

# Appendix H

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Estimated Water Use Memorandum



# Memorandum

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**Project:** Goleta Train Depot Project

**To:** Jaime Valdez (City of Goleta) **Memo Tech No:** GTD-002

**From:** Jim Keenan, ASLA **Date:** 02/12/2021

**cc:** Gerald Comati (City of Goleta,  
Ryan Russell (Rincon),  
Anil Verma, Lena Ly, Enrique Lopez (AVA)  
Scott Spaulding (SBCAG)

**Subject:** Estimated Water Usage (Based upon Preliminary Design Package – 35% Complete)

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## 1 Summary

### **OVERALL PROPERTY (Facility and Landscape)**

The purpose of this memo is to outline the estimated water use for the City of Goleta’s new multimodal train depot just south of the existing Goleta AMTRAK train platform site. The scope of improvements include a depot building, a new parking facility, and accommodations for buses, vanpools, and bicycles (***Train Depot Project***) at the station site (27 S. La Patera Lane).

The depot building and parking will be located on land owned by Goleta located immediately adjacent to the existing platform. Occupying the existing site is a +-38,000 square foot warehouse which composes roughly half of the project site with the warehouse located in the northern middle of the project area. The majority of the remaining area is surfaced with either concrete or asphalt pavement. The proposed project will not be modifying the existing platform. The train depot building is estimated to be approximately 9,000 square feet and will include a lobby, ticketing area, waiting room, café, community room, restrooms, offices, bike storage and baggage storage lockers.

Environmental documentation in accordance with the City’s 2008 Environmental Review Guidelines is being prepared, including any necessary California Environmental Quality Act (CEQA) compliance documentation for the project. The GWD is currently not meeting all of the above conditions needed in order to approve new or additional water connections, pursuant to the SAFE Water Supplies Ordinance. However, the project site has a preexisting water use history associated with the on-site warehouse and, therefore, would be allowed water service under Exception 2: Customers with preexisting water use history that is recognized in the District Code and that is equal to or greater than the water use that is needed for the Proposed Project. According to the GWD, the available water credit for the project site per the District Code Section 5.16.041 is 0.96 AFY. The project would be required to comply with and not exceed the annual water credit, which is currently existing for the project site. Therefore, the project would have available water supplies from existing entitlements and not require new or expanded entitlements. Future water credits could be applied for once the GWD has met all of the conditions under the SAFE Water Supplies Ordinance. Impacts would be less than significant. “

The enforced limit on water use (building and landscape) is **0.96 Acre-Feet per Year (AFY)**. This should provide an average estimated total water usage **857** gallons per day.



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## 2 Depot Facility Water Use

### OVERVIEW / ANALYSIS

The facility calculated water usage is assumed based upon a typical **Quick-Serve** restaurant. Typical water usage is anticipated to be approximately 8.5 gallons per seat per day with the following breakdown.

Café / Restroom Estimated Total Water usage/day = 60 restaurant occupants multiply by 8.5 = 510 gallons/day

- 1) Kitchen/dishwashing @ 52% usage of 510 = 265 gallons/day
- 2) Restrooms @ 40% of 510 = 204 gallons/day
- 3) Others @ 8% Of 510 = 41 gallons/day

Summary of Depot facility total estimated water usage:

- 4) Restaurant/ restroom = 510 gallons/day
- 5) Miscellaneous/incidental = 41 gallons/day

### ASSUMPTIONS:

- Quick-serve restaurant with limited menu which requires minimal preparation.
- Passenger waiting does not require a mandatory toilet facility; however, an incidental use 42 gallons has been attributed in the above calculation for that purpose if need be.
- Restroom fixtures are anticipated to be low flow / low water use type.
- The annual calculation was based upon an average x 365 assuming some days the depot may be closed and some days may experience higher volume.



\* Referenced from Barista Guild.

### ESTIMATED TOTAL WATER USAGE FOR DEPOT

The estimated preliminary minimum Building water demand for Goleta Depot is **551** gallon per day.

**ETWU= 201,115 gallon / year = 0.617-acre feet / year**

## 3 SITE LANDSCAPE

### OVERVIEW / ANALYSIS:

The latest update on the MWELo constants now list the efficiency of drip irrigation at 0.81 and that overhead irrigation and other technologies must meet a minimum IE of 0.75. Based upon the preliminary 35% Complete Design landscape drawings, the planting area square footage is as follows:

- 1) Planting Areas: = 14,825 square feet
- 2) LID Planting Areas: = 5,400 square feet
- 3) 20,225 square feet x 75% (See assumption below) = 15,169 square feet

Total Planting Area is approximately 15,169 square feet

### ASSUMPTIONS:

- Plant factor of .2 (balanced between very low and low). Palette selection consists of native plants and/or low water use perennials.



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- To minimize water usage and Landscape area is anticipated to be reduced approximately 20% of area by use of non-vegetative groundcovers as well as drainage outfall areas within LID planters.
- Goleta’s Ordinance No. 16-04 Regulating Water Efficient Landscaping, Appendix A indicates an **ETo of 48.1**. However, the CIMIS map indicated a 46.6 ETo for Goleta, which would calculate as a lower water usage but we are using 48.1 to be on the conservative side.

### ESTIMATED WATER USE CALCULATION:

The Landscape for the site was calculated as follows:

$$ETWU = (48.1)(0.62) [ (15,169)(.2) ]$$

$$.81$$

### ESTIMATED TOTAL WATER USAGE FOR LANDSCAPE

The estimated preliminary landscape water demand for Depot site is **306** gallons per day.

$$ETWU = 111,700 \text{ gallon / year} = 0.343\text{-acre feet / year}$$

### REFERENCES:

$$ETWU = (ETo)(0.62) [ (PF)(HA) + SLA ]$$

$$IE$$

*ETWU = Estimated Water Use*

*ETo = Reference Evapotranspiration rate, (inches)*

*PF = Plant factor from WUCOLS*

*HA = Hydrozone area, (square feet)*

*SLA = Special Landscape Area, (square feet)*

*0.62 = Conversion factor*

*IE = Irrigation efficiency.*

## 4 <Conclusions and Recommendations>

The Goleta Train Depot Project will need to operate conservatively based upon the allocated water allowance. Below outlines the estimated water use as well as additional strategies that may allow to increase the facility water availability by offsetting with reductions on the site landscape.

TOTAL FACILITY ETWU= 201,115 gallon / year = 0.617-acre feet / year (See Section #2 above)

TOTAL LANDSCAPE ETWU = 111,700 gallon / year = 0.343-acre feet /year (See Section #3 above)

### OVERALL ESTIMATED WATER USE FOR METER SERVICE:

$$ETWU = 312,815 \text{ gallon / year} / 325,851 = 0.96\text{-acre feet / year}$$

The estimated preliminary water demand is **858** gallon per day.

### ADDITIONAL WATER SAVING STRATEGIES TO BE CONSIDERED:

- 1) Underground Rain Capture Cistern: Based upon a 9,000-sf roof area, a 16,000-gallon underground tank would be estimated and can be provided if construction budget allows. The estimated capture could help



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supplement approximately 70,308 gallons of water per year based for irrigation, use purposes and allow for an increase in use with the Depot Facility. This is calculated by 620 gallons for every 1,000 square feet of roof space x 1" of rainfall. Goleta averages 18 gallons of rainfall per year. Anticipate 70% roof capture.

- 2) To make up the difference between demand and allowance, 60% of the annual landscape irrigation water use can be supplemented with trucks/rain capture.
- 3) Irrigation water usage can be further reduced from the previous landscape sf by roughly another 5% for a total of 25% and will assume more non-vegetative ground covers.
- 4) Additional irrigation supplementary water via watering truck or rain capture reservoir, or both, may be an option during drought years. Potential offset can be assumed up to ten 8,000-gallon water trucks per year, usually weekly during the summer months during the driest periods.
- 5) Closest recycled water line is located at Hollister Ave and Storke approximately 2 miles away. If in the future this line is further extended eastward, a new service could also offset the site water use considerably.
- 6) If water usage is higher than anticipated, the Café could have limited days or hours of operation. The café could also provide limited service, (example: only coffee and packaged food – no prep) in the morning).
- 7) The Existing meter serving the existing Warehouse is to be demolished. This served both the existing facility and existing landscape. Two new meters are proposed for the project: 1) Domestic Water services for the new Train Depot facility and; 2) For Landscape Irrigation Use only.