Notes on conservation:

GPCD calculation:

Only area where a GPCD would be appropriate would be areas where water usage is controlled by a definable group of people.

To compute a comparative GPCD for all cities (municipal) or water provider that provides treated water could use:

For Large cities (pop> 70,000; Data Center list 42 cities in 2007 with pop > 70000)
    GPCD=
        Residential (adjusted for outside sells) + small commercial (i.e. tap less than 21/2 in) + Public & Institutional + apartments (assuming can be broke out if in commercial sells) / City Pop (adjusted for pop served by others)

For Small Cities (pop<70,000 over 650 cities)
    GPCD=
        Residential (adjusted for outside sells) + commercial + Public & Institutional / City Pop (adjusted for pop served by others)

        Note:
                1. Most cities bill outside city limit taps at different rate thus could determine water use outside city and could adjust total use by outside sells.
                2. City Pop could be from Census, State Data Center or TWDB or estimated by water provider.
                3. City Pop from Census and Data Center also includes group quarters pop (i.e. military living on base, college students in dorms, inmates, persons in institutions, health care fac)
                4. Assumed small commercial is associated with local pop. For large cities that have outside influences on commercial use (large government buildings, large commercial activity, and tourism) only use small commercial use which is assumed to be any tap less than 2/1/2 inches.
                5. Should allow small cities to do with little effort, larger city would require some effort to get small commercial and apartment data usage.
                6. If no pop could use 3 persons per active connection in city.
        For commercial that has outside influences may need to refine to reflect what outside influence are. (i.e. tourist attractions, hotel-motel, large office complex filled with people that could live outside city)   These refined indicators could be measured using such things as water use per sq ft of commercial building, water use per tourist day and water use per room day.

TCEQ conservation rules call for accounting (billing) by
1. Residential
2. Commercial
3. Public & Institutional
4. Industrial
5. Wholesale

For Industrial water could be possible to breakdown by industry type then use some unit of output to determine water use per unit of output.

All the data would need to be normalized for weather conditions. Should not compare providers that are under drought management conditions to those not in drought management.