



2870 Gateway Oaks Dr., Suite 120, Sacramento, CA 95833  
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## Memorandum

**Date:** July 20, 2018  
**To:** City of Roseville, Planning Department  
**Cc:** Stephen L. Des Jardins  
**From:** Greg Bardini, P.E.  
**RE:** Diamond Creek DC -30 & 33 – General Plan Amendment Water Demands

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### Project Description

The project proposes a Major Project Permit Modification (MPPMOD) to decrease the amount of Community Commercial (CC) development from the currently approved 124,188 SF to 40,174 SF and to allow for the development of 57 small lot single-family residential units; a General Plan Amendment to change the site from 10.36 acres of CC to 5.98 acres of CC and 4.38 acres of High Density Residential (HDR); a Rezoning to change the site from 10.36 acres of CC/SA-NR to 5.98 acres of CC/SA-NR and 4.38 acres of High Density Residential (R-3/DS-NR); a Tentative Map to create one parcel at the northern portion of the site which would maintain the current commercial and office uses and to create 57 small lot residential parcels along the eastern and southern portions of the site; and a Specific Plan Amendment to change the North Roseville Specific Plan to amend Parcels DC 30 & 33 to allow for a decrease in Community Commercial uses and to allow 57 HDR units on the property.

This residential community would include 57 small lot single-family homes (average of 13 DU/AC). The average lot size will be 2613 SF. The overall site plan has been designed to mirror the small lot single-family homes just south of the site (NRSP Area DC-31C), to create a strong street presence along Parkside Way, and to also create an attractive interface and proper buffers between the new development and existing commercial uses to the north through use of landscape buffers, roads and open space.

Each home will have two parking spaces available and the development will also include small pockets of additional off-street parking within the development and along Parkside Way.



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The proposed changes result in a decrease of 4.38 acres of Commercial uses and an increase of 57 high density detached Single Family homes.

## ***Water Demand***

According to the City of Roseville 2016 Design Standards Section 8-6, an Average Day Unit Water Demand Factor (ADUWDF) of 2,598 gallons per day per acre (gpd/ac) is used for both Commercial and Business Professional land uses and an ADUWDF for High Density Residential at 288 gallons per day per dwelling unit. The demand factors, however, do not take into account the reduction in demand from the use of recycled water for irrigation. It is understood that the City has observed, and allows for up to a 30% reduction in potable water usage on projects that use recycled water for irrigation.

We have reviewed the water demands for the proposed project against that of the existing land use designations. Table 2 lists the City of Roseville water demand rates for various land use categories. We applied these demand rates to the existing land uses (Table 3) that are part of the amendment area versus the proposed revised land uses (Table 4).

Based on the calculations in Table 3 & 4, the proposed project is showing an increase in water demand from 60.30 ac-ft. per year to 71.57 ac-ft. per year. There is currently no recycled water being used within overall project limits. Providing recycled water infrastructure for the project provides the opportunity to recalculate potable water demand for the project. This project is assuming a reduction in water demand of 20% through the use of recycled water on the project. Table 5 identifies the overall water demand for the project area with the use of recycled water. The results show an overall decrease in water demand from 60.30 ac-ft. per year to 57.26 ac-ft. per year.

**TABLE 2**

| Land Use Category |                             | Average Day Unit Water Demand Factors |
|-------------------|-----------------------------|---------------------------------------|
| Residential       | LDR (<3.5 DU's/Ac)          | 728 gpd/DU                            |
|                   | LDR (3.5 to 5.0 DU's/Ac)    | 600 gpd/DU                            |
|                   | LMDR (>5.0 to 6.0 DU's/Ac)  | 521 gpd/DU                            |
|                   | LMDR (>6.0 to 8.0 DU's/Ac)  | 430 gpd/DU                            |
|                   | MDR (>8.0 to 12.0 DU's/Ac)  | 323 gpd/DU                            |
|                   | HDR (>12.0 to 16.0 DU's/Ac) | 288 gpd/DU                            |
|                   | HDR (>16.0 DU's/Ac)         | 177 gpd/DU                            |
| Commercial/Other  | Commercial/Retail           | 2,598 gpd/ac                          |
|                   | Business Professional       | 2,598 gpd/ac                          |
|                   | Light Industrial            | 2,598 gpd/ac                          |
|                   | Industrial                  | 2,562 gpd/ac                          |
|                   | Railroad Yard               | 109 gpd/ac                            |
|                   | Elementary Schools          | 3,454 gpd/ac                          |
|                   | High Schools                | 4,068 gpd/ac                          |
|                   | Public (Fire Station, etc)  | 1,780 gpd/ac                          |
|                   | Park/Recreation             | 2,988 gpd/ac                          |
|                   | Open Space/Major ROW        | -                                     |
|                   | Vacant/Unassigned           | -                                     |

City of Roseville Design Standards 2016 -Domestic Water Supply System Design  
 gpd/ DU = Gallons per day per dwelling unit  
 gpd / AC -Gallons per day per acre

**Table 3**

**Diamond Creek – DC-30 & 33**

**Water Demand - Existing**

| Large Lot<br>Parcels | Existing |       |       |                 | Water<br>Demand<br>Rates | Avg. Daily<br>Water<br>Demands<br>(gpd) | Max. Daily<br>Water<br>Demands<br>(mgd)<br>2 x ADF | Annual<br>Demand<br>(AFY) |
|----------------------|----------|-------|-------|-----------------|--------------------------|-----------------------------------------|----------------------------------------------------|---------------------------|
|                      | Land Use | Acres | Units | Allocated<br>SF |                          |                                         |                                                    |                           |
| DC-30&<br>33         | CC       | 10.36 | 0     | 124,188         | 2598                     | 26,916                                  | 0.0538                                             | 60.30                     |
|                      |          |       |       |                 |                          |                                         |                                                    |                           |
|                      |          |       |       |                 |                          | <b>26,916</b>                           | <b>0.0538</b>                                      | <b>60.30</b>              |



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**Table 4**

**Diamond Creek – DC-30 & 33**

**Water Demand Changes - Proposed**

| Large Lot<br>Parcels | Proposed |       |       |        | Water<br>Demand<br>Rates | Avg.<br>Daily<br>Water<br>Demands<br>(gpd) | Max.<br>Daily<br>Water<br>Demand<br>(mgd)<br>2 x ADF | Annual<br>Demand<br>(AFY) |
|----------------------|----------|-------|-------|--------|--------------------------|--------------------------------------------|------------------------------------------------------|---------------------------|
|                      | Land Use | Acres | Units | SF     |                          |                                            |                                                      |                           |
| DC-30                | CC       | 5.98  | 0     | 40,174 | 2598 gpd/ac              | 15,536                                     | 0.031                                                | 34.80                     |
| DC-33                | HDR      | 4.38  | 57    | 0      | 288 gpd/du               | 16,416                                     | 0.033                                                | 36.77                     |
|                      |          |       |       |        |                          | <b>313,952</b>                             | <b>0.064</b>                                         | <b>71.57</b>              |

**Table 5**

**Diamond Creek – DC-30 & 33**

**Water Demand Reductions with Recycled Water Use**

| Large Lot<br>Parcels | Proposed |       |       |       | Water<br>Demand<br>(assuming<br>a 20%<br>reduction<br>in demand<br>through the<br>use of<br>recycled<br>water) | Avg.<br>Daily<br>Water<br>Demand<br>(gpd) | Max.<br>Daily<br>Water<br>Demand<br>(mgd)<br>2 x ADF | Annual<br>Demand<br>(AFY) |
|----------------------|----------|-------|-------|-------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------|---------------------------|
|                      | Land Use | Acres | Units | SF    |                                                                                                                |                                           |                                                      |                           |
| DC-30                | CC       | 5.98  | 0     | 40174 | 2,079 gpd                                                                                                      | 12,433                                    | 0.025                                                | 27.84                     |
| DC-33                | HDR      | 4.38  | 57    | 0     | 230.4 gpd                                                                                                      | 13,133                                    | 0.026                                                | 29.42                     |
|                      |          |       |       |       |                                                                                                                | <b>24,290</b>                             | <b>0.051</b>                                         | <b>57.26</b>              |

The required water demand for the affected parcels under the proposed development would reduce the domestic water demand by 3.04 AFY.