March 9, 2016

Attn: Simon Hsu
Los Angeles Department of Water and Power
111 N. Hope St., Room 1460
Los Angeles, CA 90012

**Subject: COMMENTS LADWP 2015 DRAFT URBAN WATER MANAGEMENT PLAN – *HIDING THE SHORTAGE***

It's important to emphasize the importance of the Urban Water Management Plan because every Environmental Impact Report uses this document to describe a projects impact on water. EIRs drawn up for every new project in the City of Los Angeles cite the future water supply data from the UWMP as evidence of sufficient future water supply for the project.

The LADWP 2015 Draft Urban Water Management Plan, like past UWMP's, continues to mischaracterize the city's availability of water by suggesting that it has access to water that it does not have access to. The draft is a thinly disguised effort to hide the city's low water supply levels from the planning process thus making the EIRs that rely on it susceptible to legal challenge.

**Exhibit ES-S**
**Service Area Reliability Assessment for Average Weather Year**

| Demand and Supply Projections (in acre-feet) | Average Weather Conditions (FY 1961/62 to 2010/11) Fiscal Year Ending on June 30 | | | | |
|---|---|---|---|---|---|
| | 2020 | 2025 | 2030 | 2035 | 2040 |
| Total Water Demand[7] | 611,800 | 644,700 | 652,900 | 661,800 | 675,700 |
| plAn Water Demand Target | 485,600 | 533,000 | 540,100 | 551,100 | 565,600 |
| **Existing / Planned Supplies** | | | | | |
| Conservation (Additional Active[2] and Passive[3] after FY14/15) | 125,800 | 110,900 | 111,600 | 109,100 | 108,100 |
| Los Angeles Aqueduct[4] | 275,700 | 293,400 | 291,000 | 288,600 | 286,200 |
| Groundwater[5] (Net) | 112,670 | 110,670 | 106,670 | 114,670 | 114,070 |
| Recycled Water | | | | | |
| - Irrigation and Industrial Use | 19,800 | 29,000 | 39,000 | 42,200 | 45,400 |
| - Groundwater Replenishment | 0 | 30,000 | 30,000 | 30,000 | 30,000 |
| Stormwater Capture | | | | | |
| - Stormwater Reuse (Harvesting) | 400 | 800 | 1,200 | 1,600 | 2,000 |
| - Stormwater Recharge (Increased Pumping) | 2,000 | 4,000 | 8,000 | 15,000 | 15,000 |
| Subtotal | 536,370 | 578,770 | 587,470 | 601,170 | 600,770 |
| **MWD Water Purchases** | | | | | |
| With Existing/Planned Supplies | 75,430 | 65,930 | 65,430 | 60,630 | 74,930 |
| **Total Supplies** | 611,800 | 644,700 | 652,900 | 661,800 | 675,700 |
| **Potential Supplies** | | | | | |
| Water Transfers[6] | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |
| Subtotal | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |
| **MWD Water Purchases** | | | | | |
| With Existing/Planned/Potential Supplies | 35,430 | 25,930 | 25,430 | 20,630 | 34,930 |
| **Total Supplies** | 611,800 | 644,700 | 652,900 | 661,800 | 675,700 |

To understand why the LADWP is doing this, we first need to remember that the Urban Water Management Plan is first and foremost a planning document.

The water supply totals found in the *Service Area Reliability Assessments* for Average, Single and Multi-Dry years found in the UWMP[i] are repeatedly cited in Environmental Impact Reports (EIR) as evidence of sufficient water supply to support the projects that are in the review process before the city planning department.

**Conflicting Tasks**

The LADWP has been faced with two conflicting tasks going back as far as 1985. The departments first task is to continue providing enough water to the city even while supply has fallen from an average of 680,000 Af/y to 610,000 Af/y due primarily to Court directed reductions of Aqueduct water.

To meet this task, the department has been a leader in stretching out water supplies using innovative hardware conservation strategies (low flow shower heads and toilets, water efficient washing machines, smart irrigation) and economic incentives (tier pricing), and education.

However, in conflict with this first task, the LADWP's second task is to provide *evidence of a growing water supply that is sufficient for continued growth*. The department wants to avoid at all cost, producing a document that suggests that the water supply is not scaling up with growth that city planners and elected officials want to achieve.

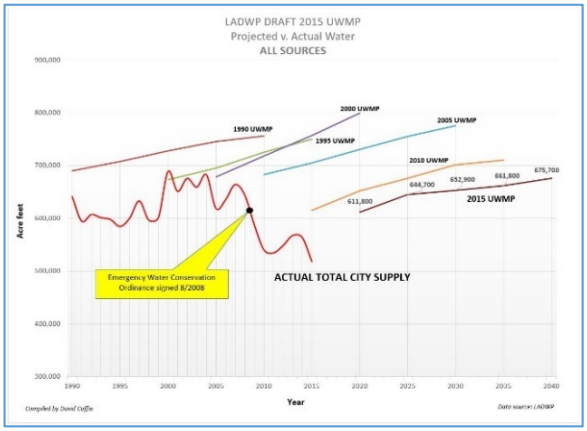



*Figure 1- LADWP has consistently padded water projections with water the department could not access.*

A close analysis of the department's historical supply data from the past twenty years, has shown conclusively that the departments actual real deliveries of water have consistently fallen far short of their projections. This leads to the conclusion that the projected supply figures found in the current draft and past UWMP's are at best, *very poor estimates,* or at worst, that the department has been *banking on paper water to promote the appearance of sufficient supplies*.

California's Urban Water Management Plan Act along with SB 610 and SB 221, requires that utilities update the UWMP every five years to demonstrate long term water supply availability before approving new projects[ii].

Over time this task has become tougher for the LADWP to prove as the city and the regions surrounding it grow, and various interests throughout the state assert their rights to the state's water supply. Compounding the problem, the department has never rejected Water Supply Assessments (WSA) citing insufficient water supplies for large projects that are subject to SB 610. Instead the department has always reported to planners and developers that there is sufficient water for growth despite the shortage.

In recent years, the LADWP has found that the sum total of aqueduct, groundwater, recycled water and MWD water was no longer enough to support the city's total supply requirement needed as evidence of sufficient growth. The department was also reaching the end of its credibility when it's aqueduct projections repeatedly exceeded 300,000 acre-feet per year (AF/y).

To solve this problem, the 2010 UWMP introduced new categories of supposedly new water. Some categories could result in real water such as stormwater capture and indirect potable reuse. But other categories were simply fuzzy water meant to artificially raise the total supply using paper water making it appear in EIRs that there would be long term surpluses available for growth. The 2015 Draft UWMP continues with this practice.

**A Line-by-Line Analysis of the Draft UWMP's Future Water Supply Projections**

The following is a review of the 2015 Draft UWMP with line by line analysis and comments of the supply projections found in the Draft's Service Area Reliability Assessments table for Average years. I'll show where the real water is and what's vulnerable to challenge.

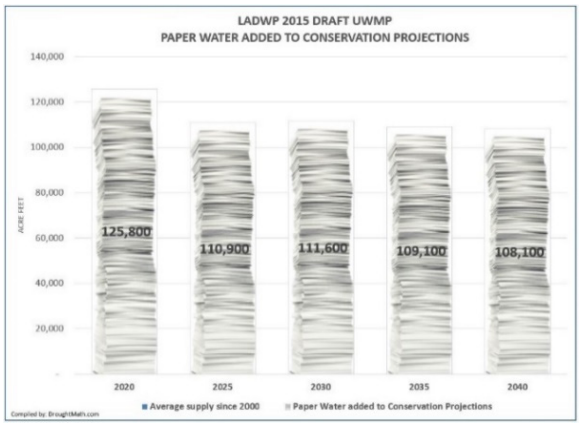
- **Conservation**

Plainly stated, *Conservation is not a supply.* Conservation should be used to lower the baseline demand. From there, the department should demonstrate how it will meet that.

| | | | | | |
|---|---|---|---|---|---|
| Conservation (Additional Active[2] and Passive[3] after FY14/15) | 125,800 | 110,900 | 111,600 | 109,100 | 108,100 |

Historically, the LADWP had always deducted conservation savings from the baseline demand side and from there, it calculated the required supply. However, because the falling aqueduct supply levels could no longer drive total supply above 700,000 AF/y to support an UWMP that was favorable to planning documents, the department shifted tactics in 2010 and began using Conservation as a 'supply' to artificially bump up the total supply figures.

The department's 2015 draft shows Conservation as an 'existing or planned supply' that will contribute up to 125,800 Af/y to the city's water portfolio. But simply put, this is 'paper water'. This is done to hide a portion of the total shortage the department doesn't want seen in Environmental Impact Reports that are attached to projects for review by the planning department.




There is a simple test to see if Conservation or any other category of water is real water or imaginary water. The **2009 California Water Plan Update**[iii] describes 'paper water' as water that *"utilities claim they have access to, but is difficult or impossible to access for various reasons"*.

Using that definition in our test, if we eliminate all of the city's real incoming sources of water such as the aqueduct, groundwater, recycled water, stormwater, and MWD water, and leave the city with only Conservation, how much water would the city have access to and available to use?

*Answer: None.* The 125,800 AF of 'water' in the Conservation category that the department claims it has access to is not accessible. You can't wash your hands with this water and you cannot sip it from a glass. Consequently, it's paper water and not a supply.

Asserting that 'Conservation' is a water supply allows the department to manipulate the UWMP's supply projections, making it appear that the city's total available supply will be 611,800 Af/y in 2020 and grow as high as 675,700 Af/y by the year 2040. When we remove this imaginary water from the table, the departments total projections fall to a dismal 536,370 Af/y ***(Figure 11)*** and over time it grows to just 600,770 AF/y by 2040. This is would fall more in line with the city's historical supply. *(**Figure 3**)*

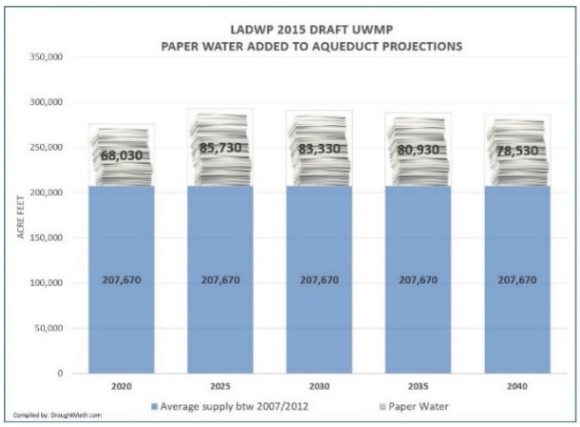
I'm sure the department sees another benefit to asserting that Conservation is a supply. It doesn't have to report the actual results like it does with real water from the aqueduct, groundwater, MWD, and recycled water which are all measured as they enter the water system.

Placing Conservation on the 'supply side' of the equation creates a fuzzy math scenario of future water supply that does not belong in planning documents that rely on the UWMP. The department is basically saying, *'If the public reduces it gallons per capita daily and meets 50% of the 'projected' conservation level, then that's like having 638,235 AF/y'* or '*if the public could meet 100% of the city's projected conservation level, it would be the same as reaching 675,100 AF/y*'.

- **Los Angeles Aqueduct**

| | | | | | |
|---|---|---|---|---|---|
| Los Angeles Aqueduct[4] | 275,700 | 293,400 | 291,000 | 288,600 | 286,200 |

The next item of 'existing or planned supplies' in the table is the Los Angeles Aqueduct. No longer does the LADWP find William Mulholland's engineering marvel worthy of top billing anymore even though it continues to be the city's largest owned producer of water in the city's supply portfolio. Instead it appears that the department wants the public's optics to be focused on 'Conservation' in the UWMP even though that's not real water like the aqueduct.




Using paper water, the Draft 2015 UWMP hides 68,030 to 85,730 AF/y of the city's total supply shortage in the Los Angeles Aqueduct projections. It does this by seriously over projecting how much water will be available through the aqueduct system.

The aqueduct's actual average supply between 2007 and 2012[iv] *(**Figure 4**)* is just 207,670 AF/y. The 2015 draft projects long term supplies up to 293,400 Af/y.

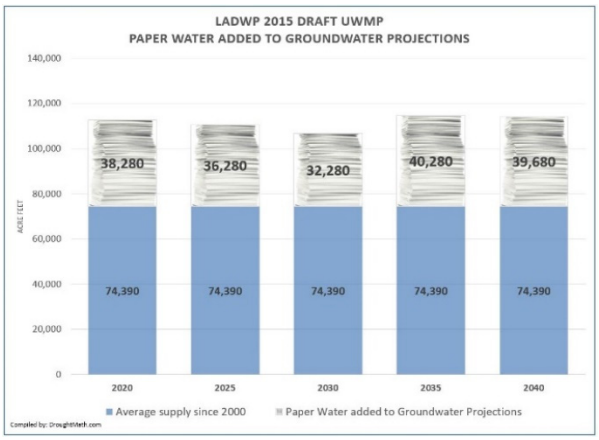
Given the aqueducts long term supply average and the permanent Court ordered environmental constraints on the aqueduct supply, there is no reason to believe that future aqueduct supplies will average higher than 227,000 Af/y. Even if the department is able to lower the amount of water needed to mitigate Owens Basin dust levels.

- **Groundwater**

| | | | | | |
|---|---|---|---|---|---|
| Groundwater[5] (Net) | 112,670 | 110,670 | 106,670 | 114,670 | 114,070 |

The departments next major source of domestic water supply and third on the list of 'existing or planned supplies' is Groundwater. Like every UWMP before it, the Draft 2015 UWMP continues citing far more access to groundwater than the department really has access to.

This conclusion is made by comparing the last 15-year average groundwater supply of just 74,390 AF/y (2000 and 2015) with the drafts projections of 112,670 to 114,070 AF/y. Anything more than 74,390 AF/y is paper water which is used to bump up the total supply and hide the departments shortage in planning documents. ***(Figure 5)***




From a historical perspective, there is simply no evidence that the department will meet the year to year higher projections they cite in the current draft.

EIR's produced between 1995 and 2016 all cited UWMP projections claiming there would be sufficient water for their projects, in part because of the promise that future groundwater supply contributions would exceed 100,000 AF/y.

- **Recycled Water – Irrigation and Industrial**

Recycled water is next item in the 'existing or planned supplies' in the Draft 2015 UWMP. The department split the Recycle Water category between two sub categories back in 2010 and that continues today. They are 'Irrigation and Industrial Use' and 'Groundwater Replenishment'.

| | | | | | |
|---|---|---|---|---|---|
| - Irrigation and Industrial Use | 19,800 | 29,000 | 39,000 | 42,200 | 45,400 |

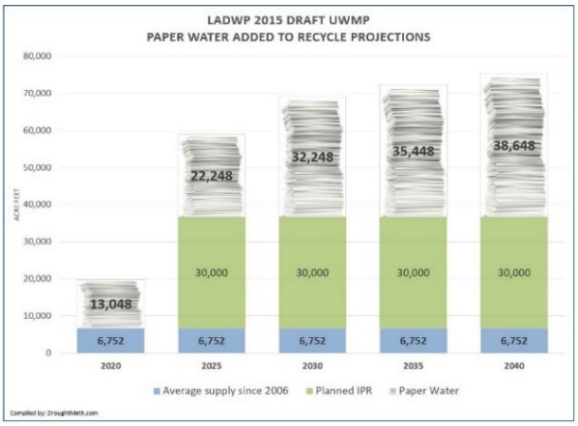
Irrigation and Industrial Use, better known as purple pipe is projected to contribute 19,800 AF/y of water into the city water system by 2020 and increase to 45,400 AF/y by 2040. However, the departments history of meeting purple pipe projections suggests that they will not come close to meeting these new projections either. Over the last eight years the department's average has been just ~7,500 AF/y. (**Figure 6**)

EIR's produced between 2010 and 2016 all cited the 2010 UWMP claiming there would be sufficient water for their projects, in part because of the 20,000 AF/y of recycled water distributed by purple pipe in the city's water system by 2015.

However, the department missed that mark badly with only ~9,800 AF of measured supply by September of 2015.

Earlier UWMP's promised that even more recycled water stating up to 29,000 AF/y would have been available by 2015.

Given that developing a more extensive purple pipe distribution system may not be cost effective over the long term, there is no reason to believe that Recycle Water-Irrigation and Industrial supply will exceed 15,000 Af/y over the next twenty-five years.




At this level, one can only conclude that the 2015 Draft UWMP uses this paper water in the Recycle Water-Irrigation and Industrial category to effectively hide up to 30,400 AF/y of the city's total supply shortage.

- **Recycled Water – Groundwater Replenishment**

| | | | | | |
|---|---|---|---|---|---|
| - Groundwater Replenishment | 0 | 30,000 | 30,000 | 30,000 | 30,000 |

The item on the 'existing or planned supply' supply table is Groundwater Replenishment. This is not expected to begin contributing the city's water portfolio until 2025. Groundwater Replenishment is a treated wastewater program known as Indirect Potable Reuse which is similar to Orange County's successful IPR program.

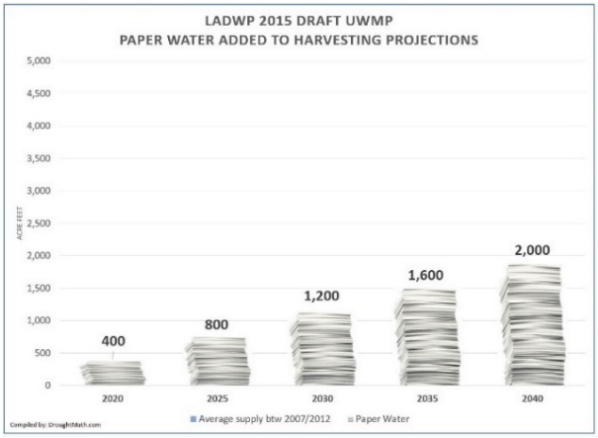
If the department is successful at rolling out Indirect Potable Reuse, this may turn out to be a real supply. How much we actually see entering the system on a year to year basis remains to be seen.

- **Stormwater Capture – Harvesting**

What was new to the 2010 UWMP but considered only a 'potential supply', Stormwater Capture has been undeservingly upgraded to a 'existing or planned supply'. Stormwater Capture is split between sub categories, Stormwater 'Reuse' and Stormwater 'Recharge'.

| | | | | | |
|---|---|---|---|---|---|
| - Stormwater Reuse (Harvesting) | 400 | 800 | 1,200 | 1,600 | 2,000 |

Stormwater Reuse (Harvesting), is the sixth 'existing or planned supply' in the table. Harvesting, is a paper water category consisting of Rain Barrels and Cisterns. The department claims that these components will be contributing 400 AF/y to the city's water system by 2020 and will subsequently increase to 2,000 AF/y by 2040.




Over the last six years, projects working their way through the planning process claimed that they would have sufficient water supply to support them, in part because of the 2,000 AF/y of Harvested water that would be available to the city by 2015 and 10,000 AF/y by 2035. Development projects throughout the city parroted this claim in their EIR's but the department could never measure it nor report it. ***(Figure 7)***

This category fits the definition of paper water because the department cannot access it. At best the department can only make assumptions about the quantity of water captured in rain barrels and cisterns. Such claims however are not suitable for planning documents such as environmental impact reports because they are based on guesses. The state generally recognizes supply only as water that can be measured as it enters the system.[v]

Rain barrels and cisterns are back yard, privately owned containers that do not have gages mounted to them that report back to the utility. *There is no way the LADWP can tell if they are actually in use, whether they've collected rainwater or if they have been repurposed for other uses*.

Given that Harvesting consists entirely of paper water, one can only conclude that the Draft 2015 UWMP uses in the Stormwater Reuse category to hide 400 to 2,000 AF/y of the city's total supply shortage.

- **Stormwater Capture – Recharge**

| | | | | | |
|---|---|---|---|---|---|
| - Stormwater Recharge (Increased Pumping) | 2,000 | 4,000 | 8,000 | 15,000 | 15,000 |

Next on the list of 'existing or planned' supplies in the draft UWMP is Stormwater Recharge. Over the years the city has relied on 'natural recharge' in the San Fernando Basin for groundwater pumping, but this has severely decreased due to urbanization, led by the city's thirst for high density development and road construction over permeable soil.

The LADWP intends to build an infrastructure in the San Fernando Basin that will capture up to 15,000 AF/y of water during intense rainwater events and allow it to infiltrate into to the ground much like natural recharge.

This may very well be another form of supply that is difficult to access given that is relies on rain events. For example, in both 2015 and 2016 it was predicted that El Nino would bring heavy rains to the Los Angeles area but that did not happen. Over the past three years, the drought has seriously reduced rainfall that would have contributed to both natural recharge and Stormwater Capture by way of recharge.

Furthermore, this new effort appears to be more about an effort to stem the further declines of groundwater shortage than to find new water. It could take decades before a payoff is seen if ever. ***(Figure 13)*** [vi]

Recharge will be subject to the same meteorological events that affect groundwater pumping where the latter has never met the long term projections found in past UWMPs. There is no guarantee that Recharge efforts will result in 15,000 Af/y supply until the program is in fully implemented and the long term averages can be measured as it

enters the city's water system. How much we actually see entering the system on a year to year basis remains to be seen.

- **MWD Water Purchases with Existing/Planned Supplies**

| | | | | | |
|---|---|---|---|---|---|
| **MWD Water Purchases** With Existing/Planned Supplies | 75,430 | 65,930 | 65,430 | 60,630 | 74,930 |

'MWD Water Purchases' is an interesting category because the department has consistently 'underestimated' how much it will buy from the Metropolitan Water District.

This happens because as previously noted, the LADWP claims it has access to large amounts of water it doesn't have access to. The department then has to make adjustments for the shortages by quietly purchasing additional water from the MWD.

The Draft 2015 projections are stunning given that it represents a 68% drop from the 2010 UWMP and worse, a projected 80% drop from the real purchases.

Between 2000 to 2015, the LADWP projected it would be purchasing an average of 220,881 AF/y from the MWD. But during this time the actual average supply it purchased from the MWD during that time was 47% higher at 325,570 AF/y. ***(Figure 12)***

This clearly demonstrates that the LADWP projections for MWD water have been seriously understated as a result of its supply projections being so full of paper water. The department's MWD projections are simply not reliable.

Given how much paper water is in this draft UWMP which includes the so-called 'Conservation', there is no evidence that the LADWP will be able to meet those projections and subsequently limit MWD purchases at this level unless city leaders intend to deliberately deepen the city's water supply shortage by plunging the city into a Phase IV or Phase V restrictions.

- **Transfers**

| | | | | | |
|---|---|---|---|---|---|
| Water Transfers[6] | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |

Over the last six years, EIR's for projects working their way through the planning process claimed that they would have sufficient water supply to support them, in part because 40,000 AF/y of Transfer water would be available to the city by 2015. However, the department was not able to access this water that so we can firmly place this in the category of paper water. ***(Figure 9)***

With the 'water market' turning increasingly bleak, the LADWP rightfully did not include Transfers as a 'Planned Supply' in the draft as it did in the 2010 UWMP. The department instead downgraded Transfers to a 'Potential Supply'. However, it still remains on the table making it 'appear' as if it is accessible to decision makers.

The chances that the department will have access to this water is fairly remote given that there no willing sellers in the Central Valley or Northern California and it's likely that the department would find itself bidding against the well-financed Metropolitan Water District.

- **MWD Water Purchases with Existing/Planned Supplies and Transfers**

| | | | | | |
|---|---|---|---|---|---|
| **MWD Water Purchases** With Existing/Planned/Potential Supplies | 35,430 | 25,930 | 25,430 | 20,630 | 34,930 |

The tenth and last item in the Draft 2015 UWMP Services Area Reliability Assessment is an alternative MWD Water Purchase should the LADWP be able to secure contracts for water in the 'Transfer' category. It states that if the LADWP were to be able to secure contracts for 40,000 AF/y of Transfer water, this would result in lower MWD purchases amounting to ~20,630 to 35,430 AF/y. Should Transfers occur, it's unlikely that the MWD projections

could be held this low for the same reasons described the '*MWD Water Purchases with Existing/Planned Supplies*' section above.

**Charting LADWP's Use of Paper Water**

To illustrate the LADWP's consistent claims of having access to water it cannot access, this analysis includes the following charts that clearly show the departments projected long term normal year surpluses in past UWMPs, against the actual total supply reported by the department. In a report *'Water for Growth'*, the author noted that this practice raises the possibility that these utilities are banking on 'paper water'. [iii]

projections of supply and demand; and, when available, these detailed series often deviated considerably from aggregate figures presented elsewhere in the plans. A majority of utilities reported considerable normal-year surpluses, both now and 20 years hence, raising the possibility that many are banking on "paper water" for their margin of comfort.

Progress is clearly needed to bring UWMPs to the level where they can serve as a basis for assessing long-term supply reliability. The "show me the water" laws have raised the stakes, because a well-documented UWMP can be used to demonstrate water availability for new development. The next round of UWMPs, due in December 2005,

*Figure 2 – 'Hanak (2010): Water for Growth' suggests many utilities count on water used by others in state water system.*

*Paper water* is water that the utility claims to has access to but cannot access it because it is used elsewhere in the state's water system. These charts demonstrate the fact that the LADWP has for decades, routinely padded its supply projection using paper water to bump up the perception of available water in the UWMP to avoid producing a document that will otherwise show shortages instead.

The LADWP's UWMP projections are routinely cited by Environmental Impact Reports for projects and developments seeking permits as evidence of sufficient water supply as they work their way through the city's planning department. The 'actual supply' amounts shown below demonstrate that the LADWP has been unable to meet these projections though out this entire period from 1990 through 2015.

**LADWP Projections V. Actual Supply**

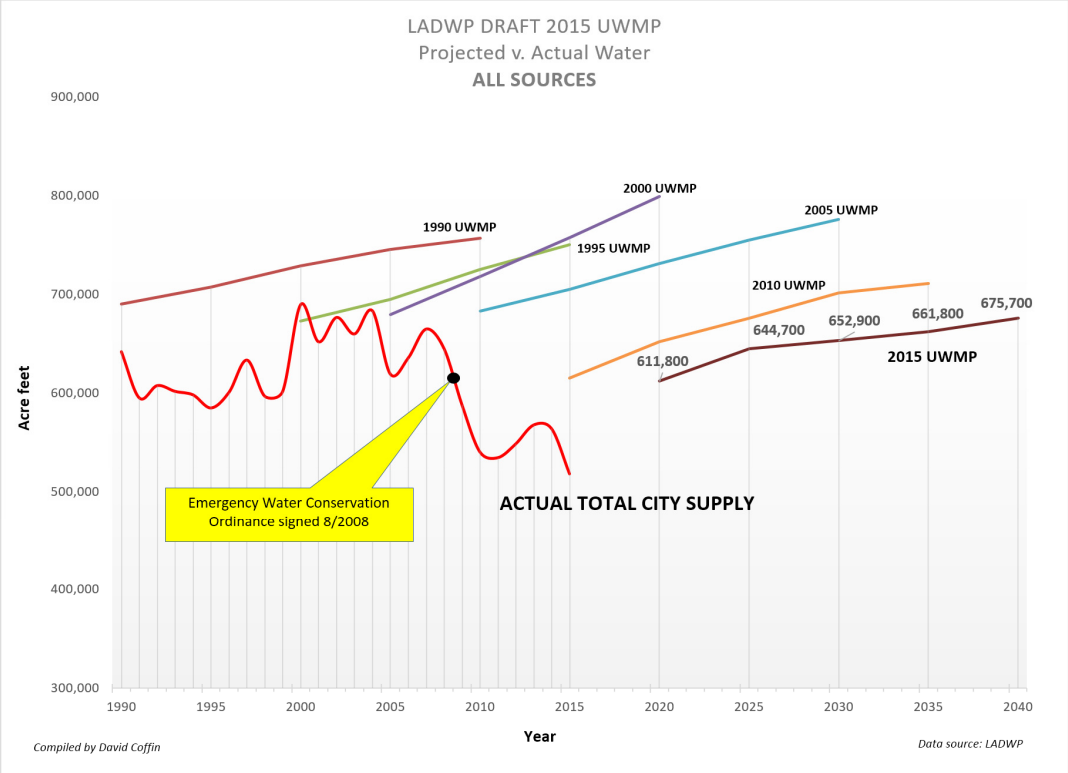



***Figure 3 - Total City Water Supply*** - Year after year, decade after decade the LADWP has repeatedly exaggerated how much water would be available for future growth. The department was never able to access this water which resulted in an onerous Emergency Water Conservation Ordinance.

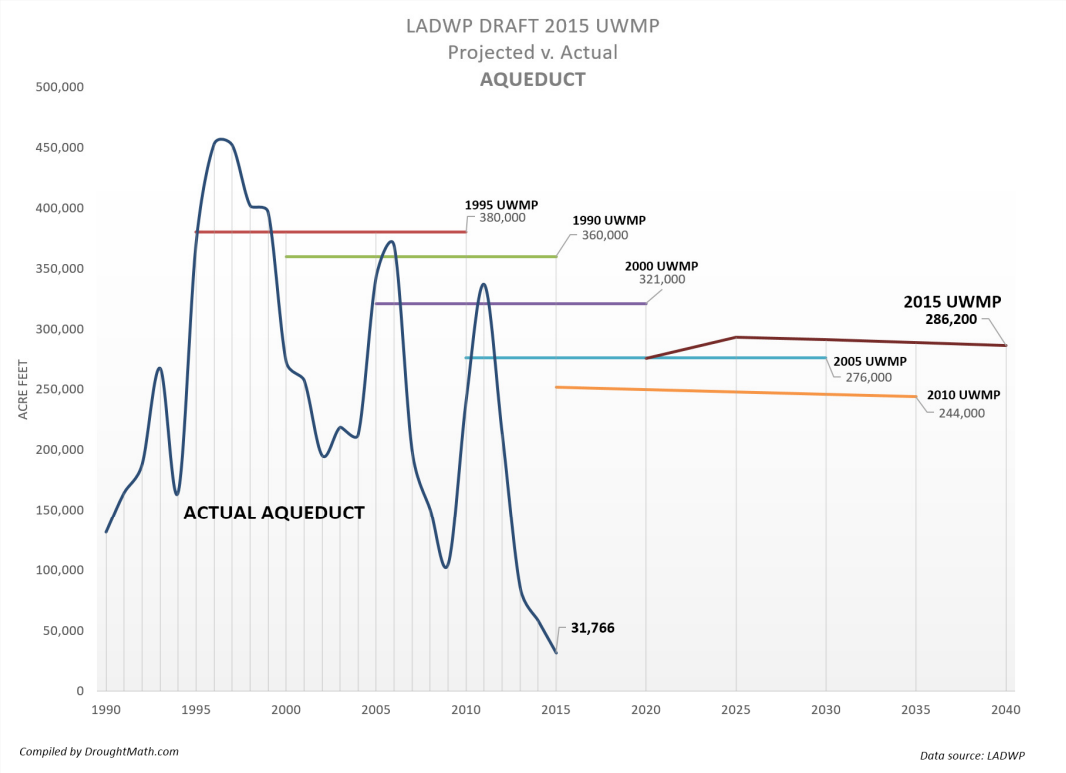



***Figure 4- Los Angeles Aqueduct*** - The 2015 Draft UWMP continues to cite quantities of aqueduct water that is far over the average of 207,670 acre-feet since 2007.

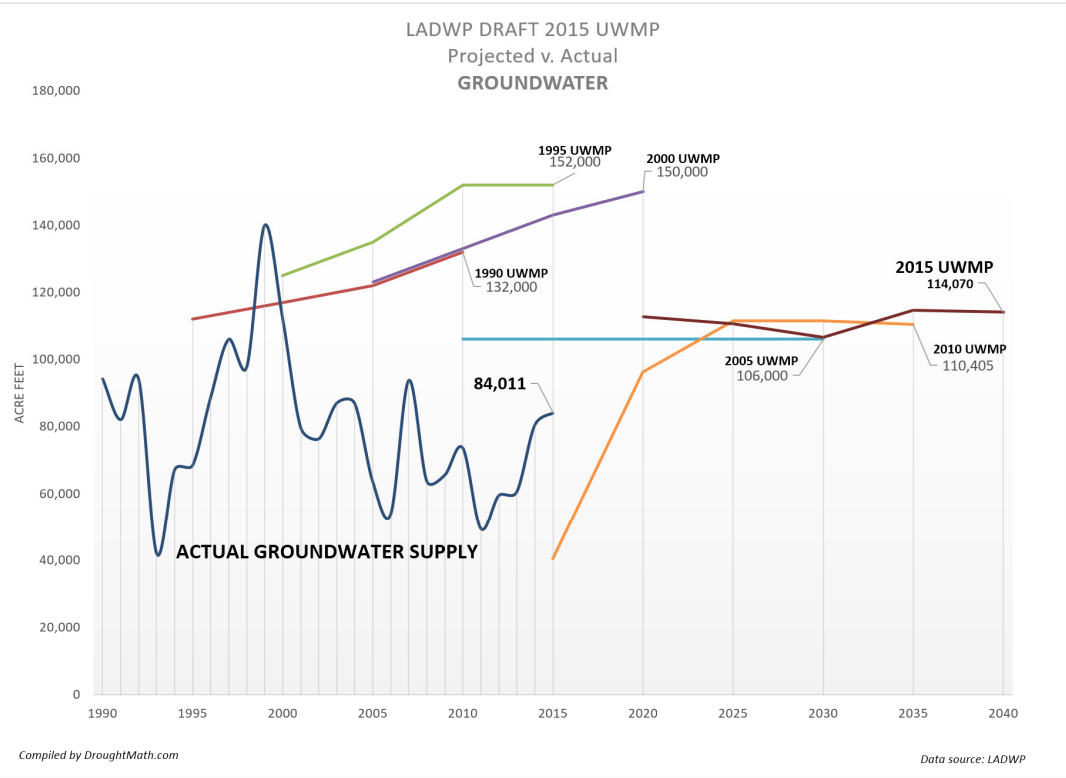



**Figure 5 - Domestic Groundwater** - For decades the LADWP has told planners that it will have over 100,000 acre-feet of groundwater which will be sufficient for future growth. It never came.

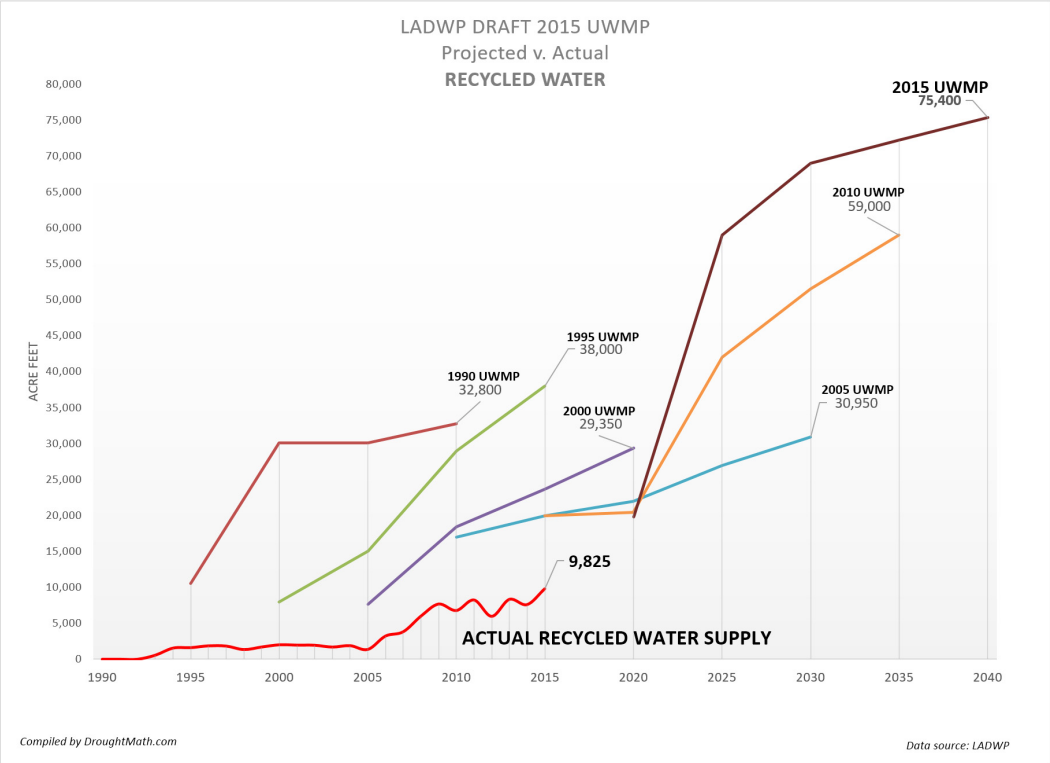



**Figure 6 - Recycled Water -** For decades EIR's have cited LADWP projections telling planners that there will be an abundant supply of recycled water ranging from 30,000 to 59,000 acre-feet. The department hasn't even met its 1990, 1995, 2000, or 2005 promises.

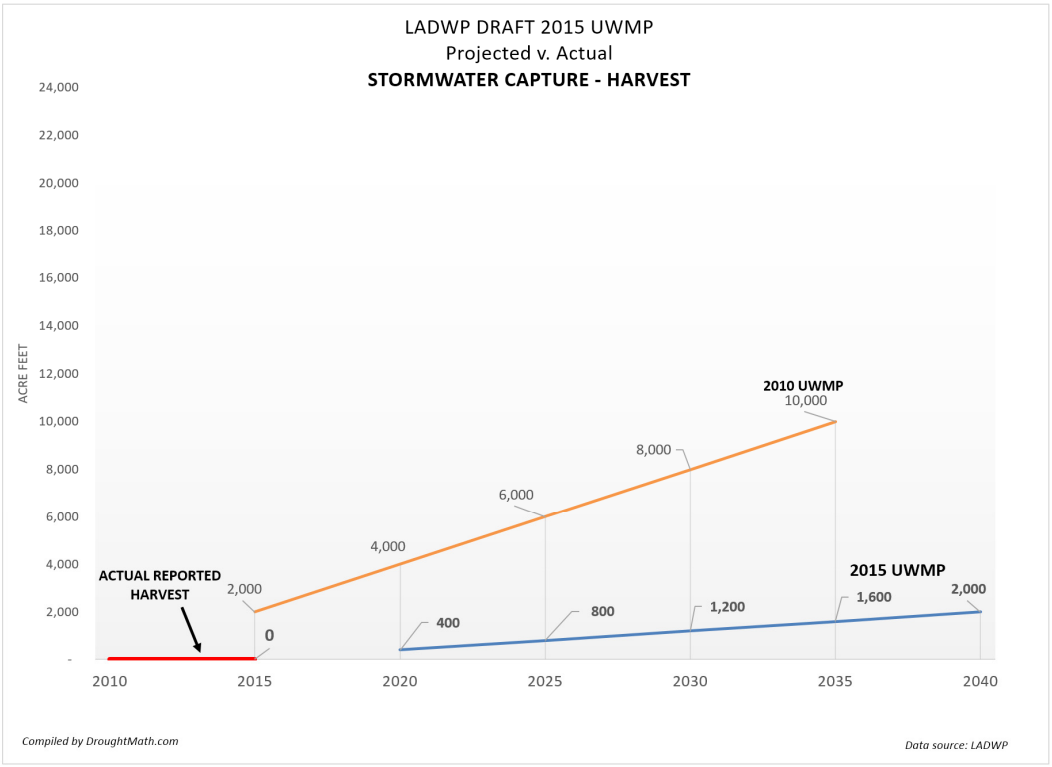



**Figure 7 - Harvest (Rain Barrels & Cisterns)** - In the most recent UWMP's, the department had to invent new categories of water that can't be considered a supply because it never enters the departments water supply and it can't be measured.

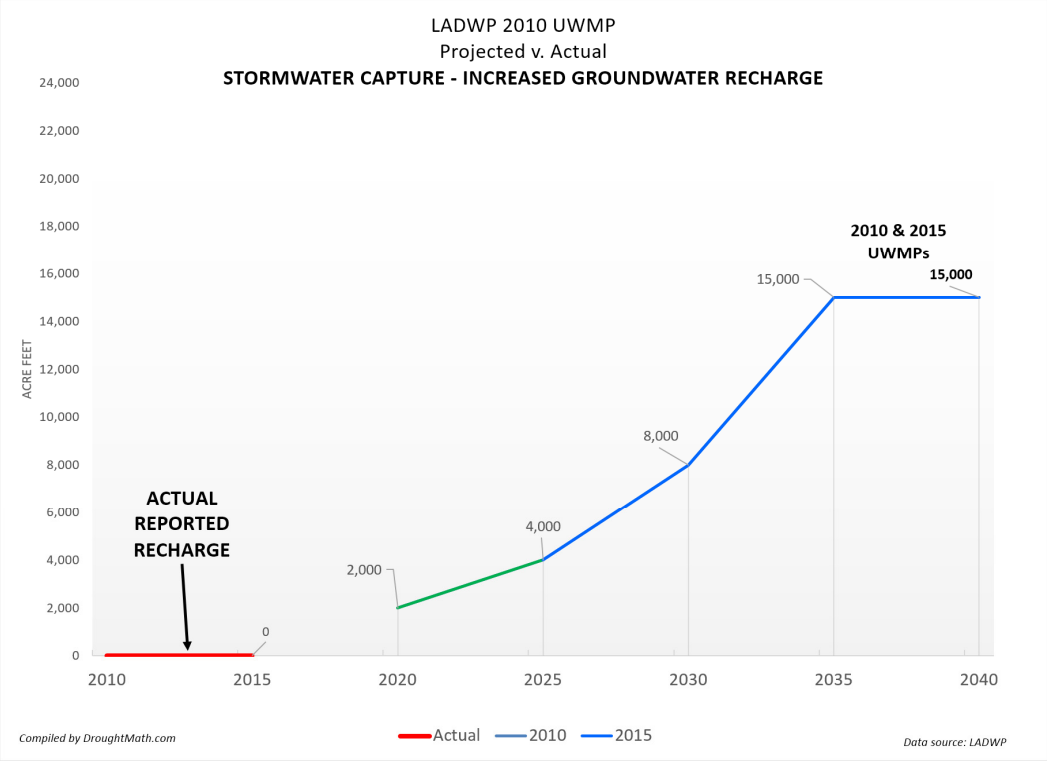



***Figure 8 - Recharge (Indirect Potable Reuse)*** - Some of the LADWP's new categories of water may not result in increases of water. The efforts to recharge the basin are likely being made to stem further losses of groundwater.

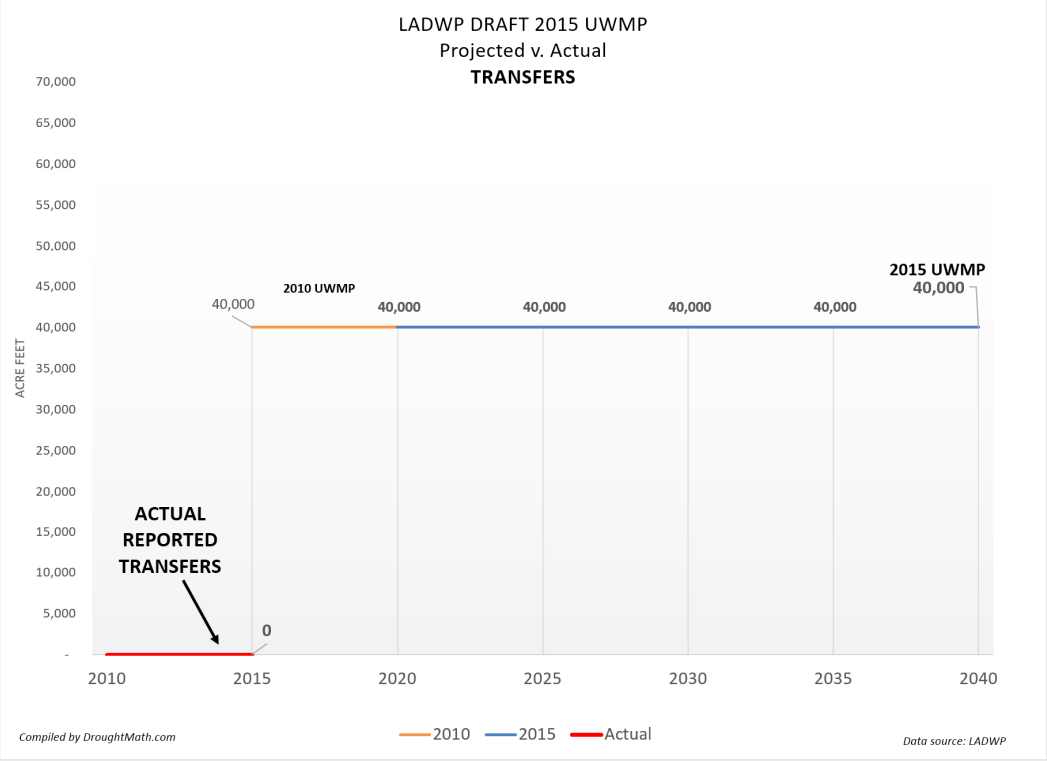



***Figure 9 – Transfers*** - The LADWP told planners that 40,000 acre-feet of 'Transfer' water would be available for the supply projects they were evaluating starting in 2015. It never came.

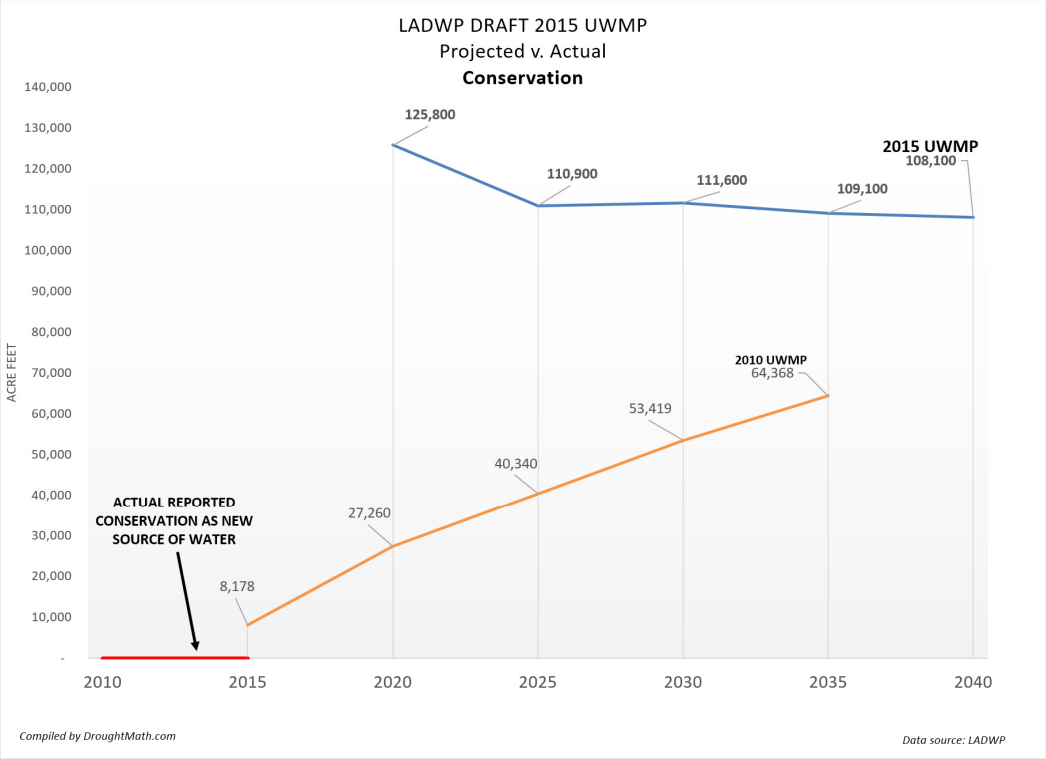



***Figure 10 - Conservation – Project v. Actual Deliveries*** - The LADWP told planners that 8,178 acre-feet of water would be available by 2015 to the supply projects they were evaluating. It never came. The city has had to double-down on conservation just to get by.

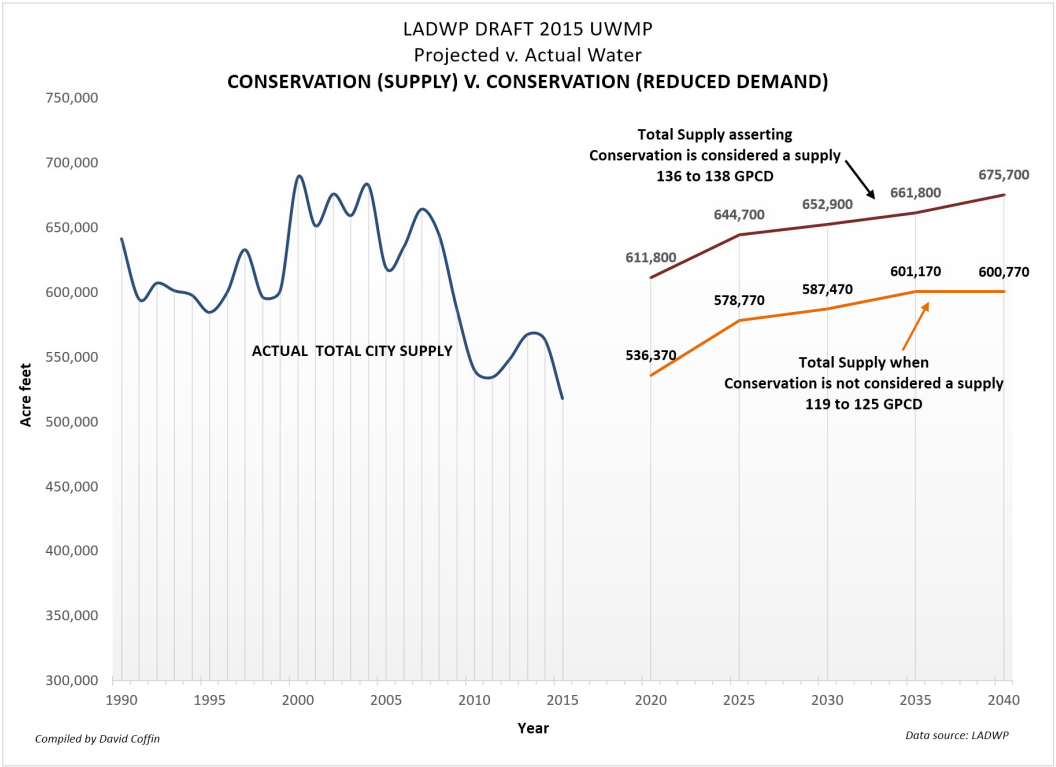



***Figure 11 - Conservation – Lowered Baseline V. Paper Water*** - To preserve the appearance of sufficient future supplies without having to acknowledge that seriously difficult conservation efforts would be needed, the department calls conservation a supply. If the conservation targets are not met, the real result is a much smaller supply than the department is willing to admit to.

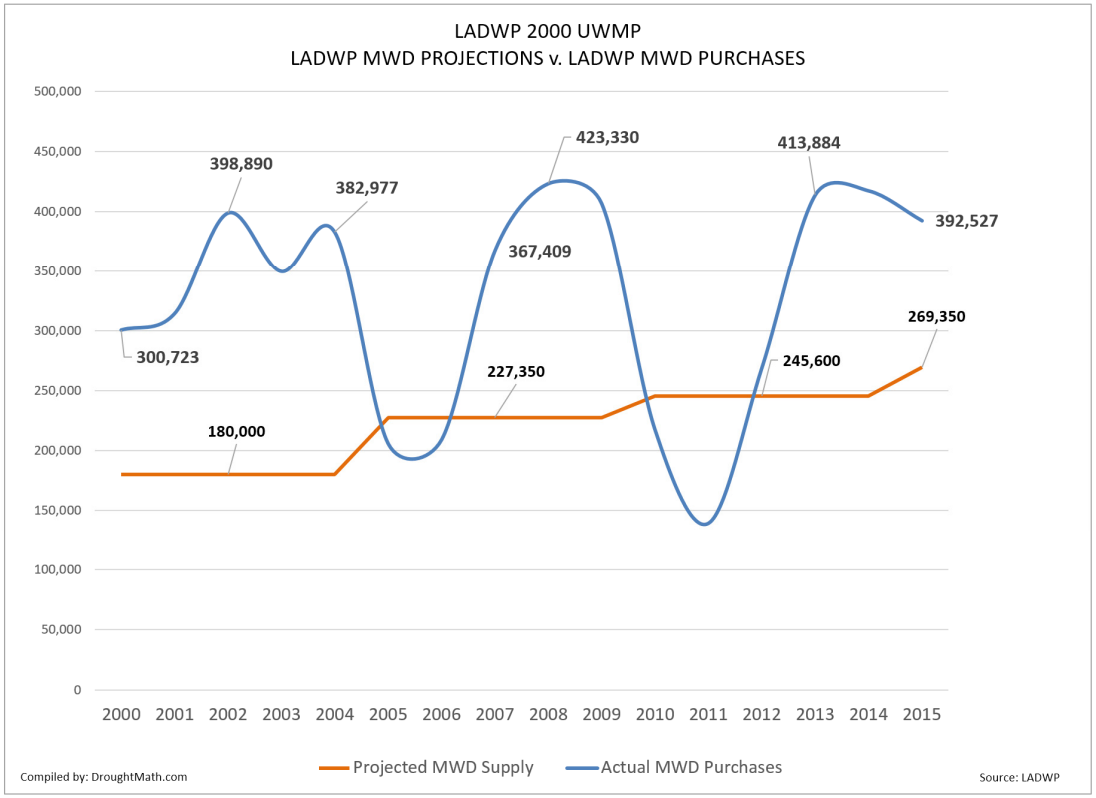



***Figure 12 - Projected MWD Purchases v. Actual MWD Purchases*** - The LADWP consistently low-balls MWD projections. When the department fails to meet it stated goals, it has to purchase large amounts of MWD water. The 2015 UWMP takes this practice to new lows at just 60,630 acre-feet per year.

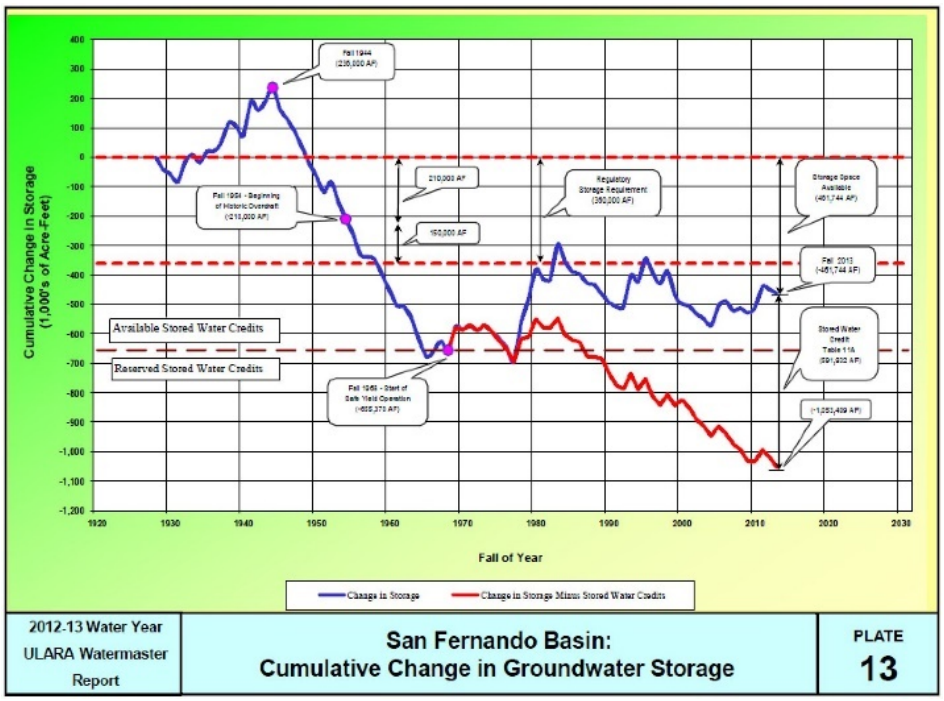



***Figure 13 - Change in Groundwater Storage*** - *The groundwater recharge category is less about attempting to find 'new water' and more about trying to stem the losses of old water in the San Fernando Basin.*

**Closing Comments**

In closing, the 2015 Draft UWMP is totally inadequate in its current form. It mischaracterizes the city's true water supply outlook and it should be revised using meaningful, measurable, achievable water supply projections that planners, developers, and residents can be assured the department can meet.

The LADWP's continuing reliance on 'paper water' to foster the perception of a growing water supply in its UWMP's will only further exacerbate the city's water shortage as it grows, makes Environmental Impact Reviews associated with developments within the city vulnerable to legal challenges and could potentially threaten the city's viability if the practice continues.

David Coffin
DroughtMath.com

[i] This analysis focuses exclusively on the Average Year assessments to keep it simple.

[ii] Show Me the Water Plan, Hanak, 2010

[iii] Water for Growth, Hanak, 2009 - http://www.waterplan.water.ca.gov/cwpu2009/index.cfm Vol 4, Reference Guide, Pg. 75.

[iv] The years 2013, 2014, & 2015 were excluded as they may not be necessarily 'average' years but instead outliers given the recent drought.

[v] The LADWP's claims to have access Harvested Water has no suitable provision for measurement identified in 'Methodologies Urban Per Capita Water Use' http://www.water.ca.gov/wateruseefficiency/sb7/docs/methodologies-urban-per-capita-water-use-10042010.pdf

[vi] 2012-13 ULARA Water Year Annual Report. Pg 2-32, 2-33, Plate 13. http://ularawatermaster.com/public_resources/WY-2012-13-ULARA-WM-Rpt-12-2014.pdf