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## MEMORANDUM

**TO:** Mr. Chris Holmquist, Wilson Meany

**FROM:** Stetson Engineers Inc.

**SUBJECT:** Inglewood Basketball and Entertainment Center (IBEC) Project  
Review of Water Demands

**JOB NO.:** 2707

**DATE:** May 10, 2019

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### I. Introduction

The proposed Inglewood Basketball and Entertainment Center project (IBEC Project or Project) includes the purchase of land and the development of a sporting arena and entertainment center in the City of Inglewood. As part of the Environmental Impact Report (EIR) process for the proposed Project, Wilson Meany has requested Stetson Engineer's (Stetson) prepare a water demand study.

The water demand study presented below provides an estimate of the water demands for the proposed IBEC Project, including separate water demand estimates for: (1) existing uses at the Project site and (2) the proposed Project facilities. In addition, this water demand study reviewed the potential impacts to water use (i.e. reduction) necessary for the Project to achieve Leadership in Energy and Environmental Design (LEED) "Gold Certification".



## II. Existing Water Demands (Project Site)

This water demand study includes an estimate of the existing water demands from developed properties which would be purchased as part of the IBEC Project. Pursuant to documentation provided by Wilson Meany<sup>1</sup>, parcels are to be purchased for the Project under a “Proposed IBEC Project” scenario or a “Alternate Prairie Access Project Variant” scenario. Under the “Proposed IBEC Project” scenario, the following non-residential properties (parcels) would be purchased:

1. Assessor Parcel Number: 4032-001-039
2. Assessor Parcel Number: 4032-001-049
3. Assessor Parcel Number: 4032-001-048
4. Assessor Parcel Number: 4032-007-035
5. Assessor Parcel Number: 4032-008-035
6. Assessor Parcel Number: 4032-001-902

The existing uses on these “Proposed IBEC Project” parcels include a fast food restaurant, a motel, a light manufacturing/warehouse facility, a commercial catering business, and a City water well.

Under a separate “Alternate Prairie Access Variant” scenario for the proposed Project, the following residential parcels would also be purchased:

7. Assessor Parcel Number: 4032-008-002
8. Assessor Parcel Number: 4032-008-006

A summary description of the eight parcels is provided in Table 1. It is Stetson’s understanding the proposed Project (including the eight identified parcels) is located within the northern part of Golden State Water Company’s (GSWC) Southwest service

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<sup>1</sup> IBEC documentation dated November 14, 2018



area. As indicated in a Wilson Meany e-mail dated November 30, 2018, the water meter records for these eight parcels were previously requested from GSWC, however, records were not provided.

The existing annual water demands for the eight parcels were estimated by Stetson using representative water demands and water demand factors from similar commercial, industrial, and residential water uses (described in Table 1). Based on these water demand factors, as well as parcel information provided by Wilson Meany (i.e. existing uses, building sizes, number of units), the following estimated water demands were determined:

- The total water demand for the “Proposed IBEC Project” parcels is estimated at approximately 6.6 acre-feet per year (AFY).
- The total water demand for the “Alternate Prairie Access Variant” parcels is estimated at approximately 1.0 AFY.
- The total water demand for both the “Proposed IBEC Project” parcels and the “Alternate Prairie Access Variant” parcels is estimated at approximately 7.6 AFY.

A summary of these water demand estimates for the existing uses is provided in Table 1.



**Table 1 Existing Water Demands (IBEC Project Parcels)**

Assessors Parcel Number	Description [1]	Building Size (sf) [1]	Estimated Water Demand (AFY)	Notes / Sources
<b>Proposed IBEC Project</b>				
1)	4032-001-039 Church's Chicken	1,118	0.6	Based on water use records from City of Lakewood for Church's Chicken (FY 2015-16)
2)	4032-001-049 36 Room Exterior Corridor Economy Motel	16,806	5.0	Based on a rate of 125 gpd per room from City of Inglewood's 2010 Urban Water Management Plan
3)	4032-001-048 Sugar Fina Single-Tenant Manufacturing / Warehouse Building	32,631	0.9	Based on a rate of 25 gpd per 1,000 sf (LACSD May 18, 2011 Ordinance for District No. 5)
4)	4032-007-035 Single-Tenant Warehouse Building (Vacant)	10,000	0.0	Estimated at zero because the building was unoccupied at the time the Notice of Preparation for the EIR was issued (e.g., time of study)
5)	4032-008-035 Let's Have a Cart Party Store	11,134	0.04	Based on water use records from City of Lakewood for similar commercial retail stores (FY 2015-16)
6)	4032-001-902 City Water Well	NA	0.0	Existing water demands are assumed negligible
<b>Subtotal (Base Case EIR)</b>			<b>6.6</b>	
<b>Alternate Prairie Access Variant</b>				
7)	4032-008-002 Single Story 3-Unit Residential	1,629	0.6	Based on an existing multi-family use rate of 0.2 AFY per unit ("Alexan Long Beach Water Supply Assessment", November 29, 2018)
8)	4032-008-006 Single Story Single Family Detached Residential Unit	795	0.4	Based on an average residential use rate of 0.4 AFY per unit from City of Inglewood's 2015 Urban Water Management Plan (Tables 4-1A and 4-1B)
<b>Subtotal (Project Variant)</b>			<b>1.0</b>	
<b>Total</b>			<b>7.6</b>	

**Notes:**

AFY = acre feet per year

FY = fiscal year

gpd = gallons per day

LACSD = Los Angeles County Sanitation District

NA = not applicable

sf = square feet

[1] Parcel descriptions and building sizes provided by Wilson Meany



### III. “Baseline” IBEC Project Water Demands

This water demand study also includes an assessment of the estimated water demands for the proposed IBEC Project facilities. Based on information provided by Wilson Meany<sup>2</sup>, the proposed Project facilities include the following:

- Sports arena: 915,000 square feet (sf)
- Office space: 71,000 sf
- Practice/training: 85,000 sf
- Medical clinic: 25,000 sf
- Community space: 15,000 sf
- Dining and retail: 48,000 sf
- Hotel 150 rooms

The proposed IBEC Project would include approximately 139,112 sf (or about 3.2 acres) of landscaping. In addition, the Project site would include approximately 437,379 (or about 10 acres) of impervious hardscape surfaces.

The estimated “Baseline” water demands for each facility type listed above are discussed in the following subsections. These Baseline water demands estimates are based on a water use scenario where standard levels of water conservation typical in newer construction projects are incorporated. The Baseline scenario incorporates “baseline” water use factors provided in Leadership in Energy and Environmental Design (LEED) documentation<sup>3</sup>. The LEED baseline water use factors incorporate United States Environmental Protection Agency (EPA) WaterSense labeled products which conserve water. Additional levels of water conservation, however, may be required in order for the proposed Project to achieve LEED Gold Certification (see Section IV).

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<sup>2</sup>“Project Condor, Buildings That Are Proposed to be Demolished”, dated November 14, 2018  
<sup>3</sup>Design and Construction”, July 2, 2018, Water Efficiency



### **a. Sports Arena**

Based on information provided by Wilson Meany<sup>4</sup>, the sports arena will hold various events throughout the year, including basketball games, concerts, family shows, corporate / community events, plaza events, practice events, and other events. The water demands for these events were determined based on the estimated number of employees and visitors per event. In addition, various water uses were considered for each event, including toilet, urinal, restroom faucet, kitchen sink, laundry, and shower uses. The water demand for a single employee was estimated at approximately 13.7 gallons per event. The water demand for a single attendee was estimated at approximately 2.7 gallons per event. Appendix A provides additional information regarding the Baseline water demands per event.

The water demands for the sports arena also include water used for cooling tower purposes. Based on information provided by AECOM<sup>5</sup>, the Baseline cooling tower water demands are approximately 6.0 million gallons per year, or approximately 18.4 AFY. The total Baseline water demand for the sports arena was estimated at approximately 42.1 AFY and is summarized in Table 2.

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<sup>4</sup> “Inglewood Basketball & Entertainment Center, Anticipated Annual Events Characteristics” provided by Wilson Meany.

<sup>5</sup> Pursuant to a May 2, 2019 e-mail correspondence, AECOM indicates a Baseline cooling tower water demand of approximately 6 million gallons per year and a proposed cooling tower system with a reduced water demand of approximately 4.8 million gallons per year for the IBEC Project



**Table 2 Baseline IBEC Water Demands (Arena and Plaza Events)**

Event Type	Number of Employees per Event [1]	Maximum Attendance per Event [1]	Baseline Water Use (gpcd)		Events per Year [1]	Estimated Baseline Water Demand	
			Per Employee [2]	Per Visitor [2]		Gallons per Year	AFY
<b>LA Clippers Home Games</b>							
Pre-Season Games	1,320	18,000	13.7	2.7	5	335,500	1.0
Regular Season Games	1,320	18,000	13.7	2.7	41	2,751,100	8.4
Postseason Games	1,320	18,000	13.7	2.7	3	201,300	0.6
<b>Concerts</b>							
5 per year (large)	1,120	18,500	13.7	2.7	5	328,600	1.0
8 per year (medium)	795	14,500	13.7	2.7	8	403,100	1.2
10 per year (small)	530	9,500	13.7	2.7	10	331,400	1.0
<b>Family Shows</b>							
20 per year	530	8,500	13.7	2.7	20	608,200	1.9
<b>Other Events</b>							
35 per year	480	7,500	13.7	2.7	35	945,100	2.9
<b>Corporate/Community Events</b>							
100 per year	25	2,000	13.7	2.7	100	579,200	1.8
<b>Plaza Events</b>							
16 per year	25	4,000	13.7	2.7	16	179,900	0.6
<b>Practice Events</b>							
260 per year [3]	54	0	13.7	2.7	260	192,000	0.6
<b>Cooling Towers</b>							
Cooling Towers [4]						6,000,000	18.4
<b>Total</b>						<b>12,855,400</b>	<b>39.5</b>

**Notes:**

AFY = acre feet per year  
gpcd = gallons per day per capita

**Source:**

- [1] "IBEC Anticipated Annual Events Characteristics", Wilson Meany
- [2] See Appendix A
- [3] Pursuant to Montgomery Clark Advisors e-mail dated May 8, 2019
- [4] Proposed cooling tower water demand estimate based on AECOM e-mail dated May 2, 2019



**b. Office Space**

The water uses for office space considered in this study include toilet, urinal, restroom faucet, kitchen sink, shower, dishwasher, HVAC/cooling, indoor cleaning, and miscellaneous uses. It is estimated the water use rate for office space is approximately 99 gallons per day per 1,000 sf. The total area of office space in the proposed Project is approximately 111,000 sf and includes offices (71,000 sf), the medical clinic (25,000 sf), and the community space (15,000 sf). The total Baseline water demand for office space was estimated at approximately 8.8 AFY and is summarized in Table 3.

**c. Retail Space**

The water uses for retail space considered in this study include toilet, urinal, and restroom faucet uses. It is estimated the water use rate for retail space is approximately 302 gallons per day per 1,000 sf. The total area of retail space in the proposed Project is approximately 24,000 sf and includes a team store and other general retail and services. The total Baseline water demand for retail space was estimated at approximately 8.1 AFY and is summarized in Table 3.

**d. Restaurant Space**

The estimated water use rate for restaurant space is approximately 300 gallons per day per 1,000 sf. The total area of restaurant space in the proposed Project is approximately 24,000 sf and includes restaurants, bars, lounges, and a coffee shop. The total Baseline water demand for restaurant space was estimated at approximately 8.1 AFY and is summarized in Table 3.





**Table 3 Baseline IBEC Water Demands (Office, Retail, Restaurant, Cleaning, and Hotel)**

Other Components	Area (sf) [1]	Unit Rate	Days per Year	Annual Water Use (gal)	AFY
Office Space	111,000	99 gpd per 1,000 sf [2]	260	2,857,100	8.8
Retail Space	24,000	302 gpd per 1,000 sf [2]	365	2,645,500	8.1
Restaurant Space	24,000	300 gpd per 1,000 sf [2]	365	2,628,000	8.1
Landscape	139,112	See Appendix A		4,662,800	14.3
Washdown and Facility Cleaning					
Outdoor (Hardscape and Parking Areas)	577,669	See Appendix A		225,665	0.7
Indoor (Arena and Practice Facilities)	1,000,000	See Appendix A		768,000	2.4
Hotel (150 rooms)		See Appendix A		6,843,800	21.0
<b>Total</b>				<b>20,630,865</b>	<b>63.3</b>

**Notes:**

AFY = acre feet per year  
gpd = gallons per day  
sf = square feet

**Source:**

[1] "IBEC Project Program", Wilson Meany  
[2] See Appendix A

**e. Hotel**

The estimated water use rate for a hotel is approximately 125 gallons per day per unit. This water use rate was based on the City of Inglewood’s 2010 and 2015 Urban Water Management Plans. The proposed Project includes a 150-unit hotel. The total Baseline water demand for restaurant space was estimated at approximately 21 AFY and is summarized in Table 3.

**f. Landscaping**

Landscape irrigation demands can be estimated using a water budget calculator provided by the California Department of Water Resources (DWR). The water budget calculator



estimates the water use of a landscaped area based on the various components including the reference evapotranspiration, plant factors, irrigated area, and an irrigation efficiency factor. Pursuant to the “Landscape Narrative” for the proposed Project provided by Wilson Meany, the proposed Project currently includes approximately 139,112 sf (or about 3.2 acres) of landscaping (i.e. trees and understory planting). The Baseline water demands for the proposed Project would include medium water use turfgrass (plant factor of 0.7) incorporating fixed spray irrigation (irrigation efficiency of 0.65). The total Baseline water demand for landscaping was estimated at approximately 14.3 AFY and is summarized in Table 3.

It is anticipated a majority of the landscape irrigation water demands for the proposed Project will be served through use of recycled water. It is Stetson’s understanding West Basin Municipal Water District (WBMWD) owns a recycled water pipeline along Prairie Avenue<sup>6</sup> through the Project location. Pursuant to information provided by Wilson Meany, the landscape irrigation water demands for the hotel and the eastern parking garage areas will not be served by recycled water. The Baseline landscape water demands for these two areas (hotel and the eastern parking garage areas) is approximately 3.5 AFY. As a result, the total Baseline recycled water demand for the proposed Project is approximately 10.8 AFY (or 14.3 AFY – 3.5 AFY), or approximately 76 percent of the total Baseline landscape water demands.

#### **g. Washdown and Facility Cleaning**

The proposed Project will require water to wash down outdoor hardscape areas and parking areas. Pursuant to the “Landscape Narrative” for the proposed Project provided by Wilson Meany, the total hardscape square footage of impervious surfaces, including the parking areas, is approximately 437,379 sf (or about 10 acres). These areas require water for periodic washdown/cleaning. In addition, water is required to washdown indoor facilities including the arena and the practice facilities. Pursuant to the “IBEC Project Program” provided by Wilson Meany, the total indoor washdown area is approximately

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<sup>6</sup> [http://www.westbasin.org/sites/default/files/WB\\_RecycledWaterSystem\\_2017.pdf](http://www.westbasin.org/sites/default/files/WB_RecycledWaterSystem_2017.pdf)



1,000,000 sf and consists of the arena (915,000 sf) and the practice facility (85,000 sf). The total Baseline water demand for washdown and facility cleaning was estimated at approximately 2.4 AFY and is summarized in Table 3.

**h. Total Baseline IBEC Water Demands**

The total Baseline water demands for the proposed IBEC Project is approximately 102.8 AFY and are summarized in Table 4.

**Table 4 IBEC Project Water Demands ("Baseline" Scenario)**

Water Use Type	"Baseline" Water Demand (AFY)	Source
Arena and Plaza Events	21.0	Table 2; Appendix A
Arena and Plaza Events (Other) [1]	18.4	Table 2; Appendix A
Office Space	8.8	Table 3; Appendix A
Retail Space	8.1	Table 3; Appendix A
Restaurant Space	8.1	Table 3; Appendix A
Landscape	14.3	Table 3; Appendix A
Outdoor Washdown	0.7	Table 3; Appendix A
Indoor Washdown	2.4	Table 3; Appendix A
Hotel (150 rooms)	21.0	Table 3; Appendix A
Subtotal - Indoor	69.3	
Subtotal - Outdoor	15.0	(Landscape + Outdoor Washdown)
Subtotal - Other	18.4	(Event Center Cooling Towers)
<b>Total</b>	<b>102.8</b>	

**Notes:**

[1] Includes arena structure cooling tower water demands



#### **IV. Proposed IBEC Project Water Demands (With “LEED Gold Certification”)**

It is anticipated the proposed IBEC Project will include project design features which will reduce overall water demands. These features include the installation of energy and resource-efficient facilities necessary for LEED Gold Certification. As part of obtaining LEED Gold Certification, the proposed Project can implement certain water efficiency actions. These actions, which are discussed below, will reduce the Project’s total water demands (compared to the “Baseline” scenario).

Pursuant to the U.S. Green Building Council<sup>7</sup>, different levels of LEED certification can be achieved based on the total points earned from various categories (including a “Water Efficiency” category) covered in the LEED rating system. Based on the total number of points a project earns, the four levels of LEED certification include the following:

- Certified (40 to 49 points)
- Silver (50 to 59 points)
- Gold (60 to 79 points)
- Platinum (80+ points)

##### **a. LEED Certification Prerequisites**

For the purposes of this water demand study, only the potential Project water demand reductions associated with the LEED “Water Efficiency” credit category were reviewed. According to LEED documentation<sup>8</sup>, the proposed Project will need to fulfil three (3) prerequisites in order to receive points under the Water Efficiency” credit category. The following is a summary of the LEED certification prerequisites for new building construction:

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<sup>7</sup> <https://www.usgbc.org/articles/whats-difference-between-lead-credit-lead-prerequisite-and-lead-point>

<sup>8</sup> “LEED v4 for Building Design and Construction”, July 2, 2018, Water Efficiency (pages 50 to 54)



**1. Outdoor Water Use Reduction**

Outdoor landscaping must be designed to reduce (by at least 30% from a calculated baseline) or eliminate the need for water usage.

**2. Indoor Water Use Reduction**

The project building must reduce aggregate water use 20% from the baseline and all newly installed toilets, urinals, private lavatory faucets and showerheads that are eligible for labeling must be WaterSense labeled.

**3. Building-Level Water Metering**

The project building will be required to

- Install permanent meters capable of measuring total potable water use for the building and associated grounds,
- Document that data on a monthly basis, and
- Agree to share the data with the U.S. Green Building Council (USGBC) for five years following project certification or building occupancy, whichever comes first.

Pursuant to AECOM's "Sustainability / LEED Checklist" (provided by Wilson Meany), dated August 29, 2018, the proposed IBEC Project will meet the LEED certification prerequisites through the following actions:

- 1) The Project will use recycled water to service water conscious landscape design. (As discussed in Section IV(b) below, the Project will reduce outdoor water use by at least 50 percent.)
- 2) The Project will incorporate water efficient fixtures to achieve approximately 40 percent reduction in indoor water use
- 3) The Project will incorporate smart-meters



## b. LEED Gold Certification Points

After meeting the prerequisites discussed in the Section above, LEED certification points can be earned from the following four (4) Water Efficiency credit categories (for new construction buildings)<sup>9</sup>:

### 1. Outdoor Water Use Reduction

Eliminating the need for outdoor irrigation entirely or reducing the landscape watering requirement by at least 50% can earn up to **two (2) points** for the project building.

### 2. Indoor Water Use Reduction

Reducing indoor water use beyond the 20% prerequisite can earn new construction buildings up **six (6) points**, including the following:

- 25% Reduction = 1 point
- 30% Reduction = 2 point
- 35% Reduction = 3 point
- 40% Reduction = 4 point
- 45% Reduction = 5 point
- 50% Reduction = 6 point

### 3. Cooling Tower Water Use

This is designed to encourage buildings to conserve water used for cooling tower makeup while effectively controlling microbes, corrosion and scale in the condenser water system. This credit can earn up to **two (2) points**.

### 4. Additional Water Metering

Installation of permanent water meters for two or more of the following water subsystems,

- Irrigation,
- Indoor plumbing fixtures and fittings,
- Domestic hot water,
- Boilers,
- Reclaimed water, and
- Other process water.

Projects that sub-meter at least two water end uses are awarded **one (1) point**.

The proposed IBEC Project can obtain LEED certification points through the following actions:

- 1) The IBEC Project will obtain at least 1 point under the "Outdoor Water Use Reduction" category by incorporating landscaping which results in a 50 percent

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<sup>9</sup> "LEED v4 for Building Design and Construction", July 2, 2018, Water Efficiency (pages 55 to 62)



reduction in outdoor water use compared to baseline (i.e. turf) irrigation during the peak watering month. Pursuant to LEED documentation<sup>10</sup>, the calculation to determine if the Project's proposed landscaping meets the minimum 50 percent reduction requirement is based on using the EPA's WaterSense Water Budget Tool<sup>11</sup>. Stetson incorporated the IBEC Project landscape information from Section III(f), as well as climate data recommended by the EPA<sup>12</sup>, into the Water Budget Tool. The results of the Water Budget Tool indicate the proposed landscaping for the IBEC Project will result in a 50 percent reduction in outdoor landscape compared to baseline irrigation requirements during the peak water month (i.e. July). Based on the Water Budget Tool results, the IBEC Project will obtain 1 point under the "Outdoor Water Use Reduction" category. The results of the Water Budget Tool for the IBEC Project are provided in Appendix B.

It should be noted a maximum of 2 points can be obtained under the "Outdoor Water Use Reduction" category by incorporating landscaping which results in a 100 percent reduction in outdoor water (compared to baseline irrigation during the peak watering month). As noted above, the IBEC Project will obtain at least 1 point through a 50 percent reduction. Pursuant to the LEED documentation, additional outdoor water use reductions beyond 30 percent can be achieved by incorporating "alternative water sources" (e.g. recycled water). As discussed in Section III(f), recycled water use is estimated at approximately 76 percent of the total landscaped irrigation demand. Although the use of recycled water is expected to increase the outdoor water use reduction beyond 50 percent, it is not certain if a 100 percent reduction can be achieved because the IBEC Project includes a landscaping component which still requires potable water supplies (remaining 24 percent).

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<sup>10</sup> "LEED v4 for Building Design and Construction", July 2, 2018, Water Efficiency (page 56)

<sup>11</sup> <https://www.epa.gov/watersense/water-budget-tool>

<sup>12</sup> <https://www.epa.gov/watersense/water-budget-data-finder>



- 2) Pursuant to AECOM's "Sustainability / LEED Checklist", the Project will obtain 4 points under the "Indoor Water Use Reduction" category by incorporating water efficient fixtures to achieve approximately 40 percent reduction in indoor water use. A further discussion is provided in Section IV(c) below.
- 3) Pursuant to AECOM's "Sustainability / LEED Checklist", the Project will likely obtain 2 points under the "Cooling Tower Water Use" category through installation of a specialized cooling tower system and potential use of 100% recycled water for cooling tower purposes. (It should be noted, based on discussion with Wilson Meany, recycled water may not be suitable for cooling tower purposes. The use of recycled water for cooling tower purposes may require additional treatment.)
- 4) Pursuant to AECOM's "Sustainability / LEED Checklist", the Project can potentially obtain 1 point under the "Additional Water Metering" category through the installation of meters for the domestic hot water, boiler make up, and recycled water systems.

**c. Proposed Project Water Demands (With "Gold Certification")**

As discussed above, the proposed IBEC Project will incorporate various project design features, including implementation of LEED water efficiency actions, which will reduce the Project water demands. The total water demands for the proposed IBEC Project, including water demand reductions, are summarized below.

As discussed in Section III(a) above, pursuant to a May 2, 2019 e-mail, AECOM indicated the Baseline cooling tower water demand would be approximately 6 million gallons per year. However, the proposed cooling tower system for the IBEC Project has a reduced water demand of approximately 4.8 million gallons per year.

As discussed in Section IV(b) above, the proposed IBEC Project will incorporate landscaping which results in a 50 percent reduction in outdoor water use compared to





baseline (i.e. turf) irrigation during the peak watering month. Pursuant to the “Landscape Narrative” for the proposed Project provided by Wilson Meany, the proposed Project will include low to medium water use plantings (plant factors between 0.2 and 0.5) incorporating drip irrigation (irrigation efficiency of 0.7). The total proposed water demand for landscaping is estimated at approximately 6.6 AFY. Also discussed in Section IV(b), the landscape irrigation water demands for the hotel and the eastern parking garage areas will not be served by recycled water. The proposed landscape water demands for these two areas (hotel and the eastern parking garage areas) is approximately 1.6 AFY. As a result, the total recycled water demand for the proposed Project is approximately 5.0 AFY (or 6.6 AFY – 1.6 AFY), or approximately 76 percent of the total Baseline landscape water demands.

As discussed in Section IV(b) above, the proposed IBEC Project’s total water demands will be reduced under the “Indoor Water Use Reduction” category (compared to the “Baseline” water demands discussed in Section III). As discussed previously, the AECOM checklist anticipates the proposed Project will obtain 4 certification points through installation of water efficient fixtures that will achieve approximately 40 percent reduction in total indoor water use. As shown in Table 4, the total indoor “Baseline” water demand has been estimated at approximately 67.2 AFY<sup>13</sup>. The amount of water reduction necessary for a 40 percent reduction is approximately 26.9 AFY (or 67.2 x 40 percent). By reducing the indoor water use by 40 percent, the total indoor water demand for the proposed Project would be approximately 40.3 AFY (or 67.2 AFY – 26.9 AFY).

For the purposes of this study, the indoor water uses associated with the proposed Project facilities include the following:

- Arena and Plaza water uses (excluding cooling towers)
- Office space water uses
- Retail space water uses
- Restaurant water uses

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<sup>13</sup> Pursuant to an April 25, 2019 discussion, AECOM indicated the water demands for the Event Center cooling towers are not considered as part of indoor water uses under the “Indoor Water Use Reduction” category



- Hotel water uses
- Arena and practice facility washdowns

Reductions in indoor water use for the proposed Project can be achieved by installing water fixtures which conserve more water compared to the water fixtures presented in the Baseline scenario. Table 5 provides a summary of the water fixtures and water use rates incorporated in the proposed Project (to achieve LEED Gold Certification).

**Table 5 Water Conservation Fixtures (“Baseline” Scenario and Proposed Project)**

Fixture Type	Units	Water Use Rate		Percent Reduction
		“Baseline”	Proposed Project	
Restroom Sink Faucet	gpm	0.5	0.35	30%
Urinals	gpf	1	0.125	88%
Toilets	gpf	1.6	1.1	31%
Showerhead	gpm	2.5	1.5	40%
Kitchen Faucet	gpm	2.2	1.5	32%
Dishwasher	gpc	6	4.8	20%

**Notes**

- gpc - gallons per cycle
- gpf = gallons per flush
- gpm = gallons per minute

Indoor water use reductions based on water fixtures for the proposed Project can be quantified for the Arena and Plaza events, office space, and retail space using similar methodologies described in Section III (and estimated in Appendix C). By installing these water fixtures, the total indoor water use reduction associated with the Arena and Plaza events (9.2 AFY), office space (2.7 AFY), and retail space (4.1 AFY) was estimated at approximately 16 AFY, resulting in an average water reduction of approximately 45 percent for these particular uses. The water demands reductions for the proposed Project are summarized in Table 6.



In order to achieve the identified 40 percent reduction in total indoor water use necessary for LEED Gold Certification, an additional 10.9 AFY (or 26.9 AFY – 16 AFY) of indoor water use will need to be reduced. The remaining indoor water uses for the proposed Project include water uses associated with restaurant space, the hotel, and indoor facility washdowns/cleaning. However, it is not anticipated water uses associated with periodic indoor facility washdowns/cleaning (“Baseline” demand of 2.4 AFY) will be significantly reduced. As a result, additional water demand reductions of at least 10.9 AFY from the restaurant space and the hotel will be required.

Although the estimated water demands for restaurant space (under the Baseline scenario) were not determined based on calculating demands from individual water fixture types, the water demands for restaurant space in general can be reduced if the proposed Project requires the installation of water saving fixtures, including the restroom sink faucets, urinals, toilets, kitchen faucets, and dishwashers identified in Table 5. Based on the combined estimated 45 percent water reduction from Arena and Plaza events, office space, and retail space (discussed above), it is assumed the installation of the water savings fixtures under the proposed Project will reduce water demands associated with restaurant space by approximately 45 percent. Likewise, the water demands for the hotel in general can be reduced if the proposed Project requires the installation of water saving fixtures, including the restroom sink faucets, toilets, and showerheads identified in Table 5. Based on the percentage range of water conservation for these fixtures provided in Table 5 (i.e. 30 to 40 percent), it is assumed the installation of water saving fixtures under the proposed Project will reduce water demands associated with the hotel by approximately 35 percent. As a result, the anticipated water demand reduction for the restaurant space (3.6 AFY) and hotel (7.4 AFY) is approximately 11 AFY. A summary of these reduced restaurant space and hotel water demands is provided in Table 6.



**Table 6 Summary of IBEC Project Water Demands (Baseline and Proposed Project)**

Water Use Type	Estimated Water Demands (AFY)		Indoor Water Demand Reductions [3]	
	"Baseline"	"Proposed Project" (See Appendix C)	(AFY)	Percentage
<b><u>Indoor</u></b>				
Arena and Plaza Events [1]	21.0	10.7	10.3	49%
Office Space	8.8	6.1	2.7	31%
Retail Space	8.1	4.0	4.1	51%
Restaurant Space	8.1	4.4	3.6	45%
Indoor Washdown	2.4	2.4	0.0	0%
Hotel (150 rooms)	21.0	13.7	7.4	35%
<b>Subtotal - Indoor</b>	<b>69.3</b>	<b>41.2</b>	<b>28.1</b>	<b>41%</b>
<b><u>Outdoor</u></b>				
Landscape	14.3	6.6	-	-
Outdoor Washdown	0.7	0.7	-	-
<b>Subtotal - Outdoor</b>	<b>15.0</b>	<b>7.3</b>	<b>-</b>	<b>-</b>
<b><u>Other</u></b>				
Arena and Plaza Events [2]	18.4	14.7	-	-
<b>Subtotal - Other</b>	<b>18.4</b>	<b>14.7</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>102.8</b>	<b>63.3</b>	<b>-</b>	<b>-</b>

**Notes:**

[1] Excludes arena structure cooling tower water demands

[2] Arena structure cooling tower water demands

[3] Pursuant to the LEED's "Indoor Water Use Reduction" category



As summarized in Table 6, the proposed Project will have the following water demands/reductions:

- The total indoor water use for the proposed Project will be reduced by approximately 28.1 AFY (or about 41 percent), compared to the “Baseline” scenario
- The total overall water demands for the proposed Project are approximately 63.3 AFY

## APPENDIX A

**Appendix A - Baseline Water Demand Use Rate Estimates**

<b>Event Center End Uses</b>								
<b>1. Visitors</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Restroom Sink Faucet	0.5	gal/min	0.25	min	1	0.1	Source [1] Table 1	Source [2] Table 8
Urinals	1	gal/flush	1	flush	1	1.0	Source [1] Table 1	Source [2] Table 8
Toilets	1.6	gal/flush	1	flush	1	1.6	Source [1] Table 1	Source [2] Table 8
					<b>Sub-Total</b>	<b>2.7</b>		
<b>2. Full-Time Employees</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Employee	Source for Rates	Source for No. of Units and Ave. Daily Use
Showerhead	2.5	gal/min	5	min	0.3	3.8	Source [1] Table 1	Source [2] Table 8
Restroom Sink Faucet	0.5	gal/min	0.25	min	3	0.4	Source [1] Table 1	Source [2] Table 8
Urinals	1	gal/flush	1	flush	2	2.0	Source [1] Table 1	Source [2] Table 8
Toilet	1.6	gal/flush	1	flush	4	6.4	Source [1] Table 1	Source [2] Table 8
Kitchen Faucet	2.2	gal/min	0.25	min	1	0.6	Source [1] Table 1	Source [2] Table 8
Laundry	4	gal/pound	0.5	pound	0.3	0.6	Source [2] Table 8	Source [2] Table 8
					<b>Sub-Total</b>	<b>13.7</b>		
<b>Office End Uses</b>								
<b>1. Full-Time Employees</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Showerhead	2.5	gal/min	5	min	0.3	3.8	Source [1] Table 1	Source [2] Table 8
Restroom Sink Faucet	0.5	gal/min	0.25	min	3	0.4	Source [1] Table 1	Source [2] Table 8
Urinals	1	gal/flush	1	flush	2	2	Source [1] Table 1	Source [2] Table 8
Toilet	1.6	gal/flush	1	flush	4	6.4	Source [1] Table 1	Source [2] Table 8
Kitchen Faucet	2.2	gal/min	0.25	min	1	0.6	Source [1] Table 1	Source [2] Table 8
					<b>Sub-Total</b>	<b>13.2</b>		
					<b>Gross sf/Employee</b>	<b>200</b>	Source [2] Table 8	Source [2] Table 8
					<b>GPD per 1,000 gross sf</b>	<b>66</b>		
<b>2. Dishwasher</b>	6	gal/cycle	1	cycle	1	6	Source [6]	Source [2] Table 8
<b>3. Cooling Equipment</b>	0.0196	gal/sf	1000	sf	1	20	Source [2] Table 8	Source [2] Table 8
<b>4. Indoor Floor Cleaning</b>	0.75	gal/min	4	min/1000 sf	0.7	2	Source [2] Table 8	Source [2] Table 8
<b>5. Misc (assumed 5%)</b>						5	Source [2] Table 8	Source [2] Table 8
					<b>Total GPD per 1,000 gross sf</b>	<b>99</b>		

<b>Retail End Uses</b>								
<b>1. Customer</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Restroom Sink Faucet	0.5	gal/min	0.25	min	1	0.125	Source [1] Table 1	Source [2] Table 8
Urinals	1	gal/flush	1	flush	1	1	Source [1] Table 1	Source [2] Table 8
Toilets	1.6	gal/flush	1	flush	1	1.6	Source [1] Table 1	Source [2] Table 8
						<b>Sub-Total</b>		
						<b>2.725</b>		
						<b>gross sf/customer</b>	<b>10</b>	Source [2] Table 8
						<b>GPD per 1,000 gross sf</b>	<b>272.5</b>	
<b>2. Full-Time Employees</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Restroom Sink Faucet	0.5	gal/min	0.25	min	3	0.375	Source [1] Table 1	Source [2] Table 8
Urinals	1	gal/flush	1	flush	2	2	Source [1] Table 1	Source [2] Table 8
Toilets	1.6	gal/flush	1	flush	4	6.4	Source [1] Table 1	Source [2] Table 8
						<b>Sub-Total</b>		
						<b>8.775</b>		
						<b>Gross sf/Employee</b>	<b>300</b>	Source [2] Table 8
						<b>GPD per 1,000 gross sf</b>	<b>29</b>	Source [2] Table 8
						<b>Total GPD per 1,000 gross sf</b>	<b>302</b>	

<b>Restaurant End Uses</b>								
Type	Rate	Unit			Ave. Daily Use	GPD	Source for Rates	
Restaurant	300	gal/day/1,000 sf			1	300	Source [3]	
						<b>Sub-Total</b>	<b>300</b>	
						<b>GPD per 1,000 gross sf</b>	<b>300</b>	
						<b>Total GPD per 1,000 gross sf</b>	<b>300</b>	



<b>Washdown and Facility Cleaning</b>								
Type	Flow Rate	Unit	No. of Units	Unit	Ave Yearly Use	GPY per 1,000 GSF	Source for Rates	Source for No. of Units and Ave. Daily Use
Outdoor Hardscape Washdown (includes two parking areas) Total = 437,379 sf [4]								
South Parking garage = 70,770 sf	5	gal/min	30	min/1,000 sf	2	300	Source [2] Table 8	Source [2] Table 8
West Parking garage = 192,063 sf	5	gal/min	30	min/1,000 sf	2	300	Source [2] Table 8	Source [2] Table 8
Outdoor Hardscape = 174,546 sf	5	gal/min	30	min/1,000 sf	4	600	Source [2] Table 8	Source [2] Table 8
<b>Project Annual Water Use (gal)</b>						<b>183,578</b>		
Eastern Parking Area Outdoor Hardscape Washdown Eastern Parking Garage = 140,290 sf								
	5	gal/min	30	min/1,000 sf	2	300	Source [2] Table 8	Source [2] Table 8
<b>Project Annual Water Use (gal)</b>						<b>42,087</b>		
Indoor floor cleaning Total = 915,000 sf of Arena plus 85,000 sf of Practice/Training Facility								
	0.75	gal/min	4	min/1,000 sf	256	768	Source [2] Table 8	Source [2] Table 8
<b>Project Annual Water Use (gal)</b> (using total area of 1,000,000 sf)						<b>768,000</b>		
<b>Total GPY</b>						<b>993,665</b>		

<b>Landscape Area</b>						
Type	ETo	Plant Factor	Irrigated Area	Irrigation Efficiency	Ave Yearly Use GPY	Source
Planting Area Total = 139,112 sf	50.2	0.7	139,112	0.65	4,662,777	Irrigation Demand = (ETo) x (0.62) x ([PF x IA] / IE) Wilson Meany (Landscape Narrative)
<b>Total GPY</b>					<b>4,662,777</b>	

\*ETo from International Water Management Institute (<http://wcatlas.iwmi.org/Default.asp>) data for Project area  
Plant factor based on turf irrigation with medium (0.7) water requirements  
Irrigation efficiency (0.65) based on fixed spray irrigation

Hotel					
Type	No. Rooms	Gallons per room per day	No. of Days	Ave Yearly Use GPY	Source
150 Rooms	150	125	365	6,843,750	Source [5] Appendix F
				<b>Total GPY</b>	<b>6,843,750</b>

**Sources:**

- [1] "LEED v4 for Building Design and Construction", July 2, 2018, Water Efficiency
- [2] "Mission Bay Blocks 29-32 – Water Demand Memorandum", BKF Engineers, November 2014,
- [3] "Convention and Event Center Project - Draft Environmental Impact Report", City of Los Angeles, April 2012, Volume IV.K.1, Utilities - Water (Table IV.K.1-9)
- [4] Wilson Meany e-mails dated December 28, 2018 and January 7, 2019
- [5] "City of Inglewood's 2010 Urban Water Management Plan", May 2011
- [6] <https://www.ahs.com/home-matters/quick-tips/how-much-water-does-a-dishwasher-use/>

**Notes:**

- gal/min = gallons per minute
- GPD = gallons per day
- sf = square feet

## APPENDIX B

### WaterSense New Home Specification: Water Budget Tool (V 1.03)

This water budget tool shall be used to determine if the designed landscape meets Criteria 4.1.1 of the specification. Please refer to the WaterSense Water Budget Approach for additional information.

Your Name:   
Builder Name:   
Lot Number/Street Address:   
City, State, Zip Code:   
Peak Watering Month:   
Obtain from Water Budget Data Finder at [https://www.epa.gov/water-sense/water-budget-data-finder](https://www.epa.gov/watersense/water-budget-data-finder)  
Is an irrigation system being installed on this site?



### This worksheet determines the baseline and the landscape water allowance (LWA) for a site based on its peak watering month.

The baseline is the amount of water required by the site during the peak watering month if watered at 100 percent of reference evapotranspiration ( $ET_o$ ). The following formula is used to calculate the baseline:

$$Baseline = ET_o \times A \times C_u$$

Where:  
 $ET_o$  = Local reference evapotranspiration (inches/month)  
A = Landscaped area (square feet)  
 $C_u$  = Conversion factor (0.6233 for results in gallons/month)

The LWA is the water allotment for the site. The following formula is used to calculate the LWA:

$$LWA = 0.70 \times Baseline$$

Where:  
LWA = Landscape water allowance (gallons/month)  
Baseline =  $ET_o \times$  landscaped area  $\times$  0.6233

To calculate the Baseline and LWA for a site, enter the designed landscaped area and average monthly reference evapotranspiration for the site's peak watering month. (Enter data in white cells only.)

#### STEP 1A - ENTER THE LANDSCAPED AREA (A)

Area of the designed landscape (square feet)

#### STEP 1B - ENTER THE AVERAGE MONTHLY REFERENCE EVAPOTRANSPIRATION ( $ET_o$ )

Average monthly reference ET (inches/month) for the site's peak watering month

Obtain from Water Budget Data Finder at [https://www.epa.gov/water-sense/water-budget-data-finder](https://www.epa.gov/watersense/water-budget-data-finder)

#### OUTPUT - BASELINE FOR THE SITE

Monthly baseline (gallons/month) based on the site's peak watering month

#### OUTPUT - WATER ALLOWANCE FOR THE SITE

Monthly landscape water allowance (gallons/month) based on the site's peak watering month

Next Step: Click on the next tab labeled *Part 2 - LWR* to calculate the landscape water requirement.

**WaterSense New Home Specification: Water Budget Tool (V 1.03)**

This water budget tool shall be used to determine if the designed landscape meets Criteria 4.1.1 of the specification. Please refer to the WaterSense Water Budget Approach for additional information.

Your Name:

Builder Name:

Lot Number/Street Address:

City, State, Zip Code:

Peak Watering Month:

Is an irrigation system being installed on this site?



**This worksheet determines the monthly landscape water requirement (LWR) for a site based on its peak watering month.**

The monthly LWR is the water requirement specific to the designed landscape. The sum of the LWRs for each hydrozone equals the site LWR. The following formula is used to calculate the LWR for each hydrozone:

$$LWR_H = \frac{1}{DU_{LQ}} \times [(ET_o \times K_L) - R_a] \times A \times C_u$$

Where:  
 LWR<sub>H</sub> = Landscape water requirement for the hydrozone (gallons/month)  
 DU<sub>LQ</sub> = Lower quarter distribution uniformity  
 ET<sub>o</sub> = Local reference evapotranspiration (inches/month)  
 K<sub>L</sub> = Landscape coefficient for the type of plant in that hydrozone (dimensionless)  
 R<sub>a</sub> = Allowable rainfall, designated by WaterSense as 25% of average peak monthly rainfall (R)  
 A = Area of the hydrozone (square feet)  
 C<sub>u</sub> = Conversion factor (0.6233 for results in gallons/month)

To calculate the LWR for the site, enter the information requested below for the site's peak watering month. (Enter data in white cells only.)

**STEP 2A - ENTER THE AVERAGE MONTHLY RAINFALL (R) AT THE SITE FOR THE PEAK WATERING MONTH IDENTIFIED IN PART 1**

Average monthly rainfall (inches/month) for the site's peak watering month

Obtain from Water Budget Data Finder at: <http://www.epa.gov/watersense/water-budget-data-finder>

**STEP 2B - COMPLETE TABLE 1 BELOW (enter data in white cells only)**

Enter the area of the hydrozone (square feet). The total area must equal the landscaped area entered in Step 1A.

Choose the plant type from the dropdown list (source data is displayed in Table 2).

Choose the irrigation type from the dropdown list (source data is displayed in Table 3; guidance is displayed in Table 4 and Table 5).

**Table 1. Landscape Water Requirement**

Zone	Hydrozone/Landscape Feature Area (sq. ft.)	Plant Type or Landscape Feature	Landscape Coefficient (K <sub>L</sub> )	Irrigation Type	Distribution Uniformity (DU <sub>LQ</sub> )	LWR <sub>H</sub> (gal/month)
1	2,390	Trees - Medium water requirement	0.5	Drip - Standard	70%	6,608
2	2,390	Trees - Low water requirement	0.2	Drip - Standard	70%	2,643
3	41,677	Trees - Medium water requirement	0.5	Drip - Standard	70%	115,233
4	41,677	Trees - Low water requirement	0.2	Drip - Standard	70%	46,093
5	560	Trees - Medium water requirement	0.5	Drip - Standard	70%	1,546
6	560	Trees - Low water requirement	0.2	Drip - Standard	70%	619
7	13,535	Trees - Medium water requirement	0.5	Drip - Standard	70%	37,423
8	13,535	Trees - Low water requirement	0.2	Drip - Standard	70%	14,969
9	7,759	Trees - Medium water requirement	0.5	Drip - Standard	70%	21,453
10	7,759	Trees - Low water requirement	0.2	Drip - Standard	70%	8,581
11	3,636	Trees - Medium water requirement	0.5	Drip - Standard	70%	10,052
12	3,636	Trees - Low water requirement	0.2	Drip - Standard	70%	4,021
13						-
14						-
15						-
<b>Total Area =</b>	<b>139,112</b>					<b>Landscape Water Requirement for the Site (gal/month) 269,244</b>

**Table 2. Plant Type or Landscape Feature and Associated Landscape Coefficient**

Plant Type or Landscape Feature	K <sub>L</sub>		
	Low	Medium	High
Trees	0.2	0.5	0.9
Shrubs	0.2	0.5	0.7
Groundcover	0.2	0.5	0.7
Turfgrass	0.6	0.7	0.9
Pool, Spa, or Water Feature		0.8	
Permeable Hardscape		0	
Nonvegetated Softscape		0	

**Table 3. Distribution Uniformity**

Irrigation Type	DU <sub>LQ</sub> or EU*
Drip - Standard	70%
Drip - Press Comp	60%
Fixed Spray	65%
Microspray	70%
Rotor	70%
No Irrigation	NA

\*Lower Quarter Distribution Uniformity (DU<sub>LQ</sub>) applies to sprinkler zones and emission uniformity (EU) applies to drip/pressure zone systems. Source: (The Irrigation Association, CIPR-1001) in Landscape Irrigation Scheduling and Water Management, IA, 2005

Source: Based on USDA's Home Rating System 2008

**Table 4. Appropriate Irrigation Types - Landscaped Areas with Irrigation Systems**

IF THE PLANT TYPE IS:	THEN THE IRRIGATION TYPE CAN BE:			
	Drip - Standard	Drip - Press Comp	Fixed Spray	Microspray*
Trees	x	x		x
Shrubs	x	x		x
Groundcover	x	x		x
Turfgrass	x	x	x	x

\*Microspray may only be used on vegetation that has turfgrass if it meets the definition of a drip or fixed spray. Landscape Irrigation Scheduling and Emitter Spacing - Microspray: A microemitter emission device with one or more nozzles to control input of water pressure to water discharge with a flow rate not to exceed 25 gallons per hour (112.5 liters per hour) at the target area of coverage available for the nozzle system when operated at 20 psi (29kPa). Microsprays are inclusive of "microemitters" and "microspray jets."

**Table 5. Appropriate Irrigation Types - Landscaped Areas without Irrigation Systems**

IF THE PLANT TYPE OR LANDSCAPE FEATURE IS:	THEN THE IRRIGATION TYPE SHALL BE:		
	Drip - Standard	Fixed Spray	No Irrigation
Trees, Shrubs, or Groundcover with Low Water Requirements (K <sub>L</sub> = 0.2)	x		
Trees, Shrubs, or Groundcover with Medium or High Water Requirements (K <sub>L</sub> > 0.2)		x	
Turfgrass with Low, Medium, or High Water Requirements (K <sub>L</sub> > 0.2)		x	
Pool, Spa, or Water Feature		x	
Permeable Hardscape			x
Nonvegetated Softscape			x

\*This table was developed in consultation with the WaterSense Water Budget Approach for the landscape areas installed with out irrigation systems.

**OUTPUT - WATER REQUIREMENT FOR THE SITE**

Monthly landscape water requirement (gallons/month) based on the site's peak watering month

Next Step: Click on the next tab labeled **Part 3 - Results** to view the results.

### WaterSense New Home Specification: Water Budget Tool (V 1.03)

This water budget tool shall be used to determine if the designed landscape meets Criteria 4.1.1 of the specification. Please refer to the WaterSense Water Budget Approach for additional information.

Your Name:   
Builder Name:   
Lot Number/Street Address:   
City, State, Zip Code:

Peak Watering Month:

Is an irrigation system being installed on this site?



### This worksheet determines if the designed landscape meets the water budget.

If the landscape water requirement is LESS than the landscape water allowance, then the water budget criterion is met.  
If the landscape water requirement is GREATER than the landscape water allowance, then the landscape and/or irrigation system needs to be redesigned to use less water.

#### STEP 3A - REVIEW THE LWA AND LWR FROM PART 1 AND PART 2

LWA  (gallons/month) LWR  (gallons/month)

#### STEP 3B - REVIEW THE TOTAL AREA OF TURFGRASS\* IN THE DESIGNED LANDSCAPE FROM STEP 2B

The designed landscape contains  square feet of turfgrass.\* This is  of the landscaped area.

\*This includes the area of any pools, spas, and/or water features, designated by WaterSense to be counted as turfgrass.

### OUTPUT - DOES THE DESIGNED LANDSCAPE MEET THE WATER BUDGET?

If YES, then the water budget criterion is met.  
If NO, then the landscape and/or irrigation system needs to be redesigned to use less water.

The designed landscape water requirement is a  reduction in water use from the baseline calculated in Part 1.

## APPENDIX C

**Appendix C**  
**Proposed IBEC Project Water Demands (Arena and Plaza Events)**

Event Type	Number of Employees per Event [1]	Average Attendance per Event [1]	Baseline Water Use (gpcd)		Events per Year [1]	Estimated Water Demand	
			Per Employee [2]	Per Visitor [2]		Gallons per Year	AFY
<b>LA Clippers Home Games</b>							
Pre-Season Games	1,320	18,000	8.1	1.3	5	171,800	0.5
Regular Season Games	1,320	18,000	8.1	1.3	41	1,409,000	4.3
Postseason Games	1,320	18,000	8.1	1.3	3	103,100	0.3
<b>Concerts</b>							
5 per year (large)	1,120	18,500	8.1	1.3	5	167,000	0.5
8 per year (medium)	795	14,500	8.1	1.3	8	204,000	0.6
10 per year (small)	530	9,500	8.1	1.3	10	167,800	0.5
<b>Family Shows</b>							
20 shows per year	530	8,500	8.1	1.3	20	309,400	0.9
<b>Other Events</b>							
35 events per year	480	7,500	8.1	1.3	35	481,200	1.5
<b>Corporate/Community Events</b>							
100 per year	25	2,000	8.1	1.3	100	282,800	0.9
<b>Plaza Events</b>							
16 per year	25	4,000	8.1	1.3	16	87,300	0.3
<b>Practice Events</b>							
260 per year [3]	54	0	8.1	1.3	260	114,300	0.35
<b>Cooling Towers</b>							
Cooling Towers [4]						4,800,000	14.7
<b>Total</b>						<b>8,297,700</b>	<b>25.5</b>

**Notes:**

AFY = acre feet per year  
gpcd = gallons per day per capita

**Source:**

- [1] "IBEC Anticipated Annual Events Characteristics", Wilson Meany
- [2] See Appendix A
- [3] Pursuant to Montgomery Clark Advisors e-mail dated May 8, 2019
- [4] Proposed cooling tower water demand estimate based on AECOM e-mail dated May 2, 2019



**Appendix C**  
**Proposed IBEC Project Water Demands (Office, Retail, Restaurant, Cleaning, and Hotel)**

Other Components	Area (sf) [1]	Unit Rate	Days per Year	Annual Water Use (gal)	AFY
Office Space	111,000	68.5 gpd per 1,000 sf [2]	260	1,976,900	6.1
Retail Space	24,000	148 gpd per 1,000 sf [2]	365	1,293,200	4.0
Restaurant Space	24,000	165 gpd per 1,000 sf [2]	365	1,445,400	4.4
Landscape	139,112	[2]		2,164,900	6.6
Washdown and Facility Cleaning					
Outdoor (Hardscape and Parking Areas)	577,669	[2]		225,665	0.7
Indoor (Arena and Practice Facilities)	1,000,000	[2]		768,000	2.4
Hotel (150 rooms)		[2]		4,448,400	13.7
<b>Total</b>				<b>12,322,465</b>	<b>37.8</b>

**Notes:**

AFY = acre feet per year  
gpd = gallons per day  
sf = square feet

**Source:**

[1] "IBEC Project Program", Wilson Meany  
[2] See Appendix B "Gold Water Demand Use Rate Estimates"

**Appendix C - Proposed IBEC Project Water Demand Use Rate Estimates**

<b>Event Center End Uses</b>								
<b>1. Visitors</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Restroom Sink Faucet	0.35	gal/min	0.25	min	1	0.1	Source [6]	Source [2] Table 8
Urinals	0.125	gal/flush	1	flush	1	0.1	Source [6]	Source [2] Table 8
Toilets	1.1	gal/flush	1	flush	1	1.1	Source [6]	Source [2] Table 8
					<b>Sub-Total</b>	<b>1.3</b>		
<b>2. Full-Time Employees</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Employee	Source for Rates	Source for No. of Units and Ave. Daily Use
Showerhead	1.5	gal/min	5	min	0.3	2.3	Source [6]	Source [2] Table 8
Restroom Sink Faucet	0.35	gal/min	0.25	min	3	0.3	Source [6]	Source [2] Table 8
Urinals	0.125	gal/flush	1	flush	2	0.3	Source [6]	Source [2] Table 8
Toilet	1.1	gal/flush	1	flush	4	4.4	Source [6]	Source [2] Table 8
Kitchen Faucet	1.5	gal/min	0.25	min	1	0.4	Source [6]	Source [2] Table 8
Laundry	4	gal/pound	0.5	pound	0.3	0.6	Source [2] Table 8	Source [2] Table 8
					<b>Sub-Total</b>	<b>8.1</b>		
<b>Office End Uses</b>								
<b>1. Full-Time Employees</b>								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Showerhead	1.5	gal/min	5	min	0.3	2.3	Source [6]	Source [2] Table 8
Restroom Sink Faucet	0.35	gal/min	0.25	min	3	0.3	Source [6]	Source [2] Table 8
Urinals	0.125	gal/flush	1	flush	2	0.3	Source [6]	Source [2] Table 8
Toilet	1.1	gal/flush	1	flush	4	4.4	Source [6]	Source [2] Table 8
Kitchen Faucet	1.5	gal/min	0.25	min	1	0.4	Source [6]	Source [2] Table 8
					<b>Sub-Total</b>	<b>7.7</b>		
					<b>Gross sf/Employee</b>	<b>200</b>	Source [2] Table 8	Source [2] Table 8
					<b>GPD per 1,000 gross sf</b>	<b>38.5</b>		
<b>2. Dishwasher</b>	4.8	gal/cycle	1	cycle	1	5	Source [7, Source [1]	Source [2] Table 8
<b>3. Cooling Equipment</b>	0.0196	gal/sf	1000	sf	1	20	Source [2] Table 8	Source [2] Table 8
<b>4. Indoor Floor Cleaning</b>	0.75	gal/min	4	min/1000 sf	0.7	2	Source [2] Table 8	Source [2] Table 8
<b>5. Misc (assumed 5%)</b>						3	Source [2] Table 8	Source [2] Table 8
<b>Total GPD per 1,000 gross sf</b>						<b>68.5</b>		

[3] Pursuant to Montgomery Clark Advisors e-mail dated May 8, 2019

Retail End Uses								
1. Customer								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Restroom Sink Faucet	0.35	gal/min	0.25	min	1	0.0875	Source [6]	Source [2] Table 8
Urinals	0.125	gal/flush	1	flush	1	0.125	Source [6]	Source [2] Table 8
Toilets	1.1	gal/flush	1	flush	1	1.1	Source [6]	Source [2] Table 8
					<b>Sub-Total</b>	<b>1.3125</b>		
					<b>gross sf/customer</b>	<b>10</b>	Source [2] Table 8	
					<b>GPD per 1,000 gross sf</b>	<b>131.25</b>		
2. Full-Time Employees								
Type	Rate	Unit	No. of Units	Unit	Ave. Daily Use	GPD per Visitor	Source for Rates	Source for No. of Units and Ave. Daily Use
Restroom Sink Faucet	0.35	gal/min	0.25	min	3	0.2625	Source [6]	Source [2] Table 8
Urinals	0.125	gal/flush	1	flush	2	0.25	Source [6]	Source [2] Table 8
Toilets	1.1	gal/flush	1	flush	4	4.4	Source [6]	Source [2] Table 8
					<b>Sub-Total</b>	<b>4.9125</b>		
					<b>Gross sf/Employee</b>	<b>300</b>	Source [2] Table 8	Source [2] Table 8
					<b>GPD per 1,000 gross sf</b>	<b>16</b>		
<b>Total GPD per 1,000 gross sf</b>						<b>148</b>		

Restaurant End Uses						
Type	Rate	Unit	Ave. Daily Use	GPD	Source for Rates	
Restaurant	300	gal/day/1,000 sf	1	300	Source [3]	
			<b>Sub-Total</b>	<b>300</b>		
			<b>GPD per 1,000 gross sf</b>	<b>300</b>		
<b>Total GPD per 1,000 gross sf</b>				<b>165</b>	Assume 45% reduction	

Washdown and Facility Cleaning								
Type	Flow Rate	Unit	No. of Units	Unit	Ave Yearly Use	GPY per 1,000 GSF	Source for Rates	Source for No. of Units and Ave. Daily Use
Outdoor Hardscape Washdown (includes two parking areas) Total = 437,379 sf [4]								
South Parking garage = 70,770 sf	5	gal/min	30	min/1,000 sf	2	300	Source [2] Table 8	Source [2] Table 8
West Parking garage = 192,063 sf	5	gal/min	30	min/1,000 sf	2	300	Source [2] Table 8	Source [2] Table 8
Outdoor Hardscape = 174,546 sf	5	gal/min	30	min/1,000 sf	4	600	Source [2] Table 8	Source [2] Table 8
<b>Project Annual Water Use (gal)</b>						<b>183,578</b>		
Eastern Parking Area Outdoor Hardscape Washdown Eastern Parking Garage = 140,290 sf								
	5	gal/min	30	min/1,000 sf	2	300	Source [2] Table 8	Source [2] Table 8
<b>Project Annual Water Use (gal)</b>						<b>42,087</b>		
Indoor floor cleaning Total = 915,000 sf of Arena plus 85,000 sf of Practice/Training Facility								
	0.75	gal/min	4	min/1,000 sf	256	768	Source [2] Table 8	Source [2] Table 8
<b>Project Annual Water Use (gal)</b>						<b>768,000</b>		
(using total area of 1,000,000 sf)								
<b>Total GPY</b>						<b>993,665</b>		

Landscape Area						
Type	ETo	Plant Factor	Irrigated Area	Irrigation Efficiency	Ave Yearly Use GPY	Source
Planting Area Total = 139,112 sf	50.2	0.35	139,112	0.7	2,164,861	Irrigation Demand = (ETo) x (0.62) x ([PF x IA] / IE) Wilson Meany (Landscape Narrative)
<b>Total GPY</b>					<b>2,164,861</b>	
*ETo from International Water Management Institute ( <a href="http://wcatlas.iwmi.org/Default.asp">http://wcatlas.iwmi.org/Default.asp</a> ) data for Project area Plant factor based on an even distribution of plants with medium (0.5) and low (0.2) water requirements Irrigation efficiency (0.7) based on standard drip irrigation						

Hotel					
Type	No. Rooms	Gallons per room per day	No. of Days	Ave Yearly Use GPY	Source
150 Rooms	150	125	365	6,843,750	Source [5] Appendix F
				<b>Total GPY 4,448,438</b>	Assume 35% reduction

**Sources:**

- [1] "LEED v4 for Building Design and Construction", July 2, 2018, Water Efficiency
- [2] "Mission Bay Blocks 29-32 – Water Demand Memorandum", BKF Engineers, November 2014,
- [3] "Convention and Event Center Project - Draft Environmental Impact Report", City of Los Angeles, April 2012, Volume IV.K.1, Utilities - Water (Table IV.K.1-9)
- [4] Wilson Meany e-mails dated December 28, 2018 and January 7, 2019
- [5] "City of Inglewood's 2010 Urban Water Management Plan", May 2011
- [6] <https://www.americanstandard-us.com/-/media/sites/asus/files/support-files/2015-water-efficiency-brochure.pdf?la=en>

**Notes:**

- gal/min = gallons per minute
- GPD = gallons per day
- sf = square feet