1, 2011. In re-evaluating the projected demands for these potential users, projections were revised based on a 2-inch per week irrigation rate, which is what many area golf course and park facilities use for irrigation rates of their green spaces. As a result, the average daily demand for these potential customers has increased to 3.76 mgd. The projected maximum daily demand has increased to 8.13 mgd for these potential customers.

A new drive-by survey of the Columbia Avenue Industrial District revealed that Franklin is currently continuing to lose industries. The APCOM Corporation and Georgia Boot have both closed, and while the remaining businesses might use reclaimed water for irrigation of their lawns and open spaces, it is anticipated that most reclaim use would be seen as cooling tower make-up water for the buildings associated with these businesses. The complex previously housing the CPS Corporation is being partially used, but not for heavy industry. It is not anticipated that a large, heavy industry will occupy this location in the future.

In discussions with design professionals responsible for the design of cooling systems for large-scale buildings, it is known that water quality plays a significant role in longevity of the cooling tower equipment. Suspended solids and the presence of chlorine in cooling tower make-up water may have an adverse effect on pipes and pumps that are used in these systems. After an industrial customer purchases reclaimed water, it may be necessary to filter or provide chemical addition to water to make it more suitable for use as cooling tower make-up water. Given the significant cost savings of reclaimed water over potable water, individual industrial customers may find it advantageous to test the water for use in their individual cooling systems.

A number of the listed potential customers are served by the West Reclaimed Water Line and Downs Boulevard Reclaimed Water Line. These two projects are currently under construction and are scheduled for completion by late May of this year. The existing residential subdivisions listed in this table are not yet equipped with a reclaimed water distribution system. For this reason, it is not anticipated that these subdivisions could easily connect to the reclaimed water system for irrigation purposes for individual households. However, open spaces and green spaces could be easily connected to the reclaimed water system at a more reasonable cost. Jim Warren Park and the Williamson County Soccer Complex are currently equipped with large-scale irrigation systems, and it is anticipated that both of these parks could change over to reclaimed water at a minimal cost.

Vulcan Materials, Williamson County Ready Mix, and Sherman Dixie Concrete are all industrial customers. It is anticipated that each of these businesses could connect to and use reclaimed water at a minimal cost and realize a significant discount for volume purchases.

Many of the potential customers listed could be served by the Goose Creek reclaimed water line and Five-Mile Creek reclaimed water lines which were completed in 2009. A listing of these properties includes all the residential properties that are proposed for

development along the southern border of Goose Creek. Some limited development has taken place at the Ladd Park and Stream Valley subdivisions. However, other properties are awaiting economic recovery before development continues. All of these development projects are listed in a 2009 Franklin Development Report prepared by the Franklin Planning Department, and it is anticipated that all of these properties will develop in the future as economic conditions improve.

**Table 3**

| <i>Franklin Reclaimed Water System</i>             |                            |                      |                                |                               |                          |
|--|----------------------------|----------------------|--------------------------------|-------------------------------|--------------------------|
| <i>Potential System Customers (as of 5/1/2008)</i> |                            |                      |                                |                               |                          |
| <i>No.</i>   | <i>Name</i>                | <i>Customer Type</i> | <i>Ave. Daily Demand (GPD)</i> | <i>Max Daily Demand (GPD)</i> | <i>Distribution Line</i> |
| <i>1</i>   | Fairways at Spencer Creek  | Recreational         | 250,000                        | 350,000                       | Westhaven                |
| <i>2</i>   | Pinkerton Park             | Municipal            | 84,000                         | 170,000                       | Southeast                |
| <i>3</i>   | Forest Crossing            | Recreational         | 500,000                        | 2,000,000                     | Southeast                |
| <i>4</i>   | Battlefield Park           | Municipal            | 295,000                        | 600,000                       | Southeast                |
| <i>5</i>   | Franklin Street Dept.      | Municipal            | 100,000                        | 200,000                       | Southeast                |
| <i>6</i>   | Columbia Avenue Industrial | Industrial           | 90,000                         | 90,000                        | Southeast                |
| <i>7</i>   | FSSD                       | Institutional        | 25,000                         | 50,000                        | West Line                |
| <i>8</i>   | Jim Warren Park            | City Parks           | 100,000                        | 200,000                       | West Line                |
| <i>9</i>   | Williamson County Soccer   | County Parks         | 240,000                        | 500,000                       | West Line                |
| <i>10</i>  | New Hope Academy           | Institutional        | 20,000                         | 50,000                        | West Line                |
| <i>11</i>  | Founders Point             | Residential          | 100,000                        | 200,000                       | West Line                |
| <i>12</i>  | Reid Hill                  | Residential          | 20,000                         | 90,000                        | West Line                |

|               |   |               |                  |                  |             |
|---------------|---|---------------|------------------|------------------|-------------|
| <b>13</b>     | Williamson County<br>Redi-Mix                   | Industrial    | 100,000          | 150,000          | Downs Blvd  |
| <b>14</b>     | Vulcan Materials                                | Industrial    | 75,000           | 150,000          | Downs Blvd  |
| <b>15</b>     | Sherman-Dixie                                   | Industrial    | 100,000          | 200,000          | Downs Blvd  |
| <b>16</b>     | Ladd Park                                       | Residential   | 440,000          | 900,000          | Goose Creek |
| <b>17</b>     | Berry Farms                                     | Mixed Use     | 330,000          | 680,000          | Goose Creek |
| <b>18</b>     | Stream Valley                                   | Residential   | 250,000          | 500,000          | Goose Creek |
| <b>19</b>     | Rural Pains                                     | Mixed Use     | 80,000           | 150,000          | Goose Creek |
| <b>20</b>     | Rheems Fleming                                  | Mixed Use     | 75,000           | 100,000          | Goose Creek |
| <b>21</b>     | Nichol's Bend                                   | Residential   | 100,000          | 150,000          | Goose Creek |
| <b>22</b>     | Lockwood  | Residential   | 160,000          | 300,000          | Goose Creek |
| <b>23</b>     | Ag Center                                       | Institutional | 30,000           | 50,000           | Goose Creek |
| <b>24</b>     | Existing Residential<br>(Redwing Farms<br>Area) | Residential   | 200,000          | 300,000          | Goose Creek |
| <b>Totals</b> |   |               | <b>3,764,000</b> | <b>8,130,000</b> |             |

The re-evaluation of development and population projections yields a total average daily demand for the Franklin reclaimed water system at **5.31 mgd** with a total maximum daily demand of **14.96 mgd**. Although the timeframe for connection to the reclaimed water system will depend to a great extent on economic conditions, it is anticipated that most of the potential customers listed will be in a position to want reclaimed water for their developments within the next 10 years. The location of existing distribution lines in relation to many of these properties would 5-year connection projections for additional customers as shown in Table 4 below. It is anticipated that the additional average daily demand from these potential customers will be 1.9 mgd with additional maximum daily demands approaching 4.6 mgd.

**Table 4**

| <i>Franklin Reclaimed Water System</i>                                 |                            |                      |                                |                               |                          |
|--|----------------------------|----------------------|--------------------------------|-------------------------------|--------------------------|
| <i>Potential System Customers – Projected Connections by Year 2016</i> |                            |                      |                                |                               |                          |
| <i>No.</i>   | <i>Name</i>                | <i>Customer Type</i> | <i>Ave. Daily Demand (GPD)</i> | <i>Max Daily Demand (GPD)</i> | <i>Distribution Line</i> |
| <i>1</i>   | Fairways at Spencer Creek  | Recreational         | 250,000                        | 350,000                       | Westhaven                |
| <i>2</i>   | Pinkerton Park             | Municipal            | 84,000                         | 170,000                       | Southeast                |
| <i>3</i>   | Forest Crossing            | Recreational         | 500,000                        | 2,000,000                     | Southeast                |
| <i>4</i>   | Battlefield Park           | Municipal            | 295,000                        | 600,000                       | Southeast                |
| <i>5</i>   | Franklin Street Dept.      | Municipal            | 100,000                        | 200,000                       | Southeast                |
| <i>6</i>   | FSSD                       | Institutional        | 25,000                         | 50,000                        | West Line                |
| <i>7</i>   | Jim Warren Park            | City Parks           | 100,000                        | 200,000                       | West Line                |
| <i>8</i>   | Williamson County Soccer   | County Parks         | 240,000                        | 500,000                       | West Line                |
| <i>9</i>   | Williamson County Redi-Mix | Industrial           | 100,000                        | 150,000                       | Downs Blvd               |
| <i>10</i>  | Vulcan Materials           | Industrial           | 75,000                         | 150,000                       | Downs Blvd               |
| <i>11</i>  | Sherman-Dixie              | Industrial           | 100,000                        | 200,000                       | Downs Blvd               |
| <i>12</i>  | Ag Center                  | Institutional        | 30,000                         | 50,000                        | Goose Creek              |
| <b>Totals</b>  |                            |                      | <b>1,899,000</b>               | <b>4,620,000</b>              |                          |