

APPENDIX G
WATER SUPPLY ASSESSMENT



Long Beach Water Department

The Standard in Water Conservation &
Environmental Stewardship

KEVIN L. WATTIER, General Manager

DATE: March 9, 2009

TO: Mr. Scott Kinsey, Planner, City of Long Beach Development Services

FROM: Matthew P. Lyons, Director of Planning and Conservation

SUBJECT: Transmittal of Water Supply Assessment for Golden Shore Mixed Use Development

The Board of Water Commissioners approved, as required by law, the above-referenced water supply assessment on March 5, 2009. I have attached a copy of the assessment.

To maintain our high level of water reliability, it is important that you require the developer to build water conservation into the project. For example, the City should require:

1. Installation of only High Efficiency Toilets (HET, 1.28 gallons per flush or less, as opposed to standard 1.6 gallons per flush). This would reduce the development's demand for water by about 1 million gallons per year.

Developer will receive a \$30 rebate for each HET installed. The Renaissance Hotel recently installed 375 of these devices and was very impressed with their high quality. For more information go to <http://www.mwdsaveabuck.com>

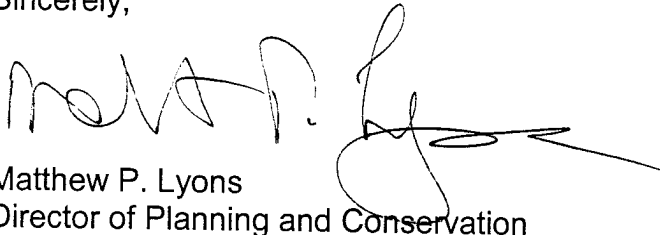
2. Installation of only Ultra-low flush or zero-water urinals (less than or equal to 0.25 gallons per flush). Developer receives a \$120 rebate for each of these devices installed. For more information go to <http://www.mwdsaveabuck.com>
3. Compliance with the State's "Model Landscape Ordinance" (MLO). The City will be required, as of January 2010, to enforce the MLO on new development, or enforce an ordinance at least as water-conserving. The City should require the developer of this large project to comply at this time; <http://www.owue.water.ca.gov/landscape/ord/ord.cfm>
 - a. Only water efficient irrigation equipment allowed.
 - b. Strict limits on the use of turf grass.
 - c. Strict limits on expected quantity of water required per square foot of landscape.
4. Consideration of cooling tower source water, as currently under consideration by One World Trade Center. Groundwater leaks into the

Mr. Scott Kinsey
March 9, 2009
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subterranean parking at One World Trade Center; this water is currently discharged into the storm drain system but the Center is on the verge of diverting the water into its cooling tower system (cooling tower consume prodigious amounts of water); the cost of the diversion project will roughly equal one year's worth of savings from reduced water and sewer charges and save about 6.5 million gallons per year.

Thank you for your support in promoting water conservation and helping to maintain our high level of water reliability. Please contact me if you have any questions regarding this matter.

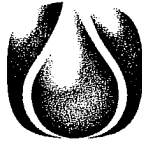
Sincerely,



Matthew P. Lyons
Director of Planning and Conservation

cc: Suzanne Frick, Assistant City Manager
Kevin L. Wattier, General Manager

Attachment



Long Beach Water Department
The Standard in Water Conservation & Environmental Stewardship

Board of Water Commissioners

KEVIN L. WATTIER, General Manager

March 5, 2009 Board Meeting

Subject:

Approve the Water Availability Assessment Prepared for the Golden Shore Mixed Use Development Pursuant to California Water Code Section 10910(g)(1).

Executive Summary:

California Senate Bill 221, effective January 1, 2002, mandates that approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. California Senate Bill 610, effective January 1, 2002, mandates that a water assessment must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in Water Code 10912(a)) subject to the California Environmental Quality Act.

Being the lead agency, the City of Long Beach requested a verification of sufficient water supply and a water supply assessment from the Long Beach Water Department (LBWD) for the Golden Shore Mixed Use Development (Project). Staff has determined that the Project is exempt from the requirement to develop the verification. Staff has completed the water availability assessment. Because the assessment concluded that the supply is sufficient, the water supply governing body (i.e., the Board of Water Commissioners) must approve the assessment before it can be delivered to the lead agency, per Water Code section 10910(g)(1).

Board Options/Fiscal Impacts

Option #1: Approve the Water Availability Assessment Prepared for the Golden Shore Mixed Use Development Pursuant to California Water Code Section 10910(g)(1).


Fiscal Impact: None.

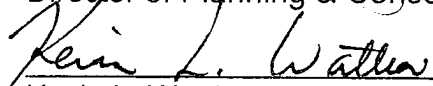
Option #2: Do not approve the water availability assessment.

Fiscal Impact: None.

Staff Recommendation

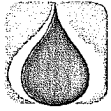
Option #1.


Matthew P. Lyons 2-26-09
Date
Director of Planning & Conservation


Kevin L. Wattier 2/27/09
Date
General Manager

APPROVED 3/5/2009
BOARD OF WATER COMMISSIONERS

Attachment



LONG BEACH WATER DEPARTMENT
The Standard in Water Conservation &
Environmental Stewardship

Water Availability Assessment
prepared for the
Golden Shore Mixed Use Development
Long Beach, California

Adopted by the
City of Long Beach
Board of Water Commissioners

March 5, 2009

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I. FINDINGS

The Golden Shore Mixed Use Development (“Project”) is exempt from the SB 221 requirement of an affirmative written verification of sufficient water supply (Government Code 66473.7) because it will be sited within an urbanized area that has been previously developed for urban uses. The Project is further exempt from SB 221 requirements because the immediate contiguous properties surrounding the proposed Project site are, or previously have been, developed for urban uses.

The Project is subject to the water assessment required by SB 610. Long Beach Water Department (LBWD) anticipates that it can provide sufficient domestic water supply to accommodate the Project. The projected water demand of the Project is within the 20-year water demand growth projected by LBWD’s current adopted 2005 Urban Water Management Plan (UWMP).

LBWD anticipates that its projected water supplies available during normal, single-dry, and multiple-dry water years as included in the 20-year projection contained in this assessment will meet the projected water demand associated with the Project, in addition to the existing and other planned future uses of LBWD’s system.

II. BACKGROUND

A. SB 221 & SB 610 BACKGROUND

Effective January 1, 2002, California Senate Bill 221 and Senate Bill 610 amended Section 21151.9 of the Public Resources Code and Sections 10631, 10656, 10910-12, 10915 of the Water Code and Section 11010 of the Business and Professions Codes, and Sections 65867.5 of the Government Code as well as adding Sections 66455.3 and 66473.7 to the Government Code. The Senate Bills were designed to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 221 and SB 610 are companion measures which seek to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. Both statutes also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Both measures

recognize local control and decision making regarding the availability of water approval of the projects.

SB 221 conditions approval by a city or county of certain residential subdivisions on an affirmative written verification of sufficient water supply. SB 610 requires a water assessment to be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in Water Code 10912(a)) subject to the California Environmental Quality Act.

LBWD prepared this water supply verification and availability assessment for the proposed Project in Long Beach, California, LBWD is the public water agency that will service the Project.

B. GOVERNING BODY APPROVAL REQUIRED

If the assessment concludes that the supply is sufficient, the water supply governing body must approve the assessment and deliver it to the lead agency (per Water Code section 10910(g)(1):

(g)(1) ...the governing body of each public water system shall submit the assessment to the city or county no later than 90 days from the date on which the request was received. The governing body of each public water system shall approve the assessment prepared pursuant to this section at a regular or special meeting.

LBWD received a request from Scott Kinsey, Planner, City of Long Beach Development Services, to conduct the assessment on February 10, 2009. Therefore, the assessment must be submitted to Mr. Kinsey by May 11, 2009.

C. GOLDEN SHORE MIXED USE DEVELOPMENT IS DEFINED AS A SUBJECT "PROJECT"

SB 221 defines the Project as a "subdivision," as defined by SB 221's Government Code 66473.7(a)(1), as having more than 500 units when the public water system has more than 5,000 services. But the Project is exempt from SB 221 requirement of an affirmative written verification of sufficient water supply (Government Code 66473.7) because it will be sited within an urbanized area that has been previously developed for urban uses. The Project is further exempt from SB 221 requirements because the immediate contiguous properties surrounding the proposed Project site are, or previously have been, developed for urban uses.

A development is defined in SB 610 as a "project" by Water Code 10912(a) and (b) if it meets any of the following, in Table 1, below.

Table 1 - SB 610 Criteria – i.e., What qualifies as a “Project”

	SB 610 Threshold	Dwelling Unit Equivalents
SFR or MFR	500 dwelling units	
Shopping center or business	1,000 employees or 500,000 sf of floor space	2.0 employees = 1 DU 1,000 sf = 1 DU
Commercial office building:	1,000 employees or 250,000 sf of floor space	2.0 employees = 1 DU 500 sf = 1 DU
Hotel or motel	500 rooms	1.0 room = 1 DU
Industrial, manufacturing, or processing plant, or industrial park	1,000 persons or 650,000 sf of floor space or 40 acres of land	2.0 persons = 1 DU 1,300 sf = 1 DU 0.080 acres = 1 DU
A mixed-use project that includes one or more of the projects specified above		
A project that would demand an amount of water equivalent to, or greater than the amount of water required by a 500 dwelling unit project.		

The Project is described as follows:

“The 5.87-acre project site is located in the Downtown Shoreline area of the City of Long Beach and is bounded by Ocean Boulevard to the north, Shoreline Drive to the west and south, and parking lots associated with Arco Center to the east, with Golden Shore transecting the site from north to south. The proposed project includes two development options, a Residential Option and a Hotel Option. However only one option would be ultimately constructed based on market conditions prevailing at the time entitlement is complete. Under the Residential Option, development would include 1,370 condominiums, an estimated 373,541 square feet of office/retail space, approximately 3,552 parking spaces.

Under the Hotel Option, development would include 1,110 condominiums, a 400-room hotel, approximately 373,541 square feet of office/retail space, approximately 3,637 parking spaces...” (page 1, Notice of Preparation of Draft Environmental Impact Report, dated 11/26/08.)

Both options are subject to CEQA and are defined as a “project” by SB 610 -- Water Code 10912(a) and (b) because their expected demand is equal to or greater than 500 dwelling units (see Table 2).

Using the equivalent factors in Table 1, we find the Hotel Option is estimated to have a greater water-use requirement than the Residential Option. Therefore, the balance of this paper will address the Hotel Option; that is, if it is shown there are sufficient supplies to meet the need of the Hotel Option, than there will necessarily be sufficient supplies to meet that of the Residential Option.

Table 2 - Compare Both Options’ Relative Demand for Water

	Residential Option	Hotel Option
Office/ Retail Space (sf)	373,541	373,541
SF of space equivalent to one dwelling unit*:	500	500
Estimated Equivalent Dwelling Units	747	747
Condominiums	1,370	1,110
Hotel Rooms	-	400
Total Housing Units	1,370	1,510
Total Dwelling Unit Equivalent	2,117	2,257

* Assume the project is 100% commercial office, which, according to Table 1, requires twice the water of retail outlets per square foot of space.

D. LBWD IS THE RESPONSIBLE AGENCY FOR PREPARING SB 610 ASSESSMENT

Because LBWD will provide domestic water to the site, and because LBWD is a public water system of over 3,000 service connections, LBWD is responsible for performing the SB 610 assessment.

E. AN SB 610 WATER SUPPLY ASSESSMENT HAS NOT PREVIOUSLY BEEN PERFORMED FOR THE PROJECT

Because an SB 610 assessment has not previously been performed on the Project, one must be prepared within 90 days of a request for an assessment.

F. LBWD HAS A CURRENT ADOPTED UWMP

If the public water system has a current adopted Urban Water Management Plan (UWMP), it may rely on data in the UWMP for much of the information required in the SB 610 assessment. UWMPs are completed every five years; the last plan being completed by LBWD in 2005. LBWD has a current adopted 2005 UWMP and used the data from that plan in this assessment.

G. PROJECT'S PROJECTED DEMAND FOR WATER

Table 3 estimates Project's water demand based on the Hotel Option. This estimate is based on the eventual build-out of the project. The estimate shows the "Expected Water Demand" and, because the Project will be replacing existing urban users of water, this table also shows the "Net Increase in Water Demand", which is the difference between the Project's water demand and the site's pre-existing demand.

Table 3 – Project's Estimated Annual Water Demand

Land Use	Demand Factors			Project Demand	
	Millions of Square Feet	Dwelling Units	AF / Unit / Yr		
DWR Assumption**		500	0.50 per DU	250.0 af/yr	% of Total
		500	0.30 per DU	150.0 af/yr	
Single-Family Housing		-	0.30 * per DU	0.0 af/yr	0%
Multiple-Family Dwelling Units		1,110	0.25 * per DU	276.4 af/yr	66%
Hotels/ Motels		400	0.14 ^ per DU	57.2 af/yr	14%
Commercial/ Retail Uses	-		224.00 per 1 mil SF ~	0.0 af/yr	0%
Office Uses	0.374		224.00 per 1 mil SF	83.7 af/yr	20%
Expected Water Demand				417.3 af/yr	af/yr
Annual Previous Water Demand (average of CY 2006 & CY 2007)				-13.8 af/yr	af/yr
Net Increase in Water Demand				403.5 af/yr	af/yr

* Based on average use in Long Beach.

^ Based on average use of large hotels in Long Beach.

~ Based on LBWD Comprehensive Sewer System Master Plan and Management Program.

** "Note: In determining whether a project would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project, it is generally acknowledged that one acre-foot of water can serve two to three households on an annual basis; therefore, one dwelling unit typically consumes .3 to .5 acre-feet of water per year, depending upon several factors, including the regional climate." (DWR Handbook, page 3).

H. PROJECTED WATER DEMAND FOR THE PROJECT WAS ACCOUNTED FOR IN THE MOST RECENT UWMP.

LBWD did not articulate specific development projects in its 2005 UWMP; but factored in their expected demand by projecting increases in factors influencing demand, such as increases in housing, population, and employment.

Eighty-percent of the demand of the Project will be from multi-family units and hotel rooms, the balance from commercial space. The 2005 UWMP projected water demands based on a number of factors, including an increase in multi-

family housing from 89,703 units in 2005 to 112,716 units by 2030, or a total increase of 23,013 units. The Project, by adding 1,510 units, accounts for just seven-percent of the new water demand from multi-family housing accounted for in the most recent adopted UWMP.

The 2005 UWMP water demand forecast took growth in commercial/retail square footage into consideration, indirectly, by projecting an increase in water demand based on an increase in total employment, projecting an increase from 200,200 in 2005 to 244,400 jobs by 2030, an increase of 44,200 jobs. The Project's commercial space represents only about three-percent of this projected increase, or about 1,498 jobs (373,541 sf x's [DWR's equivalent of 1000 employees per 250000 square feet]).



III. WATER DEMAND, SUPPLY AND RELIABILITY

LBWD's total projected water supplies and demands during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand of the Project, in addition to LBWD's existing and planned future uses, including agricultural and manufacturing uses. LBWD's water supply and demand projections are documented in its 2005 UWMP, which is incorporated into this analysis by reference.

The demand for domestic water in Long Beach is met with a combination of groundwater and of surface water imported and treated by the Metropolitan Water District of Southern California (MWD). LBWD has a right to both of these sources of water.

A. SUPPLEMENTAL WATER SUPPLY

MWD is the "supplemental" supplier of water for LBWD and the other 25 MWD member agencies that supply water to the 18 million people of the southern California coastal-plain. Therefore, if retail demand for water in Long Beach increases, more water is purchased wholesale from MWD; if retail demand is reduced, less water is purchased wholesale from MWD.

Due to its significant investments and long-term planning, MWD in its 2005 Regional UWMP expects to fulfill its obligations as the supplemental supplier, by being 100-percent reliable through the year 2030. According to MWD's 2005 RUWMP, Section II.3 and II.4:

These tables (Table II-7 and Table II-8) show that the region can provide reliable water supplies under both the single driest year and the multiple dry year hydrologies. Table II-9 reports the expected situation on average over all of the historic hydrologies. Appendix A-3 contains detailed justifications for the sources of supply used for this analysis. The reliability analyses in the IRP Update report showed that Metropolitan can maintain reliable supplies under the conditions that have existed in past dry periods throughout the period 2010 through 2025. As the tables provided below (Table II-7, Table II-8 and Table II-9) show, that level of reliability extends through 2030. Metropolitan has also identified buffer supplies, including additional SWP groundwater storage and transfers that could serve to supply the additional water needed.

Through effective management of its water supply, Metropolitan fully expects to be 100 percent reliable in meeting all non-discounted non-interruptible demands throughout the next twenty-five years.

LBWD has a right to the imported drinking water it expects to purchase wholesale from the MWD. This entitlement is embedded in State law and comes in the form of a preferential right to MWD supplies except during times of extreme emergencies. Section 135 of the Metropolitan Water District Act states:

Sec. 135. [Preferential Right to Purchase Water] Each member public agency shall have a preferential right to purchase from the district for distribution by such agency, or any public utility therein empowered by such agency for the purposes, for domestic and municipal uses within the agency a portion of the water served by the district which shall, from time to time, bear the same ratio to all of the water supply of the district as the total accumulation of amounts paid by such agency to the district on tax assessments and otherwise, excepting purchase of water, toward the capital cost and operating expense of the district's works shall bear to the total payments received by the district on account of tax assessments and otherwise, excepting purchase of water, toward such capital cost and operating expense.

The MWD recalculates each of its member agency's preferential rights on an annual basis. According to the June 2008 calculation, LBWD's rights to MWD imported water are as follows:

Table 4 - Calculation of Preferential Rights

LBWD's Preferential Rights as a Percent of MWD's Imported Water	2.51%
Minimum MWD Supplies even in the most severe and prolonged hydrologic conditions*	1,500,000 af / year
LBWD's Preferential Rights	<u>37,650 af / year</u>

* MWD dry-year supplies would include imported water, stored water, water purchased on the spot market, etc.

The previous calculation assumes what experts believe is the absolute minimum supplies MWD could have available for its wholesale customers during a worse-case scenario of very harsh hydrological conditions that limit

imported water supplies over a long period of time. It is not expected that MWD's supplies will ever fall to this level.

The amount of water represented by LBWD's Preferential Rights, as shown above, exceeds the demand for water on the LBWD during these conditions.

In-Lieu Water Supplies: LBWD does not always pump its annual pumping rights. Some years it participates in a voluntary program to "retire" pumping rights for the sake of replenishing the groundwater basin. In exchange for using its pumping rights to replenish the groundwater basin, the Water Replenishment District of Southern California (WRD) provides a financial incentive and the MWD allows LBWD to purchase replacement water at a discount. LBWD expects to continue to participate in this worthwhile and cost effective program in the future. However, because this in-lieu program depends on both the availability of surplus MWD imported supplies and WRD in-lieu replenishment incentives, LBWD does not include the in-lieu program in its future projections.

B. GROUNDWATER SUPPLY

A portion of LBWD's water supply to the Project will be treated groundwater. The location of the groundwater pumped by the LBWD is the Central Basin aquifer. A description of the Central Basin is included in the Watermaster Services annual report, a copy of which is in the Appendix. This basin was adjudicated in 1965. The adjudication limits the amount of water allowable to be extracted in any given year from the basin and assigns the right, or "Allowable Pumping Allocation" or APA, to extract that water to specified parties. The specified parties have the right to sell and to lease some or all of their APA. LBWD was awarded certain APA rights at the time of the adjudication and has purchased additional APA since that time, accumulating 32,684 acre-feet APA per year as of the date of this assessment.

Because the sum total of all the water that can be legally extracted from the Central Basin in a given year (i.e., the total APA) exceeds the basin's natural yield, the adjudication specified that the Water Replenishment District of Southern California (WRD) (known at the time of the adjudication as the *West and Central Basin Replenishment District*) would be the responsible agency for replenishment of the Central Basin. WRD replenishes the groundwater basin in several ways, including a spreading operation and through in-lieu replenishment. The adjudication provided WRD a means to finance the replenishment operations by allowing it to levy a tax on water extracted from the basin.

The Central Basin had been in an overdraft condition prior to 1965; since the imposition of adjudication's extraction limitations and the replenishment

operations of the WRD, the groundwater basin has recovered significantly from its pre-1965 levels. Additional information about the replenishment operations and condition of the groundwater basin can be found in the 2005 UWMP. This document includes a description of the groundwater basin, the water demands for the cities overlaying the basin, a list of the owners of water rights, a discussion of the replenishment operations, the active wells and their locations, as well as information concerning the current and historic water levels.

LBWD extracts groundwater only from the Central Basin. It is reasonable to assume that LBWD will encounter no difficulties extracting this groundwater over the next 20 years, for the following combination of factors:

- The Central Basin adjudication prevents over-drafting by imposing strict limits on groundwater extraction,
- The adjudication has imposed upon WRD the mandate to provide for the continual replenishment of the basin,
- WRD has fulfilled this mandate well, increasing the amount of water stored in the basin since the time of the adjudication, and
- WRD is expected to continue to maintain the groundwater level in the basin in the future, given its mandate and access to resources through the fee it imposes whenever water is extracted.

Table 5 shows the amount of water extracted from the Central Basin by the LBWD for each of the last ten fiscal years.

Table 5 – LBWD Groundwater Extractions

		Fiscal Year Ending Sept 30...									
		1999	2000	2001	2002	2003	2004	2005*	2006	2007	2008
Acre-feet Extracted		23,397	24,582	24,326	25,803	23,003	25,639	25,955	25,107	25,753	33,671

* Estimate used in the 2005 UWMP

C. DOCUMENTING SUPPLIES IF SUPPLIES NEVER BEFORE USED

The supplies expected to be used by the Project have been used in the past with the exception of, potentially, water from projects the MWD anticipates implementing in the future to meet additional demands placed upon it. MWD in its 2005 RUWMP provides the requisite documentation. The other possible source of supply would be from seawater desalination as documented in the

LBWD 2005 UWMP. Seawater desalination developed in Long Beach within the timeframe currently projected is not material to LBWD’s ability to supply water to the existing nor planned/projected demands because the MWD considered supply development uncertainty in the development of its Integrated Resources Plan and RUWMP. The supply buffer “over plans” for the development of water projects knowing that a certain percent will not materialize within the timeframe first anticipated.

D. WATER DEMAND

Table 3 shows the water-demand projections of the Project. As stated above, because the type of development such as the proposed development was included as part of the projected water demand of the current adopted 2005 UWMP, the water demand for the proposed development need not be separately analyzed.

POPULATION

Population effects demand for water; the greater the population the greater the water demand. The 2005 UWMP projected growth in Long Beach population and used those projections, in part, to project demand for water. The actual population growth is turning out to be much less than projected. The additional housing represented by the Project will make up for just a fraction of this lack of growth. Table 6 shows that the actual population by 2010 is likely to be about 10,000 less than that projected in the UWMP. In other words, population-driven demand for water, even with the Project, will be less than anticipated in the UWMP.

Table 6 –Population Less Than Projected

	2005 UWMP	Actual, Jan 1; from Cal Dept of Fin	Actual Ave Annual Inc	Revised Projection	Reduction in Population Estimate
2004		487,305			
2005	490,100	488,688	0.3%		
2006		490,166	0.3%		
2007		490,193	0.0%		
2008		492,642	0.5%		
2009			0.3%	493,986	
2010	506,100			495,334	10,766
2015	521,500			502,128	19,372
2020	536,600			509,016	27,584
2025	551,000			515,998	35,002
2030	564,900			523,075	41,825

CLIMATE

Long Beach is an urban coastal community within the southern California coastal plain. As such it has a temperate “Mediterranean” climate distinguished by wet winters and dry, warm summers. The average annual rainfall for the region is approximately 14 inches but fluctuates between less than 4 inches and greater than 35.

PROJECT ELIMINATES SITE’S PREVIOUS DEMAND

By water industry standards Long Beach is considered a “built out city;” meaning there is little undeveloped land and that new development will almost always be in the form of in-fill or replacement of existing development. Therefore, some of the water demanded by the new development tends to replace the previous demand at the site; that is, all the water needed by the development is not “new demand” on the system. See Table 2, above, for an estimate of the net new demand for water.

Based on the population estimates and other factors, the 2005 UWMP estimated potable and reclaimed water use by sector:

Table 7 – Water Demand By Sector (as reported in Table 12 of 2005 UWMP)

Years	Acre-feet of Demand*							Total
	Single Family	Multi Family	Com-mercial	Industrial	Insttit /gov	Land-scape	Agric	
2000	24,268	25,351	11,595	3,428	3,898	3,118	-	71,65
2005	25,435	26,570	12,153	3,593	4,086	3,268	-	75,10
2010	27,026	28,231	12,912	3,818	4,341	3,472	-	79,80
2015	27,601	28,832	13,187	3,899	4,433	3,546	-	81,50
2020	28,516	29,788	13,624	4,028	4,580	3,664	-	84,20
2025	28,990	30,283	13,851	4,095	4,656	3,725	-	85,60
2030	29,329	30,637	14,013	4,143	4,711	3,768	-	86,60

* Includes recycled water but not seawater barrier water.

E. DRY YEAR SUPPLIES

LBWD’s dry-year supplies and demands are well documented in its 2005 UWMP and are incorporated into this document by reference. LBWD has two sources of domestic water: groundwater and imported MWD supplies, and expects to be desalinating seawater in less than ten years. The desalinated

seawater is not factored into this assessment because, as shown below, the combination of reliable groundwater and of imported potable water (which incorporates the concept of a supply buffer) and LBWD's preferential right to that imported water provide for a very reliable water supply.

Both the groundwater and the MWD supplies are reliable in normal and in multiple dry years as the following discussion makes clear. As documented in the 2005 UWMP, the total projected water supplies available during normal, single dry and multiple dry-years, during a 20-year projection of water demand associated with the proposed project, in addition to the LBWD existing and planned future users, including agriculture and manufacturing uses, are adequate.

1. Groundwater Reliability

The groundwater supplies are extremely reliable because the amount of water stored in the basin is very significant; because the basin is adjudicated (limited extractions), and because the WRD is charged with replenishing the basin in a timely manner. Therefore, the groundwater supplies are not expected to be limited by single nor multiple dry-year events.

The average annual rainfall in the LA basin over the last 125 years is 14.97 inches per year. If a "dry year" is considered 13 inches or less, a fairly conservative number, there have been only three events of 4 or more dry years in a row during this period: the four years including 1928 through 1931; the seven years including 1945 through 1951; and the five years including 1987 through 1991.¹

For the purposes of the assessment of the impact of four consecutive dry years, the most useful period was the most recent, from 1987 through 1991. The two previous dry-year periods took place before the groundwater basin was adjudicated; before there was a systematic means of replenishing the groundwater basin, and before good records of the water table elevations were available.

The five-year 1987 through 1991 drought was more severe than the 4-year analysis required in the assessment, yet a reduction in groundwater production was not required and the water table remained above the pre-adjudication level in each of the four monitoring wells tracked by the Watermaster (see the Appendixed *Watermaster Service*, page 26).

¹ These "years" began on July 1 and ended June 30th of the year noted. For example, the year "1928" began July 1, 1927 and ended June 30, 1928.

2. MWD Water Reliability

As noted in its current Regional Urban Water Management Plan, due to its significant investments and long-term planning, MWD expects to fulfill its obligations as the supplemental supplier, by being 100-percent reliable through the year 2030 (see the reference in Section III.A, above) This report anticipates multiple dry year events. Additionally, as noted elsewhere, LBWD has a preferential right to more of MWD’s supplies that will be needed by LBWD in a shortage.

3. Additional Water Reliability

In addition to its existing groundwater and MWD supplemental supplies, LBWD is working to increase its recycled water distribution system; is aggressively expanding its water conservation program; is developing a regional framework that allows for increased storage and extraction from the groundwater basin; and is planning to begin desalinating seawater for public consumption on or about the year 2015.

F. DRY YEAR DEMAND

The average annual rainfall in Long Beach during the 30-year period 1975 through 2005 is 12.74 inches (Table 8). The long-term average in Los Angeles during the 127-year period 1878 through 2005 is 14.94 inches. The average annual population increase in Long Beach has been about 1.1-percent (1.1%) per year, yet the average annual increase in potable water demand has just been 0.1-percent (0.1%).

Table 8 – Selected Annual Averages

Average Annual:

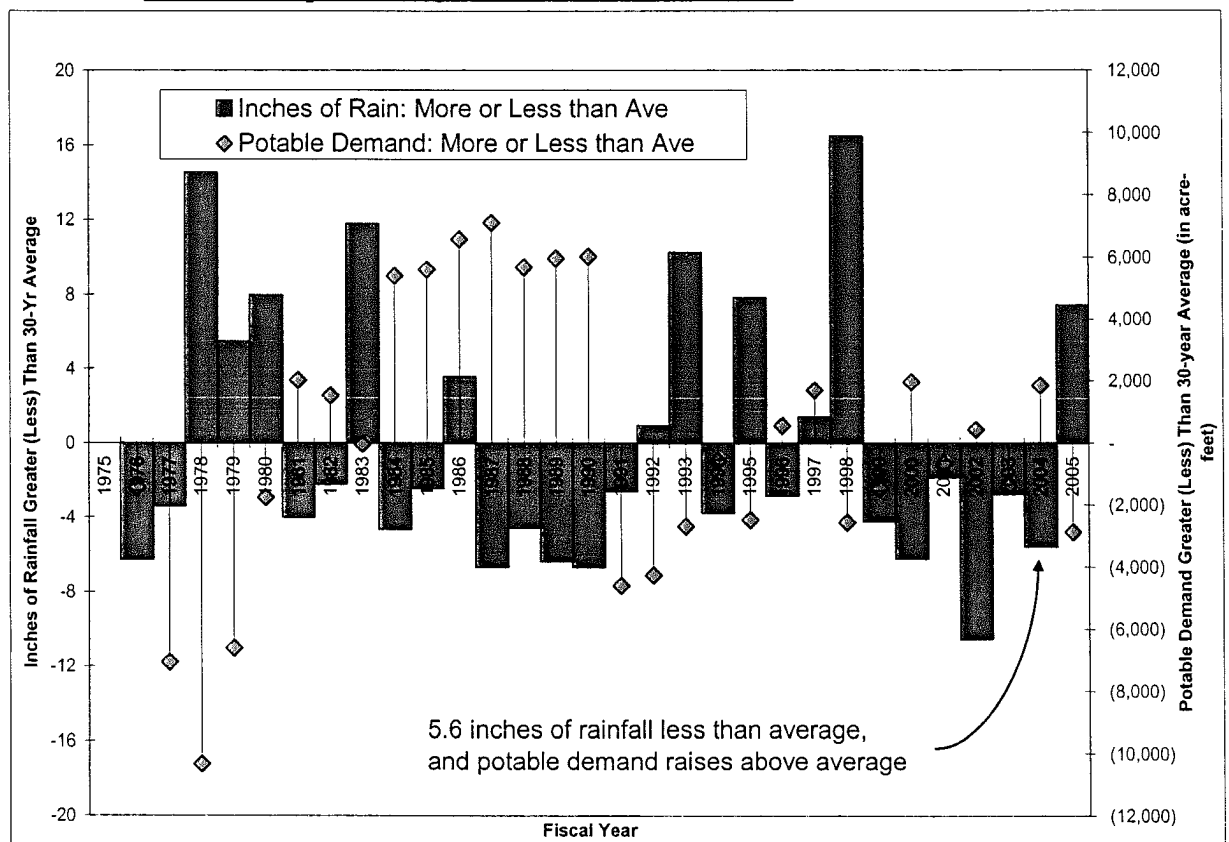
12.74	:Average annual Rainfall in Long Beach over 30-year period beginning 1975, in inches
14.94	:Annual Average Rainfall in LA since 1878, in inches
1.1%	:Annual average Population Increase in Long Beach
0.1%	:Annual average Potable Water Demand Increase

During this thirty-year period, demand for water decreased by about 227 acre-feet per year for every one inch of rainfall, but this is only an average. The expectation is that when rainfall is less than average, demand will be greater than average. As Chart 1 shows, that was not always the case during this 30-year period; highlighting the fact that making predictions about demand during dry periods comes with a lot of uncertainty. There have been three 2-year

periods of less than average rain, one 5-year period, and one 6-year period during these 30-years.

- 2 dry years 1976-77: demand below average
- 2 dry years 1981-82: demand above average
- 5 dry years 1987-91: demand above average until the last year of the drought, when demand fell below average.
- 6 dry years 1999-2004: Demand fluctuated above and below but near the average

Chart 1 – Impact of Dry Years on Potable Demand



There was a big shock to the water supply systems in the late 1980's and early 1990's, when southern California experienced a drought and water supply shortage. Since that time water conservation and the use of reclaimed water have greatly expanded. These two trends very likely explain why, during six years of less than average rainfall beginning in 1999, demand for potable water was only slightly up some years and slightly down in others.

Unlike the past, a lack of rainfall is no longer a good predictor of increased demand for potable water. If we just look at the years prior to the water shortage of the early 1990's, we probably would have assumed that demand increases with the first dry year and stays at about the same level throughout the drought. That is, whether a single dry-year or a multiple dry-year event, demand would remain about the same higher-than-average level. Since the 1990 shortage, it looks like the swings in demand have been dampened and dry-year conditions are no longer good predictors of changes in demand. As shown on Table 8, demand was less than average in four of the eight dry years since the 1990's drought. Chart 1 shows that demand rose above the average in years subsequent to the early 1990's only when rainfall was about 7 inches or less (the average being about 13 inches of rainfall). There have only been 14 instances of 7.1 inches of rain or less since 1878; and only 2 sets (of 2 years each) were consecutive. Therefore, it would appear that multiple dry years of the type that increase demand on potable water are infrequent and rarely happen consecutively.

In conclusion, predictions of the impact of dry years on demand for potable water come with a great deal of uncertainty.

Dry year supplies and demands are discussed in the 2005 UWMP. But looking at the recent 6-year multiple dry-year period, we say that annual potable demand averaged just 123 acre-feet above the 30-year average demand, even as the population of Long Beach increased significantly. If we look at just the three-in-six years where demand was above the 30-year average, we see that it represented an average increase of 1,408 acre-feet (the trend was not one of increasingly higher demands as the dry period persisted). The worst-case scenario of this new post-1990's shortage demand profile would be when demand is higher in each of the dry years of a multiple dry-year period by the average of these high demand years: 1,408 acre-feet.

When dry-year demands are average, these increases are accommodated in several ways. Per the Central Basin judgment LBWD has rights in the groundwater basin to store in excess of 6,000 acre-feet, or more than four times the increased demand (1,408 acre-feet). Additionally, as stated above, MWD has assured its member agencies (such as Long Beach) that it can meet projected water demands for the next twenty years.

G. CONCLUSION

Table 9 shows the 2005 UWMP's water demand projections and how those demands will be met. *(Shown beginning in 2010 is seawater desalination; this supply will not likely come on-line until approximately 2015 and, as shown in*

Table 10, below, it is not necessary given the reliability of groundwater supplies, and Preferential Rights. It will be prudent to consider developing cost-effective seawater desalination supplies in subsequent years.)

Table 9 – Water Supply – from 2005 UWMP

Fiscal Year	1985	1990	1995	2000	2005*	2010	2015	2020	2025	2030
Groundwater	25,749	28,090	16,625	24,582	25,955	32,684	32,684	32,684	32,684	32,684
Dealinated Seawater**						5,000	10,000	10,000	10,000	10,000
Wholesale - MWD	48,951	47,028	49,997	46,475	43,939	35,658	30,758	31,912	30,488	29,516
Potable^	74,700	75,118	66,622	71,057	69,894	73,342	73,442	74,596	73,172	72,200
Reclaimed	2,471	3,992	2,992	5,190	5,210	6,458	8,058	9,604	12,428	14,400
Grand Total	77,171	79,110	69,614	76,247	75,104	79,800	81,500	84,200	85,600	86,600

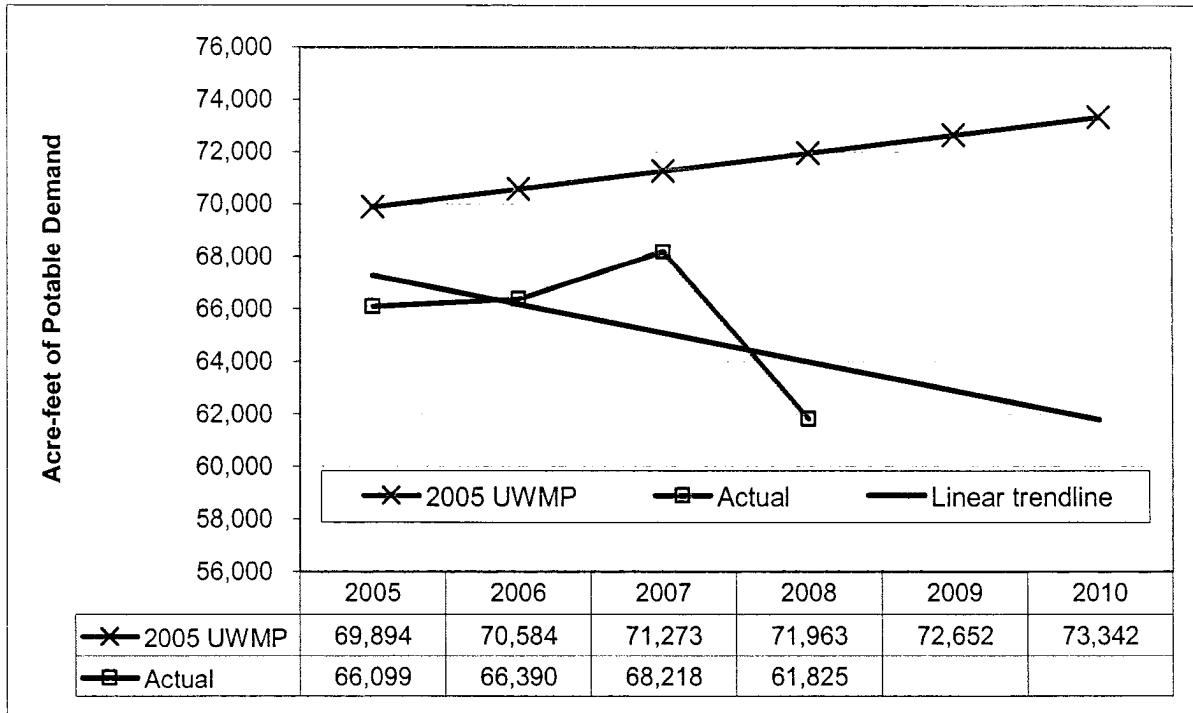
* Estimate used in the 2005 UWMP.

^ Excludes water sales to WRD for the seawater barrier.

Actual potable demand has been much less than projected. Chart 2A shows a projection of the UWMP's estimate of growth in demand between 2005 and 2010 and it shows the actual demand for the years 2005 through 2008. Actual demand in each of these years was significantly below the projection and the linear trend line of actual demand is downward-sloping.

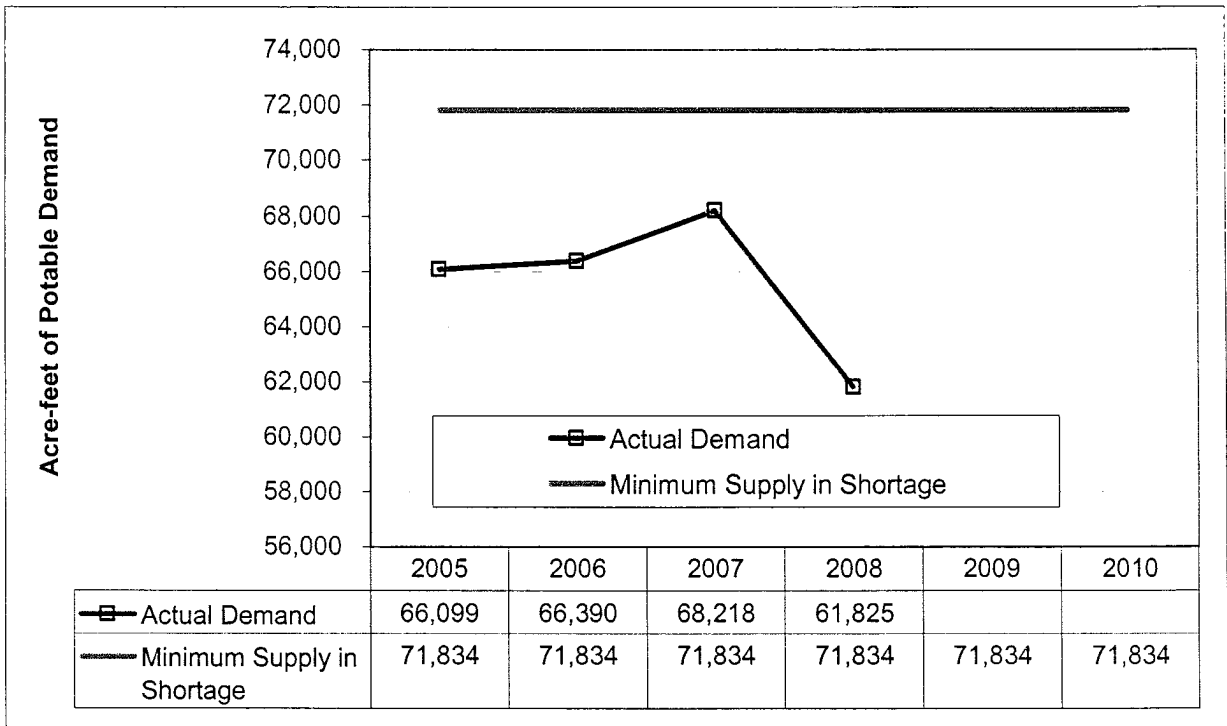


Chart 2A – 2005 UWMP Projections vs. Actual Demand



In a non-shortage situation, like all of southern California, LBWD will have by definition enough water to meet demands. The question is whether LBWD will have enough water to meet demand in a shortage. To answer that, we note LBWD’s firm water supplies include the very reliable groundwater and LBWD’s Preferential Rights to MWD supplies. As stated above, LBWD’s firm groundwater supplies equal 32,684 acre-feet per year and firm MWD Preferential Rights are roughly 39,150 acre-feet. The table below illustrates the significant gap between current demand and this firm supply of water. As noted in the 2005 UWMP, demand during shortages will be less than during normal years due to water conservation.

Chart 2B – Minimum Supply During Shortage



IV. PROJECT ASSESSMENT

The Golden Shore Mixed Use Development (“Project”) is exempt from the SB 221 requirement of an affirmative written verification of sufficient water supply (Government Code 66473.7) because it will be sited within an urbanized area that has been previously developed for urban uses. The Project is further exempt from SB 221 requirements because the immediate contiguous properties surrounding the proposed Project site are, or previously have been, developed for urban uses.

The Project is subject to the water assessment required by SB 610. LBWD anticipates that its projected water supplies available during normal, single-dry, and multiple-dry water years as included in the 20-year projection contained in this assessment will meet the projected water demand associated with the Project, in addition to the existing and other planned future uses of LBWD’s system.

The Project’s projected demand is within the 20-year water demand growth projected by LBWD’s 2005 Urban Water Management Plan (UWMP). In making the assessment of sufficient supplies to meet future demands, the UWMP assumed an increase in multifamily housing; the increase represented by the Project is accommodated by the 2005 UWMP projections.

Furthermore, in making the assessment of sufficient supplies to meet future demand, the UWMP assumed a certain increase in population, but the actual population is increasing at a much slower pace; therefore, any additional demand created by the project is easily absorbed by this diminished rise in population.

Also, in making the assessment of sufficient supplies to meet future demand, the UWMP assumed an increase in employment; the additional demand created by the additional employment resulting from the Project was accounted for in UWMP.

LBWD’s groundwater supplies are very reliable. Not shown in Table 10 but available are additional groundwater rights of LBWD’s in the form of its carryover storage and its access to other groundwater supplies in case of emergency per the adjudication of the basin. Additionally, significant work is being done to improve the management of groundwater with an expectation that the improved management shall result in additional dry-year yield for LBWD.

The 2005 UWMP finds LBWD will have the resources to meet the demand of the Project in normal and dry-year events. As shown in Table 10, the amount of supplemental supplies needed to meet the marginal demand for water is less than LBWD's Preferential Rights to supplemental water both with and without the Project, in both normal and dry years.

Furthermore, as stated above, LBWD has undertaken significant research in seawater desalination and anticipates the opportunity to bring cost-effective seawater desalination on-line by approximately 2015.

Table 10 –Dry-year Supplies Required to Meet Potable Demand

	Normal Year	1st Dry Yr	2nd Dry Yr	3rd Dry Yr	4th Dry Yr
Without Project					
Groundwater Supplies	32,684	32,684	32,684	32,684	32,684
Wholesale - MWD	32,949	39,150	39,150	39,150	39,150
Less non-Project Demand	(65,633)	(67,041)	(67,041)	(67,041)	(67,041)
Balance	-	4,793	4,793	4,793	4,793
With Project					
Groundwater Supplies	32,684	32,684	32,684	32,684	32,684
Wholesale - MWD	33,353	39,150	39,150	39,150	39,150
Less Project Demand*	(404)	(412)	(412)	(412)	(412)
Less non-Project Demand	(65,633)	(67,041)	(67,041)	(67,041)	(67,041)
Balance	-	4,381	4,381	4,381	4,381

* Assumes base demand equals the average for 2005-2008; and assumes net increase in demand on LBWD due to Project, and that Project demands, like all other demands, are up by 2% due to dry-year conditions. worse-case scenario of consecutive dry weather without extraordinary "dry year conservation."

Finally, Table 10 assumes demand for potable water would *rise* during dry years by about 411.6 acre-feet (403.5 af x's 1.02%), or roughly 6/10th of one-percent (0.6%) of the LBWD water supplies. Yet in a shortage demand is likely to decrease as people respond to the call for extra-ordinary water conservation. Indeed, demand for water in Long Beach in FY 2008 was twelve-percent lower than the average during the period 1997 though 2006

V. APPENDIX

- A. Lead Agency Memo Requesting Water Supply Assessment**
- B. Lead Agency Notice of Preparation of a Draft Environmental Impact Report**
- C. Long Beach Water Department 2005 Urban Water Management Plan**

**Appendix A. Lead Agency Memo Requesting Water
Supply Assessment.**

See attached document – Appendix A.



Scott Kinsey/CH/CLB

To Jimmy Chen/WA/CLB@CLB

cc Matthew Lyons/WA/CLB@CLB, Jeffrey Winklepleck/CH/CLB@CLB, Derek Burnham/CH/CLB@CLB
bcc

02/10/2009 12:01 PM

Subject Re: Fw: water supply assessment for Golden Shore Master Plan

History: This message has been forwarded.

Jimmy,

We'd like to request that LBWD conduct a water supply assessment for the Golden Shore Master Plan, a residential and commercial high-rise development in downtown Long Beach involving the possible construction three different plan options consisting of a mix of office commercial space, residential units, and hotel space.

Please let me know if you need any additional information.

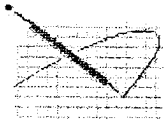
Scott Kinsey
Planner



Building A Better Long Beach
LONG BEACH DEVELOPMENT SERVICES

333 West Ocean Blvd.
Long Beach, CA 90802
T: (562) 570-6461
F: (562) 570-6068
lbs.longbeach.gov

Jimmy Chen/WA/CLB



Jimmy Chen/WA/CLB

To Scott Kinsey/CH/CLB@CLB

cc Matthew Lyons/WA/CLB@CLB

02/09/2009 11:51 AM

Subject Fw: water supply assessment for Golden Shore Master Plan

Scott:

Do you have a chance to take care of this?

Jimmy Chen
Senior Civil Engineer
Long Beach Water Department
1800 E. Wardlow Road
Long Beach, Ca 90807
(562)570-2340 Phone
(562)570-2330 Fax

----- Forwarded by Jimmy Chen/WA/CLB on 02/09/2009 11:51 AM -----

**Appendix B. Lead Agency Notice of Preparation of
a Draft Environmental Impact Report.**

SEE ATTACHED DOCUMENT – APPENDIX B.

OF AN ENVIRONMENTAL IMPACT REPORT
AND
NOTICE OF PUBLIC SCOPING MEETING

To: Agencies, Organizations, and Interested Parties From: City of Long Beach
 Department of Development Services
 333 West Ocean Boulevard, 5th Floor
 Long Beach, CA 90802

cc: Office of the County Clerk
 Environmental Filings
 12400 East Imperial Highway, 2nd Floor, Room 2001
 Norwalk, CA 90650

Subject: Notice of Preparation of a Draft Environmental Impact Report and Public Scoping Meeting

The City of Long Beach will be the Lead Agency under the California Environmental Quality Act (CEQA) and will prepare an Environmental Impact Report (EIR) for the Golden Shore Master Plan (proposed project). The City of Long Beach requests your agency's views as to the scope and content of the environmental information that is relevant to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by our agency in the event you are considering future approvals related to the project. Also included below are the date, time and location of the Scoping Meeting that will be held in order to solicit input regarding the content of the Draft EIR.

Project Location: The 5.87-acre project site is located in the Downtown Shoreline area of the City of Long Beach and is bounded by Ocean Boulevard to the north, Shoreline Drive to the west and south, and parking lots associated with Arco Center to the east, with Golden Shore transecting the site from north to south.

Project Description: The proposed project would provide new residential, office, retail, and potential hotel uses, along with associated parking and open space. The project includes two development options, a Residential Option and a Hotel Option, both of which would be entitled through the City of Long Beach. However, only one option would be ultimately constructed based on market conditions prevailing at the time entitlement is complete. Under the Residential Option, development would include 1,370 condominiums, an estimated 373,541 square feet of office/retail space, approximately 3,552 parking spaces, open space and other amenities. Under the Hotel Option, development would include 1,110 condominiums, a 400-room hotel, approximately 373,541 square feet of office/retail space (similar to the amount of office/retail space proposed under the Residential Option), approximately 3,637 parking spaces, open space and other amenities. The primary difference between these two options is reflected in a single building that would either consist of 260 residential units in 29 stories or 400 hotel rooms in 15 stories. The proposed project would be constructed in two primary phases: (1) the West Phase, which includes the portion of the project site located west of Golden Shore; and (2) the East Phase, which include the portion of the project site located east of Golden Shore. Existing development totaling approximately 294,003 square feet of office and retail floor area would be removed as part of the project.

Approvals required for the proposed project include amendment of the Long Beach Downtown Shoreline Planned Development District (PD-6), Subarea 1; Site Plan Review; a Tentative Tract Map; demolition, grading, foundation, and building permits; haul route(s) approval, as necessary; permits for curb cuts, sidewalk reconfiguration, and other street and sidewalk improvements; and any additional actions as may be determined necessary.


A more detailed project description, location, and the potential environmental effects associated with proposed development are contained in the attached materials. A copy of the Initial Study (is is not) attached. Environmental factors that would be potentially affected by the project include: aesthetics, air quality, cultural resources (archaeological and paleontological resources), geology, hydrology/water quality, land use and planning, noise, population and housing, public services (police, fire, schools, libraries and parks), recreation, transportation/circulation, and utilities (water supply and solid waste).

→ Responses to NOP: Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice. Therefore, your comments must be submitted no later than December 26, 2008. Please send your response to Scott Kinsey, Planner, at the address shown above. Please include the name of a contact person in your correspondence.

Public Scoping Meeting: A public scoping meeting will be held at 6:00 pm on December 10, 2008 at the 1st Congregational Church, Patterson Hall, at 241 Cedar Avenue in Long Beach. The purpose of the public scoping meeting is to obtain input as to the scope and content of the environmental information about the proposed project that should be explored in the EIR.

Project Title: Golden Shore Master Plan
Project Applicant: Keesal Young and Logan in association with Molina Healthcare

Date: 11/26/08
Telephone: (562) 570-6261

Signature: 
Derek Burnham
Current Planning Officer

Appendix C. Long Beach Water Department 2005 Urban Water Management Plan

Please find the LBWD current adopted 2005 Urban Water Management Plan on the LBWD website (www.lbwater.org) under the Information Section.

(End of Water Availability Assessment)