ITEM 6

City of Santa Barbara
Public Works Department

Interoffice Memorandum

DATE: November 3, 2010

TO: Board of Water Commissioners

FROM: Rebecca Bjork, Water Resources Manager

SUBJECT: RECOMMENDATION REGARDING WATER DEMAND TARGET FOR WATER SUPPLY PLAN UPDATE

As discussed with the Commission at our October 11, 2010 meeting, it is important to identify a target level of demand as the next step in developing the update of the City's Long Term Water Supply Program (LTWSP). This target will be the basis for testing the performance of various supply scenarios as a part of developing a recommendation on the LTWSP update. We look forward to having the Commission's recommendation for consideration as we move forward.

Recap of October Work Session

You will recall that we reviewed demand projections and actual usage for the 20-year period that is now coming to an end. Notable was the significant reduction in demand in excess of what was predicted. In addition to the development of a comprehensive water conservation program, and more effective pricing signals, a significant portion of this decrease can be attributed to the effects of stricter plumbing codes and appliance standards. Our work with Maddaus Water Management, a nationally recognized engineering firm specializing in water conservation analysis, has helped us see the scope of this impact.

It is important to understand that such changes not only affect the relatively small amount of new development that occurs in Santa Barbara, but also the entire existing stock of homes, businesses, and landscapes. Each year, as remodeling and replacement occurs, a portion of the existing stock is replaced with new, more efficient, models. Each toilet changed out over the past two decades has been replaced with a model using about half the prior usage. Replacement washing machines result in a similar savings percentage.

Our projections of demand increases have traditionally used a very simple calculation of anticipated number of new dwelling units times the weighted average consumption per dwelling unit by type. A similar calculation of square footage times demand factor is used in the non-residential sector. This approach overestimates likely demand for both existing and new development because they assume a static level of efficiency based on the current (lower) aggregate efficiency level. We believe it is important to recognize these effects in projecting our demand, and at the same time take account of potential offsetting upward forces on demand, as discussed below.

Also at the work session, we discussed new California Water Code requirements that urban water providers achieve a "20%" reduction in potable water usage by the year 2020. The various options are complex, but we believe it means we will need to continue our successful water conservation efforts to achieve a potable water use target of 117 gallons per person per day (gpcd), compared to

2009 potable usage of 122 gpcd. The first of the attached charts is a less complicated version of the chart reviewed last month. It includes four lines shown on the previous chart, as well as a new line that represents the estimated 20 x 2020 regulatory limit as it increases after 2020 to reflect increased population. To put this close-up view in perspective, we have also shown this information on the second attachment in full Y-axis format (i.e., with a zero origin point), and showing a period of 1976 to 2030.

Selecting a Demand Target

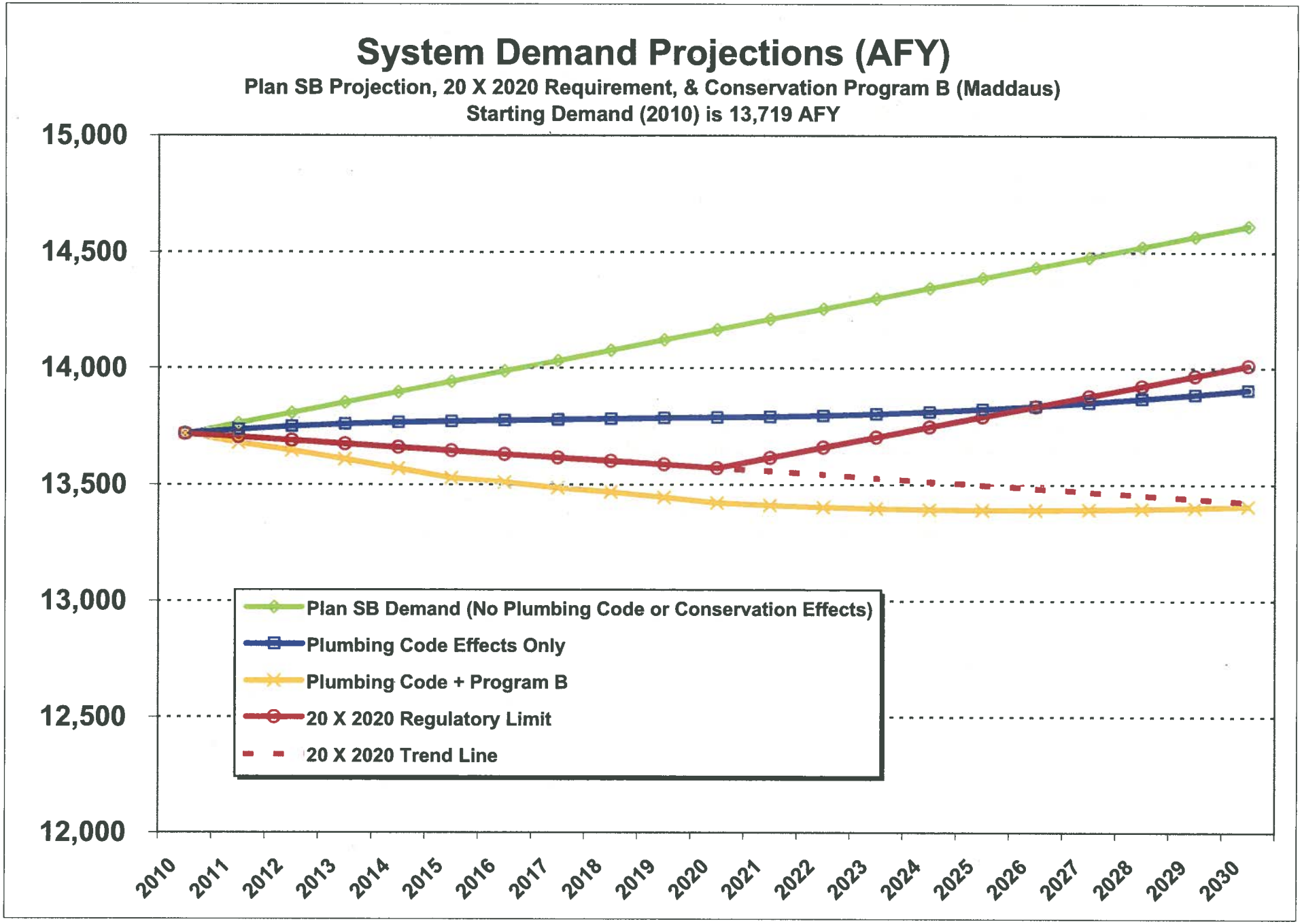
Both the "20 x 2020" requirement and the combined effects of plumbing codes and continued conservation programs aim us at a target demand of about 13,400 AFY by the year 2030. Note that this is based on current standards, current legislative mandates, and the current level of technology. It is reasonable to believe that further change on these fronts will result in further downward pressure on demand. At the same, there are reasons why a somewhat higher demand target may be appropriate. First, we can expect years where demand will exceed the "normal year" demand due to lower rainfall and higher irrigation requirements. Since these years are more likely to occur during a critical drought period, it may be important to plan for this as a part of the demand target. While this effect may be enhanced by climate change, it's difficult to predict when such impacts would become noticeable. Secondly, the current recession can be assumed to be having a downward effect on demand. Finally, there is the benefit of being reasonably conservative in estimating future demand. We believe all of the above factors should be considered as a part of setting a demand target.

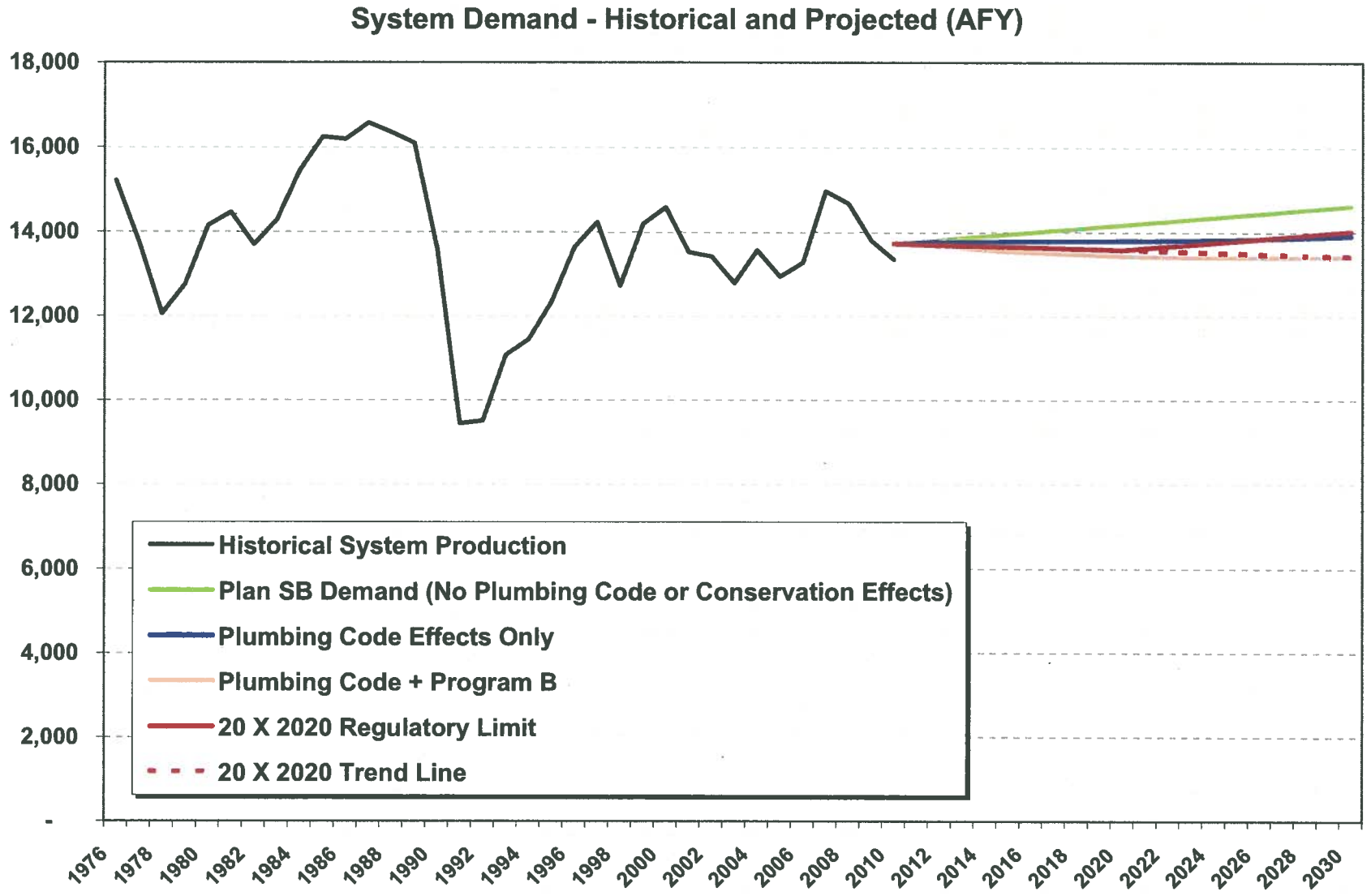
Tracking of Blend Water

The Commission has previously suggested that the calculation of system water demand (consisting of total potable production and total recycled water demand), be modified to reflect use of potable water for blending with recycled water. Our perspective is that the currently used values for potable and recycled water production are standard industry metrics by which overall demand and system losses are tracked. The historical record of these values also forms a consistent picture of how our demand fluctuates from year to year and is very useful for planning purposes. We believe it is important to maintain this tracking in order to report our water system data in a manner consistent with other water agencies, and with past data for our own system. That being said, we wish to find ways to provide added information as the Commission may find useful in understanding how our overall water resources are being used. We hope our discussion on Monday can address this topic as well.

BF/bf

Attachments


System Demand Projections (AFY)
Plan SB Projection, 20 X 2020 Requirement, & Conservation Program B (Maddaus)
Starting Demand (2010) is 13,719 AFY
15,000
14,500
14,000
13,500
13,000
12,500
12,000
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Plan SB Demand (No Plumbing Code or Conservation Effects)
Plumbing Code Effects Only
Plumbing Code + Program B
20 X 2020 Regulatory Limit
20 X 2020 Trend Line


System Demand - Historical and Projected (AFY)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
Historical System Production
Plan SB Demand (No Plumbing Code or Conservation Effects)
Plumbing Code Effects Only
Plumbing Code + Program B
20 X 2020 Regulatory Limit
20 X 2020 Trend Line
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030