This is an informational report and no Council action is required. The purpose of this report is to notify Council on the progress being made towards a detailed feasibility study and environmental assessment for a dry anaerobic digestion facility in Palo Alto. Staff estimates that a final Environmental Impact Report would be available for certification by Council no earlier than April 2012. Staff expects to have a draft interim financial analysis report in January 2011.

BACKGROUND
On April 5, 2010, Council directed staff to initiate a feasibility study for dry anaerobic digestion in Palo Alto. The final approved motion consisted of the following points:

1. Direct staff to initiate the process to hire a consultant to conduct a feasibility study and prepare an appropriate-level environmental impact report for a dry anaerobic digestion facility on 8 to 9 acres of Byxbee Park adjacent to the Regional Water Quality Control Plant;
2. Continue the moratorium on commercial waste acceptance at the Palo Alto Landfill;
3. Provide an interim report to Council regarding the economics of the feasibility study options;
4. Examine the feasibility of energy conversion technologies (including AD technologies) during the upcoming Regional Water Quality Control Plant (RWQCP) Master Planning Process; and
5. Investigate and pursue local partnering opportunities with SMaRT® partners and/or local organic waste processing companies who are developing private AD or energy conversion facilities within a 20-mile radius of Palo Alto.

A history of events leading up to the Council action on April 5, 2010 is detailed in CMR:165:10.

DISCUSSION
Staff has initiated the process to procure consultant services for a detailed feasibility study of a dry anaerobic energy facility in Palo Alto with an environmental assessment of impacts. The study will examine a facility that would recover energy from methane derived from dry anaerobic digestion of feedstocks consisting of food scraps, yard trimmings, and, possibly
wastewater biosolids. Besides energy, the primary end product from the processes would be a marketable soil amendment material similar to finished compost.

An Initial Study Checklist pursuant to the California Environmental Quality Act (CEQA) would be prepared as early as possible during the study. Further CEQA work may be performed as appropriate following the Initial Study Checklist. The location of the proposed Palo Alto facility would be immediately southeast of the Palo Alto Regional Water Quality Control Plant on an 8 to 9 acre site (with 6 to 7 acres overlying the current Palo Alto Landfill).

Several project alternatives relating to the different possible feedstocks will be examined during the study. The costs, impacts, and benefits will be compared to a “no action” alternative and to the alternative of a similar processing facility located outside of Palo Alto, but within 20 miles in order to minimize the air quality impacts and carbon footprint of trucking.

A proposed conceptual timeline for the overall study is presented in Attachment A. The working draft request for proposals (RFP) is included as Attachment B. Staff expects the RFP to be issued in June 11, 2010. Per the timeline, Council will be asked to award a contract for the study by August 2, 2010 before Council takes recess in August.

Community Input Meeting
The first major task that will be performed by the Consultant is the facilitation of at least one community input meeting for the study. This public input session will collect ideas and concerns for the project to help guide the rest of the study. This will be especially helpful for identifying and costing out suggested environmental mitigation proposals. One such mitigation suggestion already received from community input is that the facility should include a green roof system that integrates with the closed landfill cap. A follow-up suggestion from community input indicated that the Byxbee Park recreational trail system needs to be considered in the design.

Preliminary Economic Analysis
The second major task will be the preparation of a preliminary economic analysis of the proposed facility funding and operating scenarios. The economic analysis will examine the project with and without a rent payment for use of the City-owned land. It will also include the economics of greenhouse gas (GHG) carbon credits and renewable energy credits. The data will be presented in two formats. The first would be in terms of the total overall costs and benefits to the City of Palo Alto and the partners of the Regional Water Quality Control Plant. The second would be in terms of costs and benefits to the individual enterprise funds and general fund (if applicable). Staff expects to present a draft of the preliminary economic report to Council in late January 2011. The final preliminary economic analysis is expected to be presented by March 2011 for further Council action and direction on the overall project. Completion of this task will address item 3 of the Council action on April 5, 2010.

This report is provided to keep Council informed of the process that staff has initiated to procure consultant services. Based on the conceptual schedule, staff expects to return to Council prior to the August recess to award a contract for the project. Proposals will be evaluated by an inter-departmental staff committee using standard Purchasing Division criteria as modified to fit this project. The working draft proposal review criteria worksheet is enclosed as Attachment C.
RESOURCE IMPACT
Depending on the outcome of Council action at the final preliminary report stage (March 2011), staff could develop a formal capital improvement project (CIP) for the proposed facility’s preliminary design and complete EIR. Additional funding for the consultant beyond the initial contract award will be required to continue the project at that point. The preliminary cost estimate would also provide a solid basis to pursue any and all potential grant and stimulus funding sources for the project at that time. Depending upon the specific outcome of the preliminary studies and subsequent Council direction, costs for conceptual design of the project and a complete environmental impact report could range from an additional $200,000 to $500,000.

Funding for this study is expected to come from the FY2010-11 operating budget of the relevant and respective Enterprise Funds. The revised initial study cost estimate is expected to be for $200,000 to $250,000 depending upon the proposals to be received.

POLICY IMPLICATIONS
The “no action” scenario and the use of a similar anaerobic digestion facility outside of Palo Alto represent the current organic waste management policy established in the Zero Waste Operations Plan. That 2007 policy document recommends using regional facilities to handle organics processing, however it does state in chapter 1.4 that emerging technologies such as anaerobic digestion could assist the City with achieving higher rates of waste diversion.

The proposed Palo Alto dry anaerobic digestion facility scenario is consistent with established Council policies on reducing greenhouse gas emissions, but is not consistent with the Comprehensive Plan or the 2008 Baylands Master Plan.

ENVIRONMENTAL REVIEW
As requested by Council, staff is also proceeding with an environmental assessment. However, it is important to note that under Section 15262 of the California Environmental Quality Act (CEQA) Guidelines a feasibility study that does not commit the City to a particular project or course of action does not require a formal EIR or negative declaration, but instead requires a more general consideration of environmental factors. Staff expects that a decision to pursue a program-level or project-level environmental impact report will be made by Council in September 2011 when the final feasibility study report is presented to Council for acceptance and when the scope of the facility is better defined. Prior to that decision, much of the preliminary technical environmental analysis will have been completed including determination and quantification of impacts relating to greenhouse gases, traffic, noise, air emissions, lighting, aesthetics, habitat and biological resources, cultural resources, geology and soils hazards, hazardous materials, hydrology and water quality, land use and planning, mineral resources, public services, recreation, and utilities. Staff anticipates that an informational report to Council will be given in July 2011 to present the draft CEQA Initial Study Checklist along with the technical analysis to support the checklist.

ATTACHMENTS
Attachment A: Proposed Energy/Compost Study Timeline
ENERGY/COMPOST STUDY CONCEPTUAL TIMELINE

**FEASIBILITY STUDY**

- **5/24/10**: Study Timeline Info CMR
- **6/11/10**: RFP Issued
- **8/2/10**: Council Approval of Consultant Contract
- **9/8/10**: Community Issues Input Meeting for Feasibility Analysis
- **12/3/10**: Consultant Draft of Prelim. Financial/GHG Analysis
- **1/24/11**: Info CMR forwarding Draft Prelim. Financial/GHG Analysis
- **2/11**: Community meetings on Draft Prelim. Financial/GHG Analysis
- **3/15/11**: Final Prelim. Financial/GHG Analysis
  
  [point for possible further Council action]
- **6/15/11**: Consultant Draft of Feasibility Study
- **7/30/11**: Info CMR forwarding Draft Feasibility Study
- **8/11**: Community Meetings
- **9/30/11**: Final Feasibility Study to Council

**ENVIRONMENTAL ASSESSMENT**

- **9/8/10**: Community Issues Input Meeting for Environmental Assessment
- **3/15/11**: Preliminary Consultant Technical Work on Environmental Assessment Completed
- **6/15/11**: Consultant Draft of CEQA Initial Study (CEQA Checklist)
- **7/30/11**: Info CMR forwarding Draft CEQA Checklist
- **8/11**: Community Meetings
- **9/30/11**: Recommendation to Council on Timeline for Completing CEQA Review and Process
- **4/15/12**: Final CEQA Review Documentation to Council for Certification

**KEY MILESTONE DATES**

- **Percent of Contract Funds Expended**
  - **3/15/11**: 70%
  - **9/30/11**: 100%

**Additional Funding Needed**
ATTACHMENT B
City of Palo Alto
Energy/Compost Feasibility Study and Environmental Impact Initial Study
Scope of Services

GENERAL DESCRIPTION OF WORK

The project is to prepare a Feasibility Study for a Dry Anaerobic Energy/Compost Facility in the City of Palo Alto, California. The facility would recover energy from methane derived from dry anaerobic digestion of food scraps, yard trimmings, and, possibly wastewater biosolids. The chief residual from the processes would be compost. The Feasibility Study would include an economic, greenhouse gas, and environmental impact analysis. An Initial Study (CEQA Checklist) pursuant to the California Environmental Quality Act would also be prepared. (Further California Environmental Quality Act work may be performed through a Contract Amendment.) Several sub-options will be studied. The costs, impacts, and benefits will be compared to a “no action” alternative and to the alternative of a similar processing facility located outside of Palo Alto, but within 20 miles. The location of the Palo Alto facility would be immediately southeast of the Palo Alto Regional Water Quality Control Plant on an 8-9 acre site (with 6 to 7 acres overlying the existing Palo Alto Landfill).

BACKGROUND

The City of Palo Alto currently handles organic waste in the following ways:

1. Yard trimmings are composted at the Palo Alto landfill site in uncovered windrows;
2. Residential food scraps are disposed of with the garbage, transferred at the Sunnyvale SMaRT® Station and ultimately landfilled in South San Jose;
3. Commercial food scraps are increasingly being source separated and composted near Gilroy, CA, with the remainder being landfilled in South San Jose;
4. Wastewater Biosolids are dewatered and incinerated at the Regional Water Quality Control Plant in Palo Alto.

Due to the anticipated closure of the Palo Alto landfill and its associated Compost Facility, Palo Alto has been exploring its options. City Council appointed a Blue Ribbon Compost Task Force (Task Force) made up of community members to make recommendations for organics management. The Task Force recommended dry anaerobic digestion at or near the Regional Water Quality Control Plant¹. On April 5, 2010 council directed² staff to:

1. Hire a consultant to evaluate dry anaerobic digestion
2. Prepare an environmental impact review focused on 8-9 acres of Byxbee Park.

¹ See Palo Alto website for Task Force Report and Supporting documents.
3. Continue not accepting commercial refuse at the Palo Alto Landfill.
4. Study energy conversion-technologies including anaerobic digestion at Palo Alto's Wastewater Treatment Plant as part of its Facility Planning process.
5. Pursue partnering opportunities for organics processing within 20 miles of Palo Alto.

The 8-9 acre site described above is currently on dedicated Parkland. Six to seven acres of the proposed site are part of an active class 3 municipal solid waste landfill that has not yet received a final closure cap. The entire site would have to be undedicated by a vote of the residents before an Energy/Compost Facility could be constructed. A number of other approvals and permits would also be needed. However, this Scope of Services does not include working on these approval processes.

Palo Alto already operates its own gas and electric utilities, which are potential users of gas or energy generated by an anaerobic digestion facility. The electric utility has been directed to procure 33% of its electric supply from renewable sources by 2015. The gas utility is investigating opportunities to supply some load using biogas. The City also fuels its vehicle fleet with compressed natural gas, which is another potential use for biogas generated by the facility.

PROJECT APPROACH

Consultant will evaluate and compare three basic alternatives:

**Alternative 1:** A new dry anaerobic digestion facility adjacent to the Palo Alto Wastewater Treatment Plant.

**Alternative 2:** Sending organic waste directly to a similar Regional Facility adjacent to the San Jose Wastewater Treatment Plant

**Alternative 3:** The current facilities and plans which Palo Alto has arranged for its organics residuals following closure of the Palo Alto Landfill (i.e. transfer to regional facilities via the SMaRT® Station).

Palo Alto staff will provide much of the data for the analysis of Alternatives 2 and 3. The majority of the Consultants work will be on Alternative 1. There are two sites involved in Alternative 1, the 8-9 acre Landfill site just Southeast of the Wastewater Treatment Plant, and the Wastewater Treatment Plant itself. Therefore, there will be sub-alternatives to Alternative 1 as follows:

**Sub-options to Alternative 1:**

1a) A new dry anaerobic digestion for yard, food and biosolids on the landfill site (biosolids in separate cells).
1b) Dry anaerobic digestion for yard, food and wet anaerobic digestion for biosolids on the landfill site.
1c) Dry anaerobic digestion for yard and food on the landfill site and wet anaerobic digestion for biosolids on the Wastewater Plant site.
1d) Dry anaerobic digestion for yard and food waste and no methane production from the biosolids.
The analysis of all four sub-options of Alternative 1 will assume that a common methane energy recovery facility will be located on the Landfill site. It will also include a preliminary site engineering analysis relating to the existing landfill. The analysis of all main options and sub-options will include:

1. A financial analysis;
2. A life-cycle analysis of greenhouse gas emissions; and
3. An analysis of environmental and other impacts.

The analysis of the wet anaerobic digestion process in Alternative 2 and Alternative 3 will be performed through a separate, parallel study: the Wastewater Long Range Planning process. The consultant selected that study will provide the evaluation of wet anaerobic digestion to the Consultant selected for the Energy/Compost Feasibility Study.

Following submittal of Preliminary Analysis (Task 4), City will consider whether other alternatives should be considered as well. For example, it may become apparent that an alternative of a somewhat larger or smaller Landfill site would be a more cost effective option, and still be within the intent of the Council Directive to staff from April 5, 2010.

**CONSULTANT SERVICES**

- **Task 1** - Development of Detailed Workplan. Consultant will prepare a draft detailed Work Plan and meet with City staff and agree on communication techniques as between the City and Consultant.

- **Task 2** - Community Scoping for Feasibility Study and for Environmental Review. City will arrange for and facilitate a community meeting to solicit input on the Feasibility Study and the Environmental Review. Following this meeting and consultation with the City, Consultant will finalize its Work Plan.

- **Task 3** - Preparation of Draft Preliminary Financial and Greenhouse Gas Analysis. Consultant shall collect the data necessary to evaluate the options and sub-options outlined under “Approach” above and prepare a draft preliminary evaluation in a data management system format. The key parameters will be dollars, greenhouse gas emissions, and environmental impacts.

- **Task 4** - Preparation of Final Preliminary Financial and Greenhouse Gas Analysis. Following review by City, the Preliminary Analysis will be finalized. Included in this deliverable should be a working Excel model that can be used by City staff to update inputs to the analysis and see the effect it has on the project’s feasibility.

- **Task 5** - Preparation of Draft Feasibility Study and California Environmental Quality Act Checklist. Consultant shall assist the City in presenting the Preliminary Analysis to the Community and to City Council. Feedback from that process shall be
used to prepare a Draft Feasibility Study and California Environmental Quality Act Initial Study (California Environmental Quality Act Checklist).

Task 6 - Preparation of Final Feasibility Study, California Environmental Quality Act Checklist, and Workplan for Completion of California Environmental Quality Act Analysis.
Consultant shall assist the City in presenting the Draft Feasibility Study to Council and the Community. Feedback from that process shall be used to finalize the Feasibility Study and California Environmental Quality Act Checklist.

Task 7 - Preparation of Workplan for Complete California Environmental Quality Act Analysis.
Following preparation of the California Environmental Quality Act Initial Study (California Environmental Quality Act Checklist), Consultant shall confer with City. City will advise the Consultant which type of review on the Feasibility Study is to be completed (Program EIR, Project-level EIR or focused EIR). Consultant shall then prepare a Workplan for the preparation of that type of Environmental Review. (City may utilize a contract amendment as the vehicle for completing the needed work.)

Task 8 - Analysis of Energy Generation from Methane
Consultant shall estimate the amount of biogas, percent methane, moisture content and key contaminant levels for the four sub options identified in the “Approach” above. Landfill gas from the Palo Alto landfill shall be considered as an additional source of biogas and recommendations made on whether to include it in the energy recovery analysis.

Consultant shall consider methane utilization in internal combustion engines, turbines, fuel cells, compressed natural gas production, and any other promising technologies. For options requiring heat, cogeneration of heat and electrical energy shall be considered.

Consultant shall analyze the capital and operating costs of the four sub options [1a) – 1d)] in the “Approach” and determine the net present value over the project life.

Consultant shall consider the impacts of tax credits, renewable energy credits, rebates, accelerated depreciation and similar features which improve financial feasibility. Grants which may be possible to obtain shall be listed and the likelihood of attaining them analyzed briefly. Recommendations shall be made as to whether the private sector or government should own and/or operate the energy recovery plant and/or the anaerobic digesters. City Staff will provide the consultant with the commodity sale prices (electricity and natural gas) to be used in the analysis.
The analysis shall result in overall recommendations with respect to the options [1a – 1d], the type of methane utilization, and the owner/operator question. The most cost effective alternative shall be identified.

Task 9 - Project Management
Consultant and City shall meet monthly to review progress and agree on priorities for upcoming work.

Consultant shall utilize software graphics which depict 3 dimensions, as well as, plan and side views for showing facilities in its drawings. All drawings will be fully compatible with the City's GIS System.

PROJECT TIMELINE

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 8, 2010</td>
<td>Community Scoping meeting (City to lead)</td>
</tr>
<tr>
<td>December 3, 2010</td>
<td>Consultant Draft of Preliminary Financial/Greenhouse Gas Analysis</td>
</tr>
<tr>
<td><strong>January 24, 2011</strong></td>
<td><strong>Revised Draft Preliminary Financial/Greenhouse Gas Analysis</strong></td>
</tr>
<tr>
<td>February 2011</td>
<td>Community meetings on Draft Preliminary Financial/Greenhouse Gas Analysis</td>
</tr>
<tr>
<td><strong>March 15, 2011</strong></td>
<td><strong>Final Preliminary Financial/Greenhouse Gas Analysis</strong></td>
</tr>
<tr>
<td>July 30, 2011</td>
<td>Revised Draft Feasibility Study and California Environmental Quality Act Checklist</td>
</tr>
<tr>
<td>August 2011</td>
<td>Community Meetings</td>
</tr>
<tr>
<td><strong>September 30, 2011</strong></td>
<td><strong>Final Feasibility Study and Draft Workplan for completion of California Environmental Quality Act documentation.</strong></td>
</tr>
<tr>
<td>October 30, 2011</td>
<td>Final Workplan for Completion of California Environmental Quality Act documentation.</td>
</tr>
</tbody>
</table>
## Draft Proposal Review Criteria Worksheet

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Consultant A</th>
<th>Consultant B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal has all required elements.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Proposal is well thought out, clear, and provides clear path to meet project objectives.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Proposer's experience, including the experience of staff to be assigned to the project, with engagements of similar scope and complexity.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Cost to the city.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Proposer has adequate financial liability insurance.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Proposer's ability to perform the work within the time specified.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Proposer's prior record of performance with city or others.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Proposer's compliance with applicable laws, regulations, policies (including city council policies), guidelines and orders governing prior to existing contracts performed by the contractor.</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

| Total score | 0 | 0 |

**Note:**

Score = Weight x Rating.
Rating shall be from 0 to 5; with 0 = poor rating and 5 = good rating.
Rating shall be determined by member of selection committee.

Proposal is well thought out, clear, and provides clear path to meet objectives.