August 24, 2010

Mr. Demian Hardman
Contra Costa County Department of Conservation and Development
651 Pine Street
Martinez, California

Re: Review of memo from P/A Design Resources, Inc. to Contra Costa
    County Department of Conservation and Development, re "Creekside
    Memorial Park – Estimate of Anticipated Project Energy Consumption",
    February 18, 2010, and attachments consisting of:
    (1) memo entitled "Creekside Memorial Park – Project Architectural
        Component, Estimate of Anticipated Energy Consumption", dated
        February 15, 2010 prepared by Chris Kelly of Chris Kelly
        Architects
    (2) technical memo entitled "Summary of Vehicle Miles Traveled –
        Creekside Memorial Park (Proposed Project) vs. 'Business as
        Usual' Condition", dated February 19, 2010 prepared by Vishnu
        Gandlura at TJKM Transportation Consultants

We have reviewed the above documents, and have found that their
analysis is incomplete, ignores key issues and contradicts other
submissions made by the applicant to the County. As a result of these
shortfalls, we believe that these documents do not fulfill the County's
request for the project's anticipated energy consumption, and so should
be disregarded. Our reasons for making these statements follow.

**Project Construction**

The first section of the memo from P/A Design Resources discusses
project construction. It states that the mass grading activities,
entailing approximately 500,000 cubic yards of earthwork, will be
balanced on site. This is in direct contradiction to the applicant's
previously submitted grading report from EARTHCALC Incorporated titled
"Creekside Memorial Park – Master Plan 9/22/06", which states that cut
volume is 527,365 cubic yards, fill volume is 391,239 cubic yards and
the difference of 136,126 cubic yards must be exported. In other
words, more than 25% of the cut volume will not be used on site. Note
that if a typical dump truck holds 15 cubic yards, then 9,075 truck
loads will be required to move this excess. So if the grading is
assumed to take place 8 hours/day, 5 days/week between mid-April and
mid-August, then a dump truck will be leaving the site every 4 minutes
during this time. The impacts of moving this much dirt (on neighbors,
traffic etc.) are significant, and have not been addressed.

**Project Architectural Component**

In this section, P/A Design Resources cites the memo by Chris Kelly
Architects dated February 15, 2010. However, although the Kelly memo
says that it was written "to provide an estimate of the anticipated
energy consumption of both the existing and proposed buildings," it
does not include a single energy consumption figure. Given this lack,
it does not address the County's request for the project's energy
consumption. This information is critical and should be provided by
the applicant.

**Landscape Maintenance**

The next section of the P/A Design Resources memo discusses landscape maintenance.  However, it does not include the use of machinery to actually dig the graves since "these activities (i.e. digging graves) will only be required up until full build-out and will be discontinued thereafter."  But since the applicant stated in his original application of December 15, 2005 that "(t)he capacity of the cemetery may not be reached for more than seventy-five to one hundred years depending on burial trends," the energy required to dig the graves will be a significant energy use for the foreseeable future and cannot be ignored.

A rough estimate of this energy use could be based on the applicant's planning basis of approximately 1,100 burials/year or an average of 3 per day, 365 days/year, per email from Joe Odrzywolski of P/A Design Resources to Ryan Hernandez, Contra Costa County Planner, on 9/1/2006.  If the assumption is made that each grave takes about one hour to dig and refill, and that the equipment (backhoe and dump truck) typically consumes about 1 gallon per hour, then about 1,100 gallons/year of gasoline is required (= 1,100 burials/year * 1 hour/burial * 1 gallon/hour).  In other words, the applicant's estimate of 2,100 gallons/year is significantly understated, and a more realistic figure would be at least 3,200 gallons/year.

But this brings up another question.  Our research has shown that the accepted procedure today is not to dig graves on a one-by-one basis but instead to install concrete entombment sections.  The applicant needs to specify which procedure will be used at the proposed cemetery, as well as the implications (including energy use).

**Well Pump Energy Consumption**

The next section of the P/A Design Resources memo discusses well pump energy consumption, and states that 36,000 kilowatt hours (kWh) per year is required, but no reason is given for this figure.  Without any supporting detail, it is not possible to evaluate whether this usage is reasonable or not; the applicant should be required to provide it.

In addition, the applicant states that "solar panels *may* be utilized to reduce this energy need" (italics added).  Not only are no details provided such as how many solar panels would be required, where they would be located or how much space they would require, but the applicant is only saying that solar panels MAY be used, not that they WILL be used.  This means that the applicant could choose the lower up-front cost option of using PG&E with no penalty.

**Lake Pump Energy Consumption**

The next section discusses lake pump energy consumption, and states that 17,000 kWh per year will be necessary "to properly circulate and aerate the lake water".  Again, no details for this figure are given, so it is impossible to evaluate it.  The applicant states that 3,000 kWh/year "*could* easily be provided" and that "additional solar panels *may* be utilized to further reduce this energy need" (italics added).  Again, the applicant is not saying that solar panels WILL be used, but only that they MIGHT be used, or MIGHT be used for PART of the need.

Again, no details are provided such as how many solar panels, where they would be located or how much space they would require.

**Additional Power Consumption (not included in applicant's analysis)**

When the power consumption for the proposed cemetery is added up (details below), it appears that it will be the equivalent of at least 15 single-family homes. But the site is zoned A80, which means that no parcel can be less than 80 acres, so that the most it could be divided into is two parcels, or two houses. But the proposed cemetery's energy needs are more than 7.5 times the use of the allowed homes, so even if all the energy needs were to be supplied by solar power, the overall energy consumption implies that the project is more of an industrial or urban use, and not appropriate for the agricultural and open space nature of the Tassajara Valley.

(1) For Administrative Office/Chapel building: no numbers are given, only the statement that "the building's maximum energy consumption, per square foot, will be similar to a single-family residence'. First, if one assumes that a typical single-family residence is 2,000 +/- square feet, this building alone is the equivalent of 10 houses, which is more than the zoning would allow.

(2) Secondly, given the large chapel(s) that would need to be heated in the winter or air-conditioned in the summer for the projected three burial services/day, 365 days/year, it does not seem reasonable that this building would have the same energy usage on a square foot basis as a single family residence, which has smaller living spaces more easily heated and cooled.

(3) In addition, no power and heating requirements are given for the other buildings (the 20,000 +/- square foot indoor mausoleum and 11,000 +/- square foot storage and corporation yard building), except to say that they could be provided by solar. But in order to understand the scope of this project, all of this information needs to be provided. All of these huge buildings are evidence that this proposed land use is urban and industrial rather than open space and agricultural.

(4) For well pump and lake pump: 53,000 kWh/year (= 36,000 kWh/year + 17,000 kWh/year), or 145 kWh/day, or the equivalent of 5 houses.

(5) So a very rough estimate would be that this proposed project would use the energy equivalent of at least 15 houses, or 435 kWh/day. This would require about 450 160W panels, each 3'x5' in size, which would cover about 12,750 square feet, equal to 6,750 sq. ft (raw size of the 450 panels) plus about 6,000 sq. ft since the panels must be spaced to allow access and maintenance.

(6) Where would all these solar panels be located? One might suggest the roofs of the 20,000 square foot Administrative Office/Chapel Building and of the 20,000 indoor mausoleum. But the landscape plans show that these buildings are to be surrounded by trees and backed up to an 800 +/- foot ridge on the west and southwest, so how much sun would they really get? And how much of the roof surfaces would be oriented in the correct direction? The applicant

needs to provide enough detail to show that their plans are at least feasible.

**Proposed Landscaping – Offset of Greenhouse Gas (GHG) Emissions**

No numbers are provided to support the statement that "these trees (i.e. the new trees to be planted) will provide a significant reduction in green house gases and provide increase (sp.) air quality for the Tassajara Valley".  By how much will greenhouse gases be reduced?  What is the current air quality in the Tassajara Valley, and by how much will these trees improve it?  Have they taken into account all of the construction, burials, visitors etc., all of which will generate additional carbon emissions as compared to the current land use?  These additional uses will offset and perhaps even eliminate any reduction in carbon emissions due to the additional trees.  The applicant must provide numbers to support these broad sweeping statements.

**Vehicle Miles Traveled (VMT) of Proposed Project vs. Business as Usual**

In this section, P/A Design Resources cites the technical memo from TKJM dated February 19, 2010, which calculates the number of "Vehicle Miles Traveled" (VMT) to get to the proposed cemetery as compared to a 'business as usual' case.  But this analysis is seriously flawed, as described below.

1.  The calculation is based on an assumption that no other cemeteries will be built in the area through the year 2025, but we know of at least one other that has been proposed, namely the 27 acre cemetery in the proposed "New Farm" project.  The "New Farm" project is located on the adjoining property to the north of this site.

2.  The comparison assumes that all trips in the area are currently made to a single cemetery in Hayward (Lone Tree Cemetery) located 10+ miles from the proposed cemetery (Table 1 in the attachment).  But this is not a good assumption, since there are two cemeteries in Livermore (Roselawn Cemetery and Memory Gardens) with plenty of available space located only 5 to 10 miles away.

    When Livermore's Memory Gardens is used as the 'business as usual' case instead of Hayward's Lone Tree Cemetery, and leaving all other assumptions unchanged (Table 2 in the attachment), the VMT drops from 2813 miles to 2032 miles, a drop of 28% (i.e. the proposed cemetery is less of an improvement to the current condition than claimed.)

3.  The analysis also does not provide any basis for determining the percentage of people from each town that would be using the proposed cemetery (the "daily trip percentages").  But these percentages are crucial in determining the VMT, and even very slight adjustments cause the VMT to change drastically.

    For example, using Livermore's Memory Gardens as the 'business as usual' case and changing the trip percentages to be equal across all cities (Table 3 in the attachment) makes the VMT drop from the original 2813 miles to 914 miles.

And using Livermore's Memory Gardens as the 'business as usual' case and simply switching the Danville and Livermore trip percentages (e.g. 35% from Livermore, 10% from Danville) (Table 4 in the attachment) causes the VMT to fall to -410, which means that the proposed cemetery would actually be WORSE than the current condition in terms of VMT.

So it should be clear that a reasonable estimate of the trip percentage distribution must be given for this analysis to be valid. The analysis should include such factors as distance to the cemetery versus multiple alternatives, age demographics of the cities involved, and overall population of the cities involved.

4. Another flaw with this analysis is that it ignores the impact of displacement of more appropriate development that could take place in the area instead of a cemetery. In other words, if this cemetery were to be approved, any future possible uses of the Tassajara Valley would be limited to only those compatible with a large cemetery (i.e. other cemeteries). And by allowing the development of the Tassajara Valley to occur in this piecemeal fashion, it is likely that the overall VMT will be higher, since at the least, there will be a large cemetery in the middle of the Tassajara Valley which must be driven around for residents to get to work or home. If there were an overall plan for the area, all factors could be evaluated to determine what would be best overall.

5. **The one thing the VMT analysis does make clear is that the way to minimize VMT is to have several smaller cemeteries located closer to the cities they serve, rather than one large cemetery located at a distance from all of them.** We did a 'what if' case that evaluated the introduction of two smaller cemeteries located in existing open space areas, one in the Danville/San Ramon area and one in the Dublin/Pleasanton area, along with the existing Livermore Memory Gardens Cemetery, as the 'business as usual' case (Table 5 in the attachment).

This analysis shows that the proposed Creekside Memorial Park, when compared to this 'business as usual' case, would **increase** the VMT by a large amount. From Table 5, a total of 795 VMT would be used accessing the 'business as usual' of the two smaller cemeteries plus Livermore's Memory Gardens, versus 4061 VMT for those same people to go to the proposed Creekside Memorial Park.

In other words, the proposed Creekside Memorial Park would result in 3266 more VMT, or more than five times the number of miles to be traveled to reach a cemetery than if the three closer cemeteries were used instead. Clearly a single, large cemetery located far away from these cities is a substantial loser versus supplying the area with smaller cemeteries that are more strategically located.

It should also be pointed out that since the TKJM analysis was performed, the Cities of Pleasanton and Dublin have made improvements to their existing cemeteries, so their residents now have less use for a new cemetery located further away from them.

6. Besides the trip mileage savings, there are also strong ecological arguments against the creation of a new cemetery, given the scarcity of land and the benefits of using it for other purposes.

7. In addition, this proposed cemetery is actually an urban and even industrial land use, given the 40,000 +/- square feet of buildings, 20 +/- acres of impermeable surfaces (roads, parking lots, buildings etc.), ridge line destruction, placement of structures (mausoleums and columbariums) on the ridge line and 448 daily vehicle trips, as well as its high and unsustainable volume of water use.

In conclusion, this memo from P/A Design Resources and its supporting documents do not even begin to answer the questions that they are intended to address. For this reason, we respectfully request that the County require the applicant to redo these submissions.

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Attachment - Tables showing alternative cases for Vehicle Miles
              Traveled (VMT)

**Tables showing alternative cases for Vehicle Miles Traveled (VMT)**

Following are the tables cited in the discussion of Vehicle Miles
Traveled (VMT) above.

Original as in report (units are miles except as noted)

| | City | Danville | San Ramon | Dublin | Pleasanton | Livermore | Total |
|---|---|---|---|---|---|---|---|
| A | Daily trip percentage (%) | 35% | 20% | 15% | 20% | 10% | 100% |
| B | Proposed project trips (# trips) | 156.8 | 89.6 | 67.2 | 89.6 | 44.8 | 448 |
| C | Distance to Lone Tree | 19.8 | 10.4 | 10.5 | 13.8 | 20 | - |
| D | VMT to Lone Tree | 3104.64 | 931.84 | 705.6 | 1236.48 | 896 | 6874.56 |
| E | Distance to Creekside Cemetery | 10.2 | 10 | 7.1 | 6 | 12.3 | - |
| F | VMT to Creekside Cemetery | 1599.36 | 896 | 477.12 | 537.6 | 551.04 | 4061.12 |
| G | Trip length change (=C-E) | 9.6 | 0.4 | 3.4 | 7.8 | 7.7 | - |
| H | VMT change (=D-F) | 1505.28 | 35.84 | 228.48 | 698.88 | 344.96 | 2813.44 |

Table 1 – Original table as given in the report

Original mileage with Livermore as alternative (units are miles except as noted)

| | City | Danville | San Ramon | Dublin | Pleasanton | Livermore | Total |
|---|---|---|---|---|---|---|---|
| A | Daily trip percentage (%) | 35% | 20% | 15% | 20% | 10% | 100% |
| B | Proposed project trips (# trips) | 156.8 | 89.6 | 67.2 | 89.6 | 44.8 | 448 |
| C | Distance to Lone Tree | 19.8 | 10.4 | 10.5 | 13.8 | 20 | - |
| D | VMT to Lone Tree | 3104.64 | 931.84 | 705.6 | 1236.48 | 896 | 6874.56 |
| E | Distance to Creekside Cemetery | 10.2 | 10 | 7.1 | 6 | 12.3 | - |
| F | VMT to Creekside Cemetery | 1599.36 | 896 | 477.12 | 537.6 | 551.04 | 4061.12 |
| Cmg | Distance to Memory Gardens | 20.7 | 15.8 | 11.3 | 7 | 1 | - |
| Dmg | VMT to Memory Gardens | 3245.76 | 1415.68 | 759.36 | 627.2 | 44.8 | 6092.8 |
| Gorig | Trip length change (LT-CC)(=C-E) | 9.6 | 0.4 | 3.4 | 7.8 | 7.7 | - |
| Horig | VMT Change (LT-CC)(=D-F) | 1505.28 | 35.84 | 228.48 | 698.88 | 344.96 | 2813.44 |
| Gmg | Trip length change (MG-CC)(=Cmg-E) | 10.5 | 5.8 | 4.2 | 1 | -11.3 | - |
| Hmg | VMT change (MG-CC)(=Dmg-F) | 1646.4 | 519.68 | 282.24 | 89.6 | -506.24 | 2031.68 |

Table 2 – Trip lengths and VMT using Livermore Memory Gardens Cemetery
instead of Hayward Lone Tree Cemetery, with original trip percentages.

Original mileage with Livermore as alternative, but 20% assigned evenly(units are miles except as noted)

| | City | Danville | San Ramon | Dublin | Pleasanton | Livermore | Total |
|---|---|---|---|---|---|---|---|
| A | Daily trip percentage (%) | 20% | 20% | 20% | 20% | 20% | 100% |
| B | Proposed project trips (# trips) | 89.6 | 89.6 | 89.6 | 89.6 | 89.6 | 448 |
| C | Distance to Lone Tree | 19.8 | 10.4 | 10.5 | 13.8 | 20 | - |
| D | VMT to Lone Tree | 1774.08 | 931.84 | 940.8 | 1236.48 | 1792 | 6675.2 |
| E | Distance to Creekside Cemetery | 10.2 | 10 | 7.1 | 6 | 12.3 | - |
| F | VMT to Creekside Cemetery | 913.92 | 896 | 636.16 | 537.6 | 1102.08 | 4085.76 |
| Cmg | Distance to Memory Gardens | 20.7 | 15.8 | 11.3 | 7 | 1 | - |
| Dmg | VMT to Memory Gardens | 1854.72 | 1415.68 | 1012.48 | 627.2 | 89.6 | 4999.68 |
| Gorig | Trip length change (LT-CC)(=C-E) | 9.6 | 0.4 | 3.4 | 7.8 | 7.7 | - |
| Horig | VMT change (LT-CC)(=D-F) | 860.16 | 35.84 | 304.64 | 698.88 | 689.92 | 2589.44 |
| Gmg | Trip length change (MG-CC)(=Cmg-E | 10.5 | 5.8 | 4.2 | 1 | -11.3 | - |
| Hmg | VMT change (MG-CC)(=Dmg-F) | 940.8 | 519.68 | 376.32 | 89.6 | -1012.48 | 913.92 |

Table 3 – Trip lengths and VMT using Livermore Memory Gardens instead
of Hayward Lone Tree cemetery, but with trip percentages assigned
evenly.

Original mileage with Livermore as alternative, and percentages skewed in opposite direction

| | City | Danville | San Ramon | Dublin | Pleasanton | Livermore | Total |
|---|---|---|---|---|---|---|---|
| A | Daily trip percentage (%) | 10% | 20% | 15% | 20% | 35% | 100% |
| B | Proposed project trips (# trips) | 44.8 | 89.6 | 67.2 | 89.6 | 156.8 | 448 |
| C | Distance to Lone Tree | 19.8 | 10.4 | 10.5 | 13.8 | 20 | |
| D | VMT to Lone Tree | 887.04 | 931.84 | 705.6 | 1236.48 | 3136 | 6896.96 |
| E | Distance to Creekside Cemetery | 10.2 | 10 | 7.1 | 6 | 12.3 | |
| F | VMT to Creekside Cemetery | 456.96 | 896 | 477.12 | 537.6 | 1928.64 | 4296.32 |
| Cmg | Distance to Memory Gardens | 20.7 | 15.8 | 11.3 | 7 | 1 | |
| Dmg | VMT to Memory Gardens | 927.36 | 1415.68 | 759.36 | 627.2 | 156.8 | 3886.4 |
| Gorig | Trip length change (LT-CC)(=C-E) | 9.6 | 0.4 | 3.4 | 7.8 | 7.7 | |
| Horig | VMT change (LT-CC)(=D-F) | 430.08 | 35.84 | 228.48 | 698.88 | 1207.36 | 2600.64 |
| Gmg | Trip length change (MG-CC)(=Cmg-E) | 10.5 | 5.8 | 4.2 | 1 | -11.3 | |
| Hmg | VMT change (MG-CC)(=Dmg-F) | 470.4 | 519.68 | 282.24 | 89.6 | -1771.84 | -409.92 |

Table 4 - Trip lengths and VMT using Memory Gardens Cemetery instead of Lone Tree cemetery as 'business as usual' destination, and with trip percentages for Danville and Livermore switched.

**Original mileage using locations near Danville/San Ramon, Dublin/Pleasanton and Livermore as 'business as usual'**

| | | Danville | San Ramon | Dublin | Pleasanton | Livermore | Total |
|---|---|---|---|---|---|---|---|
| A | Daily trip percentage (%) | 35% | 20% | 15% | 20% | 10% | 100% |
| B | Proposed project trips (# trips) | 156.8 | 89.6 | 67.2 | 89.6 | 44.8 | 448 |
| | | | | | | | |
| Cdsrc | Distance to Danville/San Ramon Cemetery | 1.7 | 2.1 | | | | - |
| Ddsrc | VMT to Danville/San Ramon Cemetery | 266.56 | 188.16 | | | | 454.72 |
| Cdpc | Distance to Dublin/Pleasanton Cemetery | | | 1.6 | 2.1 | | - |
| Ddpc | VMT to Dublin/Pleasanton Cemetery | | | 107.52 | 188.16 | | 295.68 |
| Cmgl | Distance to Memory Gardens | | | | | 1 | - |
| Dmgl | VMT to Memory Gardens | | | | | 44.8 | 44.8 |
| Cmult | Total Distance | 1.7 | 2.1 | 1.6 | 2.1 | 1 | - |
| Dmult | Total VMT | 266.56 | 188.16 | 107.52 | 188.16 | 44.8 | 795.2 |
| | | | | | | | |
| E | Distance to Creekside cemetery | 10.2 | 10 | 7.1 | 6 | 12.3 | - |
| F | VMT to Creekside Cemetery | 1599.36 | 896 | 477.12 | 537.6 | 551.04 | 4061.12 |
| | | | | | | | |
| G | Trip length change (mult-CC)(=Cmult-E) | -8.5 | -7.9 | -5.5 | -3.9 | -11.3 | - |
| H | VMT change (mult-CC)(=Dmult-F) | -1332.8 | -707.84 | -369.6 | -349.44 | -506.24 | -3265.92 |

Locations Used for Distance Values
These locations are taken so distances from city to Creekside Memorial Cemetery match the TJKM report.
(Note, these are not central locations)

| | |
|---|---|
| Danville | Intersection of Hartz Ave and School Street |
| San Ramon | Intersection of Meadow Glenn and Twin Creeks Drive |
| Dublin | Civic Plaza, Dublin - about at the library |
| Pleasanton | Intersection of Sutter Gate Ave and Santa Rita Road |
| Livermore | Intersection of South Livemrore and Rodeo Lane |
| | |
| Danville/San Ramon Cemetery location | Century Oaks Way & San Ramon Valley Blvd (currently open space) |
| Dublin/Pleasanton Cemetery location | Iron Horse Parkway and Martinelle Way (currently open space) |

Table 5 - Trip lengths and VMT calculated proposing two smaller cemeteries (one in Danville/San Ramon, one in Dublin/Pleasanton) along with Livermore's Memory Gardens as the 'business as usual' destination (instead of using Lone Tree Cemetery) versus Creekside Memorial Park.