TAC Meeting – September 10, 2007
Announcements from the Chair

The property owners in the Proabition Zone have by now received their 218 ballots and have, until October 23rd, their opportunity to cast their vote on this critical issue facing Los Osos. During this period it is vital that accurate information including the pro/con reports that the TAC has produced be disseminated as widely as possible in the community.

It is important that we complete our work on the Projects report as soon as possible so that it can reach voters prior to their submitting their ballots. Hopefully, our report will be of assistance in debunking some of the rumors and misinformation on the wastewater project that have begun to surface.

Once again I would like to reiterate that no project has yet been selected and the projects that we are discussing represent sample projects that are technically feasible to permit, fund and construct.

Also keep in mind that the costs we reference are engineering estimates from the Project Team. The actual costs can only be determined after specific projects are identified and contractor bids are received. In order to reach that stage the 218 ballot must pass.

There has been talk of some very low cost solutions to our wastewater problem. During the CEQUA process if any of those solutions prove viable to meet the needs of the community and pass the test of being able to obtain required permits and funding, then the TAC will do a pro/con analysis on them and the community will have an opportunity to compare them to other solutions. Remember the assessment amount on your ballot is the maximum that you could receive; the actual amount will be based on and cannot exceed the cost of the project selected.

It is our intention this evening to continue from where we adjourned on August 28th and reach agreement on our Pro/Con Analysis of Sample Projects.

Public comments and questions will be taken after a discussion by the TAC. At that time only comments and questions pertaining to the presentation will be allowed. I will call for all slips to be submitted before we begin your comments. Once public comment begins, in order to keep our meeting on schedule, we will stop accepting new slips for that item, so please get your slips in to us if you wish to speak.

After the comment period we will make the agreed upon modifications to the report and then vote on its adoption.

If you have any other comment or question relating to the TAC and it role there will be a second public input period at the end of the meeting.

Questions to the Project Team will be answered as time permits at the end of the meeting. Please be sure and fill out Public Input slips and hand them in to Diana of the project staff and, if you wish to speak in both comment periods, please submit two slips.

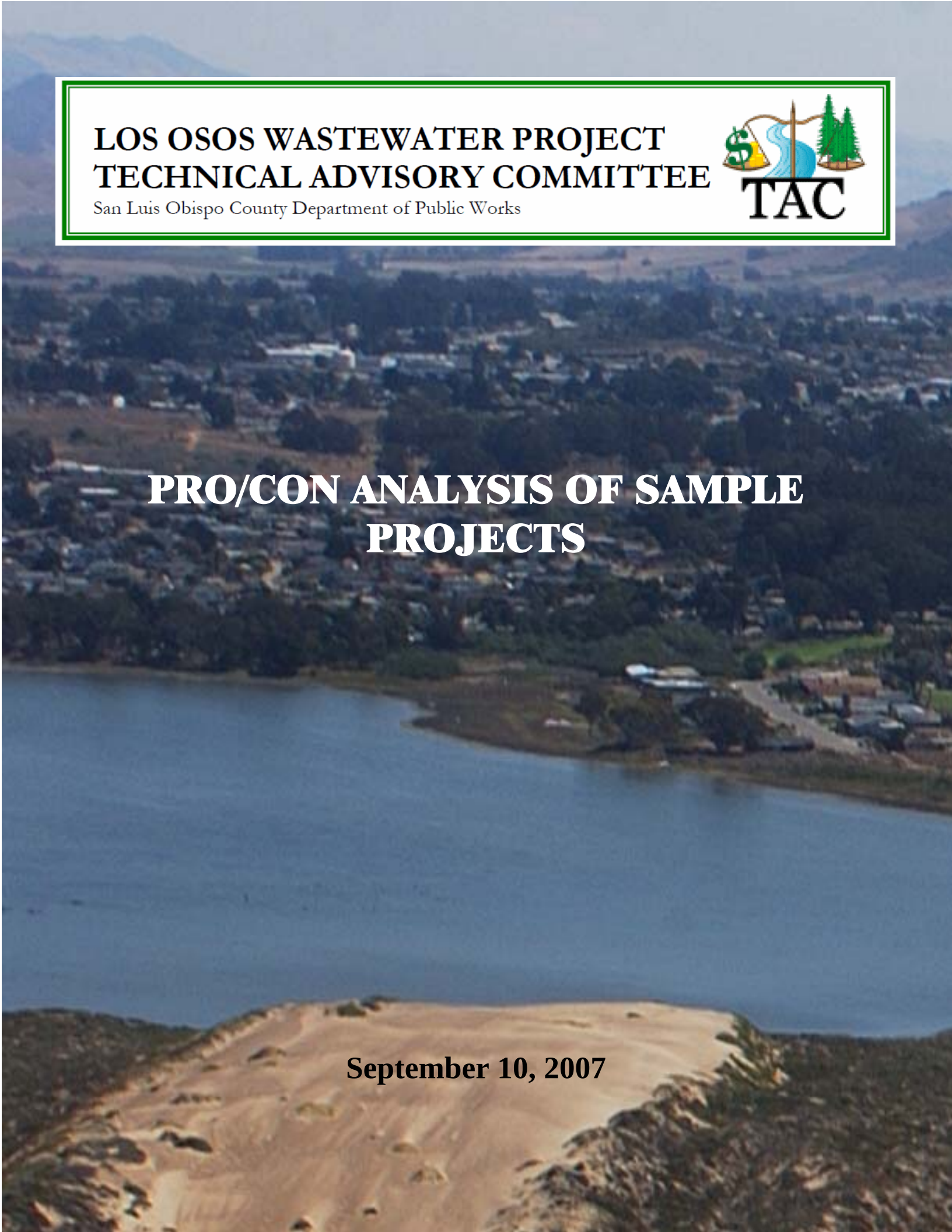
Los Osos Wastewater Project Community Open House is scheduled for Saturday, September 29, 2007 from 1:00 to 5:00 PM at Sunnyside School on Los Osos Valley road.

Multiple classrooms will be set-up for discussion of various project topics and the community is invited to travel between the rooms to participate in each the discussions. Topics are:

- Project options for the community
- Technical Advisory Committee Pro/Con Analysis
- Prop 218 and Assessment Q&A
- Cost Estimates

Also in attendance will be the San Luis Bay Surfrider Foundation, SLO Green Build and Sierra Club.

Each of the TAC committees will have a separate room where they will present the pros and cons as they pertain to their area of study. Please, among yourselves, schedule a meeting with the Project Team to determine the materials you will need for your presentation.



LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works

TAC

PRO/CON ANALYSIS OF SAMPLE PROJECTS

September 10, 2007

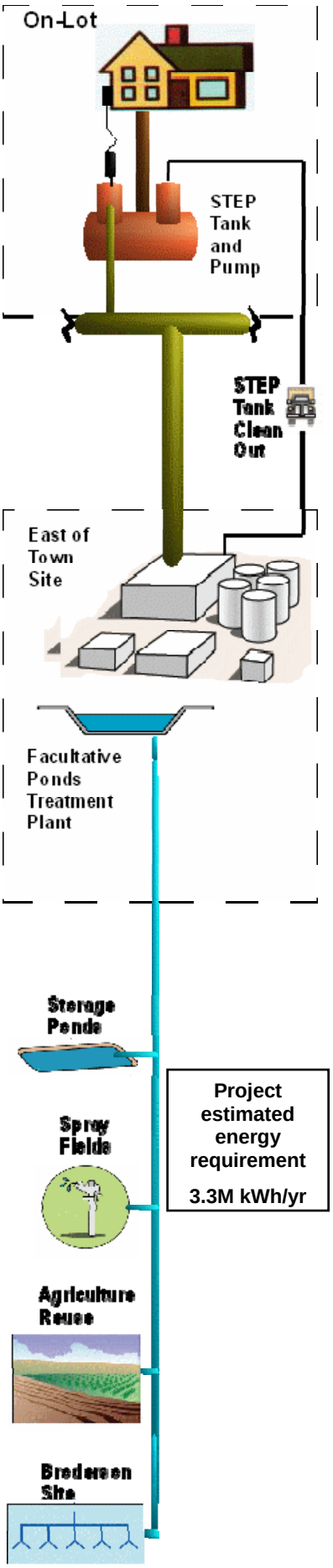
Sample Project A

Estimated Total Project Cost $145M to $183M

LOS OSOS WASTEWATER PROJECT
TECHNICAL ADVISORY COMMITTEE
San Luis Obispo County Department of Public Works
TAC

Collection	Treatment	Effluent Disposal	Solids Disposal	Site	Permit, Design, Mitigate, Mgmt, Admin, Escalate
STEP	Facultative Ponds	40% - 50% Reduction in Sea Water Intrusion (SWI)*	None	East of Town	
$65M - $81M	$21M – $25M	$15M – $17M		$1M – $3M	$43M - $57M

*Potential utilizing Spray Fields, Storage Ponds, Agriculture Reuse and Broderson Site



Project estimated energy requirement

3.3M kWh/yr

Pros

- STEP collection system has lower capital cost then gravity. It provides primary treatment in the tank, thereby reducing down-line costs for treatment and solids. The small pressurized pipes allow for shallow trenching and horizontal boring resulting in less road impacts and traffic nuisance. Where boring is feasible there is less risk to archeological resources. STEP requires no manholes or lift stations, and minimize the risk of inflow and infiltration of groundwater.
- Facultative Ponds have lowest energy usage and greatly reduces solids production and disposal (dredging is required every 20 years).
- Spray Fields have a greater disposal capacity for startup and emergency discharge.
- Agriculture reuse potentially reduces pumping large volumes from aquifer and has potential to be upgraded to Agriculture exchange, which maximizes sea water intrusion mitigation.
- Broderson disposal area provides a direct means to recharge the upper aquifer, provides a moderate level of seawater intrusion mitigation and is currently owned by LOCSD.
- East of town sites are in a low population density area on non-prime agricultural land and in close proximity to spray fields and agriculture reuse. When combined they are adequate in size and flexibility for future expansion, on site alternate energy generation, and emergency storage in event of system failure. There would be less traffic impact during construction and operation.

Cons

- STEP collection results in construction and permanent impact on individual property, including large footprint, greater amount of yard restoration after installation, maintenance and nuisance of regular pumping of septic tank. There are potential odor issues of vents if not properly maintained (100 - 500 collection vents located throughout community). Many active on-lot components resulting in greater risk of equipment failures. STEP also has higher O&M costs than gravity.
- Facultative Ponds require a larger footprint (16-20 acres), have greater construction impacts and require additional chemical treatment. Further investigation is required to determine if methane gas (a more powerful greenhouse gas than CO2) is released.
- Spray fields export water from the groundwater basin. Anything more than temporary use of spray fields will have substantial, long-term negative impact on groundwater balance. They have the greatest footprint, highest land cost, and have potential environmental impact associated with trenching pipelines.
- Agriculture Reuse has low sea water intrusion mitigation and requires contracts with users.
- Broderson disposal area has construction and habitat impacts which will likely occur every 5 to 10 years. Potential liquefaction, water application rates, surface erosion and landslip risks are community concerns that require further investigation and careful monitoring.
- East of town sites have increased cost and impacts from piping influent from collection area and returning treated effluent to Broderson. They also lack acceptance by residents in area.

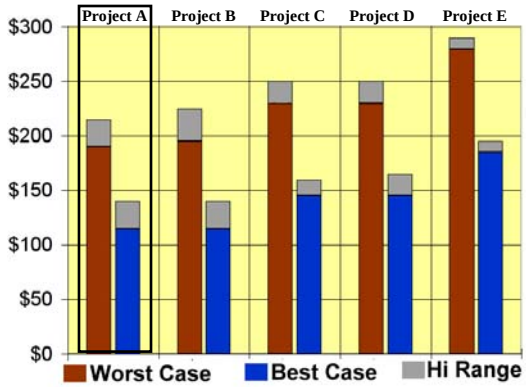
Projected Monthly Cost for Single Family Residence

Cost estimates are averages. It is likely household charges will be on a sliding scale related to wastewater production

Worst Case is with no grants and currently available funding.

Best Case is with $45M in grants and superior funding if available.

Note: Source is Project Team



DRAFT, September 10, 2007

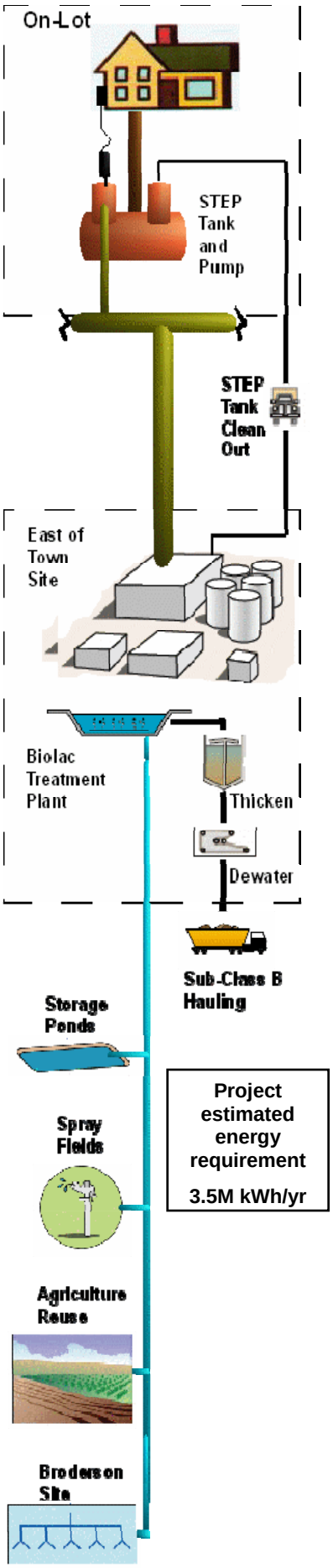
Sample Project B

Estimated Total Project Cost $145M to $183M

LOS OSOS WASTEWATER PROJECT
TECHNICAL ADVISORY COMMITTEE
San Luis Obispo County Department of Public Works
TAC

Collection	Treatment	Effluent Disposal	Solids Disposal	Site	Permit, Design, Mitigate, Legal Mgmt, Admin,
STEP	Biolac	40% - 50% Reduction in Sea Water Intrusion (SWI)*	Sub-Class "B"	East of Town	
$65M - $81M	$20M – $23M	$15M – $17M	$1M – $2M	$1M – $3M	$43M - $57M

*Potential utilizing Spray Fields, Storage Ponds, Agriculture Reuse and Broderson Site



Pros

- STEP collection system has lower capital cost then gravity. It provides primary treatment in the tank, thereby reducing down-line costs for treatment and solids. The small pressurized pipes allow for shallow trenching and horizontal boring resulting in less road impacts and traffic nuisance. Where boring is feasible there is less risk to archeological resources. STEP requires no manholes or lift stations, and minimize the risk of inflow and infiltration of groundwater.
- BIOLAC treatment has a small footprint (8-10 acres).
- Spray Fields have a greater disposal capacity for startup and emergency discharge.
- Agriculture reuse potentially reduces pumping large volumes from aquifer and has potential to be upgraded to Agriculture exchange, which maximizes sea water intrusion mitigation.
- Broderson disposal area provides a direct means to recharge the upper aquifer, provides a moderate level of seawater intrusion mitigation and is currently owned by LOCSD.
- Sub-class "B" Bio-solids have low capital and O&M costs, allow flexibility for future upgrades and have low acreage requirements
- East of town sites are in a low population density area on non-prime agricultural land and in close proximity to spray fields and agriculture reuse. When combined they are adequate in size and flexibility for future expansion, on site alternate energy generation, and emergency storage in event of system failure. There would be less traffic impact during construction and operation.

Cons

- STEP collection results in construction and permanent impact on individual property, including large footprint, greater amount of yard restoration after installation, maintenance and nuisance of regular pumping of septic tank. There are potential odor issues of vents if not properly maintained (100 - 500 collection vents located throughout community). Many active on-lot components resulting in greater risk of equipment failures. STEP also has higher O&M costs than gravity.
- Spray fields export water from the groundwater basin. Anything more than temporary use of spray fields will have substantial, long-term negative impact on groundwater balance. They have the greatest footprint, highest land cost, and have potential environmental impact associated with trenching pipelines.
- Agriculture Reuse has low sea water intrusion mitigation and requires contracts with users.
- Broderson disposal area has construction and habitat impacts which will likely occur every 5 to 10 years. Potential liquefaction, water application rates, surface erosion and landslip risks are community concerns that require further investigation and careful monitoring.
- Sub-class "B" Bio-solids produce greatest volume and lowest of sludge. They have the largest carbon footprint: highest hauling costs and traffic nuisance. It is the most restrictive disposal option and has the risk of future substantial increases in hauling costs and more stringent regulations.
- East of town sites have increased cost and impacts from piping influent from collection area and returning treated effluent to Broderson. They also lack acceptance by residents in area

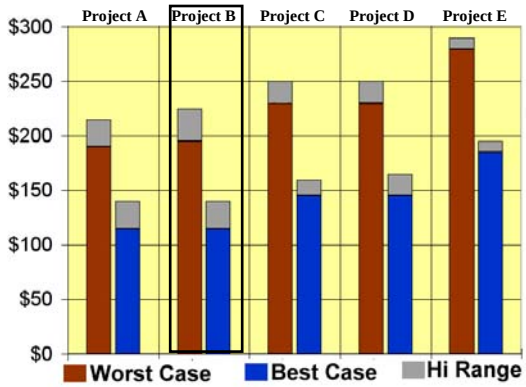
Projected Monthly Cost for Single Family Residence

Cost estimates are averages. It is likely household charges will be on a sliding scale related to wastewater production

Worst Case is with no grants and currently available funding.

Best Case is with $45M in grants and superior funding if available.

Note: Source is Project Team



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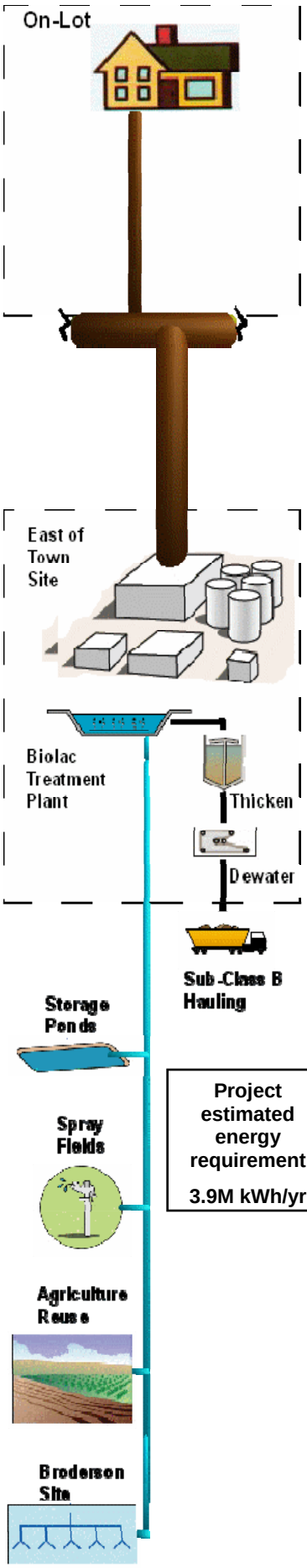
Sample Project C

Estimated Total Project Cost $163M to $192M

LOS OSOS WASTEWATER PROJECT
TECHNICAL ADVISORY COMMITTEE
San Luis Obispo County Department of Public Works
TAC

Collection	Treatment	Effluent Disposal	Solids Disposal	Site	Permit, Design, Mitigate, Legal Mgmt, Admin,
Gravity	Biolac	40% - 50% Reduction in Sea Water Intrusion (SWI)*	Sub-Class "B"	East of Town	
$83M - $90M	$20M – $23M	$15M – $17M	$1M – $2M	$1M – $3M	$43M - $57M

*Potential utilizing Spray Fields, Storage Ponds, Agriculture Reuse and Broderson Site



Project estimated energy requirement

3.9M kWh/yr

Pros

- Gravity collection has less on-lot disturbance and no easement or access required on private property. There also is no requirement to haul septage within the collection area and it has lower O&M costs than STEP.
- BIOLAC treatment has a small footprint (8-10 acres)
- Spray Fields have a greater disposal capacity for startup and emergency discharge.
- Agriculture reuse potentially reduces pumping large volumes from aquifer and has potential to be upgraded to Agriculture exchange, which maximizes sea water intrusion mitigation.
- Broderson disposal area provides a direct means to recharge the upper aquifer, provides a moderate level of seawater intrusion mitigation and is currently owned by LOCSD.
- Sub-class "B" Bio-solids have low capital and O&M costs, allow flexibility for future upgrades and have low acreage requirements
- East of town sites are in a low population density area on non-prime agricultural land and in close proximity to spray fields and agriculture reuse. When combined they are adequate in size and flexibility for future expansion, on site alternate energy generation, and emergency storage in event of system failure. There would be less traffic impact during construction and operation.

Cons

- Gravity collection requires larger pipes and produces more solids (increased bio-solids disposal costs). The needed 20 pump stations have permanent impact, requiring additional footprint and odor control. There is also increased risk of inflow and infiltration of groundwater which may require additional monitoring and repair. Gravity collection has higher construction costs then STEP due to deeper trenching, possible dewatering (special handling of collected water is required), potential significant soil erosion (requiring mitigation) and results in greater in-town construction traffic nuisance. Gravity collection pipes need cleaning every 2 years with attendant odors.
- Spray fields export water from the groundwater basin. Anything more than temporary use of spray fields will have substantial, long-term negative impact on groundwater balance. They have the greatest footprint, highest land cost, and have potential environmental impact associated with trenching pipelines.
- Agriculture Reuse has low sea water intrusion mitigation and requires contracts with users.
- Broderson disposal area has construction and habitat impacts which will likely occur every 5 to 10 years. Potential liquefaction, water application rates, surface erosion and landslip risks are community concerns that require further investigation and careful monitoring.
- Sub-class "B" Bio-solids produce greatest volume and lowest of sludge. They have the largest carbon footprint: highest hauling costs and traffic nuisance. It is the most restrictive disposal option and has the risk of future substantial increases in hauling costs and more stringent regulations.
- East of town sites have increased cost and impacts from piping influent from collection area and returning treated effluent to Broderson. They also lack acceptance by residents in area.

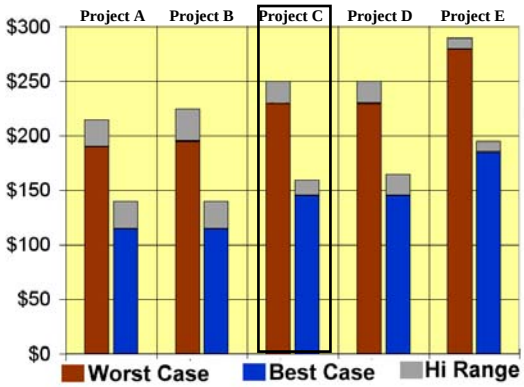
Projected Monthly Cost for Single Family Residence

Cost estimates are averages. It is likely household charges will be on a sliding scale related to wastewater production

Worst Case is with no grants and currently available funding.

Best Case is with $45M in grants and superior funding if available.

Note: Source is Project Team



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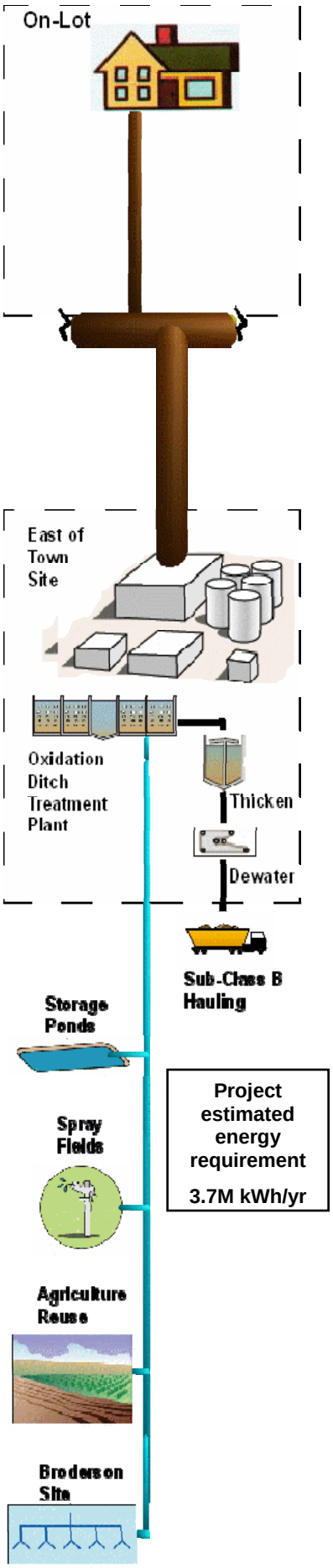
Sample Project D

Estimated Total Project Cost $165M to $195M

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE
San Luis Obispo County Department of Public Works
TAC

Collection	Treatment	Effluent Disposal	Solids Disposal	Site	Permit, Design, Mitigate, Legal Mgmt, Admin,
Gravity	Oxidation Ditch	40% - 50% Reduction in Sea Water Intrusion (SWI)*	Sub-Class "B"	East of Town	
$83M - $90M	$22M – $26M	$15M – $17M	$1M – $2M	$1M – $3M	$43M - $57M

*Potential utilizing Spray Fields, Storage Ponds, Agriculture Reuse and Broderson Site



Project estimated energy requirement

3.7M kWh/yr

Pros

- Gravity collection has less on-lot disturbance and no easement or access required on private property. There also is no requirement to haul septage within the collection area and it has lower O&M costs than STEP.
- Oxidation Ditch treatment has a small footprint (8 acres)
- Spray Fields have a greater disposal capacity for startup and emergency discharge.
- Agriculture reuse potentially reduces pumping large volumes from aquifer and has potential to be upgraded to Agriculture exchange, which maximizes sea water intrusion mitigation.
- Broderson disposal area provides a direct means to recharge the upper aquifer, provides a moderate level of seawater intrusion mitigation and is currently owned by LOCSD.
- Sub-class "B" Bio-solids have low capital and O&M costs, allow flexibility for future upgrades and have low acreage requirements
- East of town sites are in a low population density area on non-prime agricultural land and in close proximity to spray fields and agriculture reuse. When combined they are adequate in size and flexibility for future expansion, on site alternate energy generation, and emergency storage in event of system failure. There would be less traffic impact during construction and operation.

Cons

- Gravity collection requires larger pipes and produces more solids (increased bio-solids disposal costs). The needed 20 pump stations have permanent impact, requiring additional footprint and odor control. There is also increased risk of inflow and infiltration of groundwater which may require additional monitoring and repair. Gravity collection has higher construction costs then STEP due to deeper trenching, possible dewatering (special handling of collected water is required), potential significant soil erosion (requiring mitigation) and results in greater in-town construction traffic nuisance. Gravity collection pipes need cleaning every 2 years with attendant odors.
- Spray fields export water from the groundwater basin. Anything more than temporary use of spray fields will have substantial, long-term negative impact on groundwater balance. They have the greatest footprint, highest land cost, and have potential environmental impact associated with trenching pipelines.
- Agriculture Reuse has low sea water intrusion mitigation and requires contracts with users.
- Broderson disposal area has construction and habitat impacts which will likely occur every 5 to 10 years. Potential liquefaction, water application rates, surface erosion and landslip risks are community concerns that require further investigation and careful monitoring.
- Sub-class "B" Bio-solids produce greatest volume and lowest of sludge. They have the largest carbon footprint: highest hauling costs and traffic nuisance. It is the most restrictive disposal option and has the risk of future substantial increases in hauling costs and more stringent regulations.
- East of town sites have increased cost and impacts from piping influent from collection area and returning treated effluent to Broderson. They also lack acceptance by residents in area.

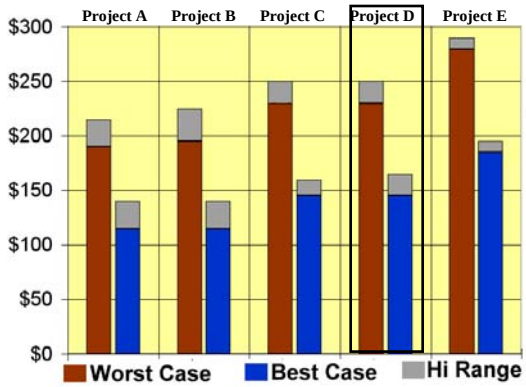
Projected Monthly Cost for Single Family Residence

Cost estimates are averages. It is likely household charges will be on a sliding scale related to wastewater production

Worst Case is with no grants and currently available funding.

Best Case is with $45M in grants and superior funding if available.

Note: Source is Project Team



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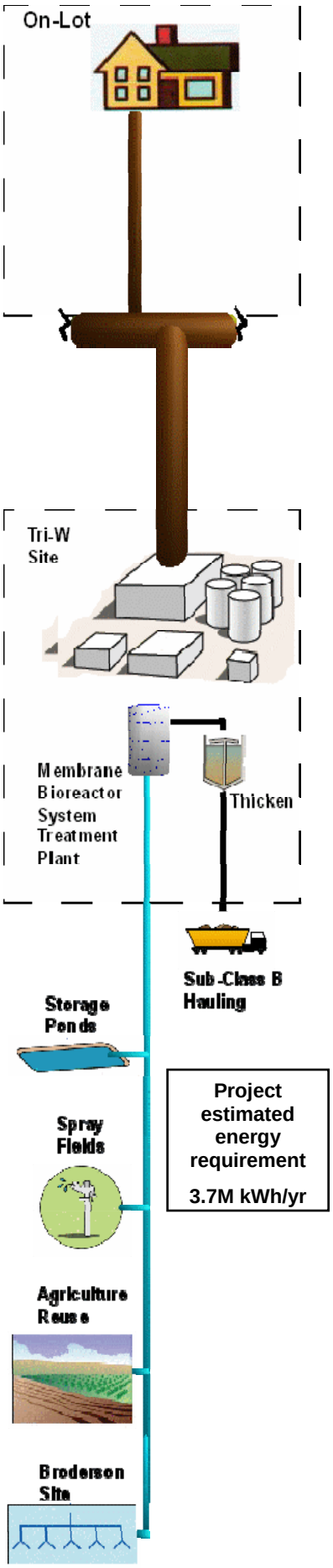
Sample Project E

Estimated Total Project Cost $210M to $224M

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE
San Luis Obispo County Department of Public Works
TAC

Collection	Treatment	Effluent Disposal	Solids Disposal	Site	
Gravity	MBR	40% - 50% Reduction in Sea Water Intrusion (SWI)*	Sub-Class "B"	Tri-W	Permit, Design, Mitigate, Legal Mgmt, Admin,
$81M - $82M	$55M	$20M – $23M	$1M – $2M	$1M – $3M	$52M - $59M

*Potential utilizing Spray Fields, Storage Ponds, Agriculture Reuse and Broderson Site



Project estimated energy requirement

3.7M kWh/yr

Pros

- Gravity collection has less on-lot disturbance and no easement or access required on private property. There also is no requirement to haul septage within the collection area and it has lower O&M costs than STEP.
- MBR treatment requires smallest footprint (4 acres) and produces the highest quality of effluent. The enclosed facility provides odor control.
- Spray Fields have a greater disposal capacity for startup and emergency discharge.
- Agriculture reuse potentially reduces pumping large volumes from aquifer and has potential to be upgraded to Agriculture exchange, which maximizes sea water intrusion mitigation.
- Broderson disposal area provides a direct means to recharge the upper aquifer, provides a moderate level of seawater intrusion mitigation and is currently owned by LOCSD.
- Sub-class "B" Bio-solids have low capital and O&M costs, allow flexibility for future upgrades and have low acreage requirements
- Tri-W site is already owned by the CSD and is centrally located resulting in less collection pipe and easier discharge to Broderson

Cons

- Gravity collection requires larger pipes and produces more solids (increased bio-solids disposal costs). The needed 20 pump stations have permanent impact, requiring additional footprint and odor control. There is also increased risk of inflow and infiltration of groundwater which may require additional monitoring and repair. Gravity collection has higher construction costs then STEP due to deeper trenching, possible dewatering (special handling of collected water is required), potential significant soil erosion (requiring mitigation) and results in greater in-town construction traffic nuisance. Gravity collection pipes need cleaning every 2 years with attendant odors.
- MBR treatment has the highest energy usage and a high construction nuisance in center of town
- Spray fields export water from the groundwater basin. Anything more than temporary use of spray fields will have substantial, long-term negative impact on groundwater balance. They have the greatest footprint, highest land cost, and have potential environmental impact associated with trenching pipelines.
- Agriculture Reuse has low sea water intrusion mitigation and requires contracts with users.
- Broderson disposal area has construction and habitat impacts which will likely occur every 5 to 10 years. Potential liquefaction, water application rates, surface erosion and landslip risks are community concerns that require further investigation and careful monitoring.
- Sub-class "B" Bio-solids produce greatest volume and lowest of sludge. They have the largest carbon footprint: highest hauling costs and traffic nuisance. It is the most restrictive disposal option and has the risk of future substantial increases in hauling costs and more stringent regulations.
- The Tri-W site is located in the center of town near a church, library, Community Center, and in a high density residential area. It would have significant traffic impacts in the center of town and partially obstruct views. Due to its small size, it requires the most expensive treatment facility and has limited flexibility for future upgrades or expansion. It is also distant from spray fields and agriculture reuse. This site is a source of community divisiveness

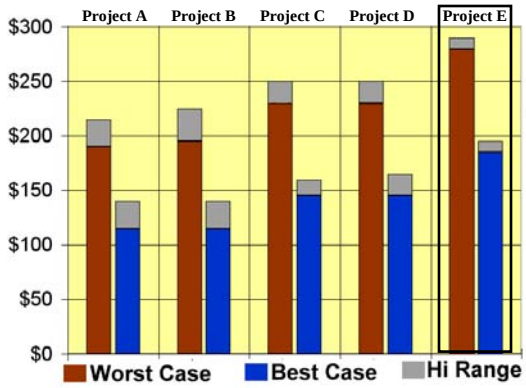
Projected Monthly Cost for Single Family Residence

Cost estimates are averages. It is likely household charges will be on a sliding scale related to wastewater production

Worst Case is with no grants and currently available funding.

Best Case is with $45M in grants and superior funding if available.

Note: Source is Project Team



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Possible formats for bottom of page

As presented on August 28 - project costs along the top of page

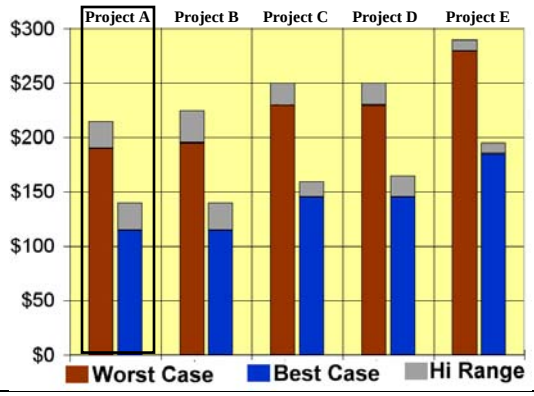
Projected Monthly Cost for Single Family Residence

Cost estimates are averages. It is likely household charges will be on a sliding scale related to wastewater production

Worst Case is with no grants and currently available funding.

Best Case is with $45M in grants and superior funding if available.

Note: Source is Project Team



Alternate 1 – no project costs along top of page and no comparisons

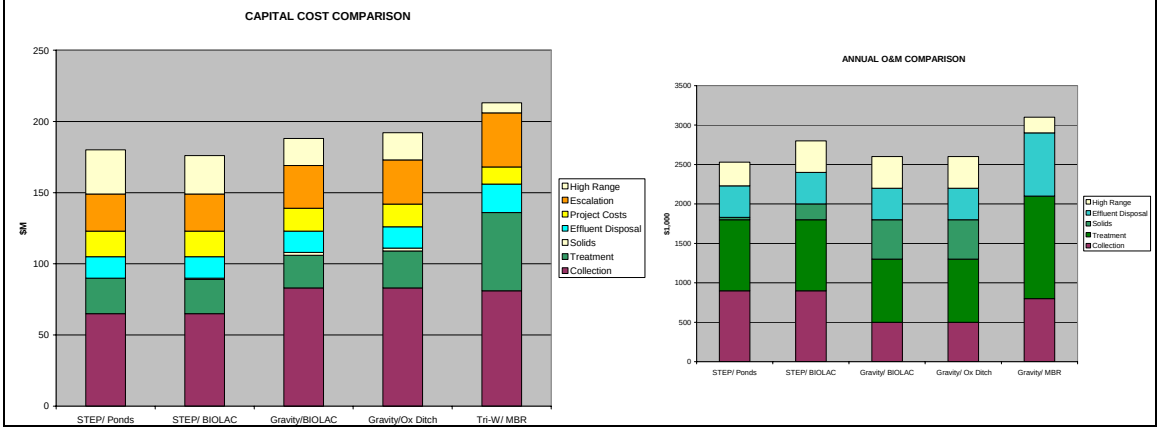
Estimated Total Project Cost $145M to $183M

Projected Equivalent Monthly Cost for Single Family Residence

	Worst Case	Best Case	
Assessment	$141	$60	(paid on annual property tax bill)
O&M Rates and Charges	$37	$36	
Capital Rates and Charges	$26	$3	
'Equivalent' On Lot Costs	$21	$16	(cost to connect to sewer)
	$225	$115	

Worst Case is with no grants and currently available funding.
Best Case is with $45M in grants and superior funding if available.

Alternate 2 – no project costs along top of page and comparisons of project and O&M costs



Alternate 3 – no project costs along top of page and listing of costs

Project A Cost Estimates

Total Project Cost	$145M to $183M
Annual Operation and Maintenance Cost	$2.2M to $2.6M
Monthly Cost For A Single Family Residence	$150 to $260

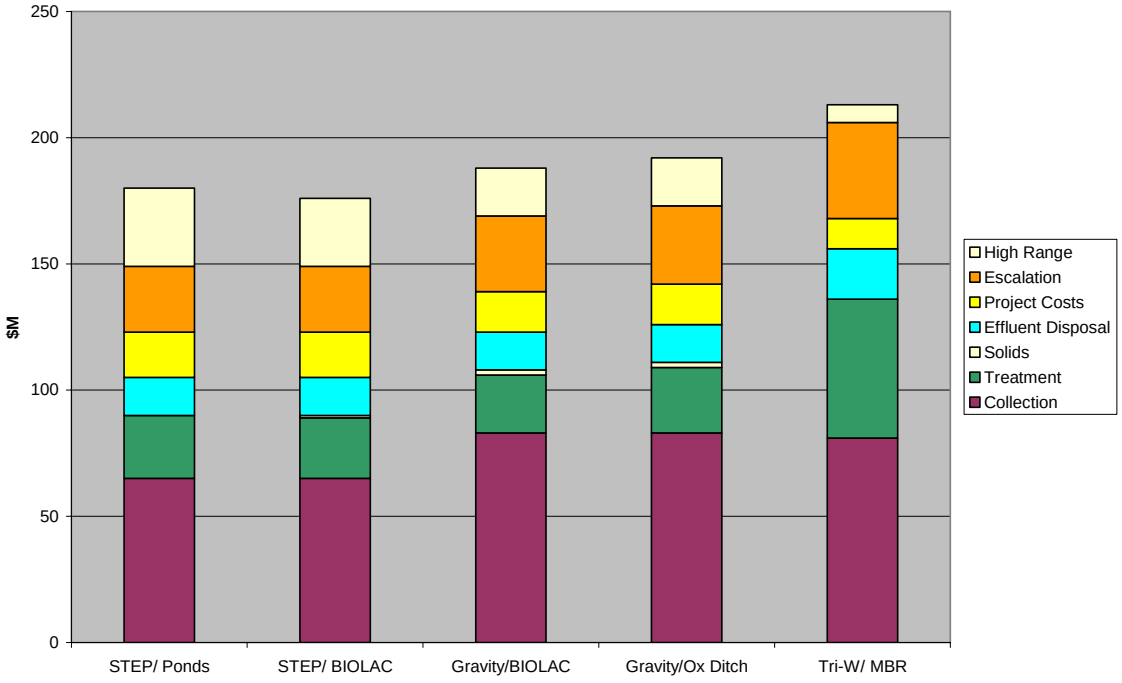
Alternate 4 – no numbers on sheet

DRAFT, September 10, 2007

COST COMPARISON OF SAMPLE PROJECTS

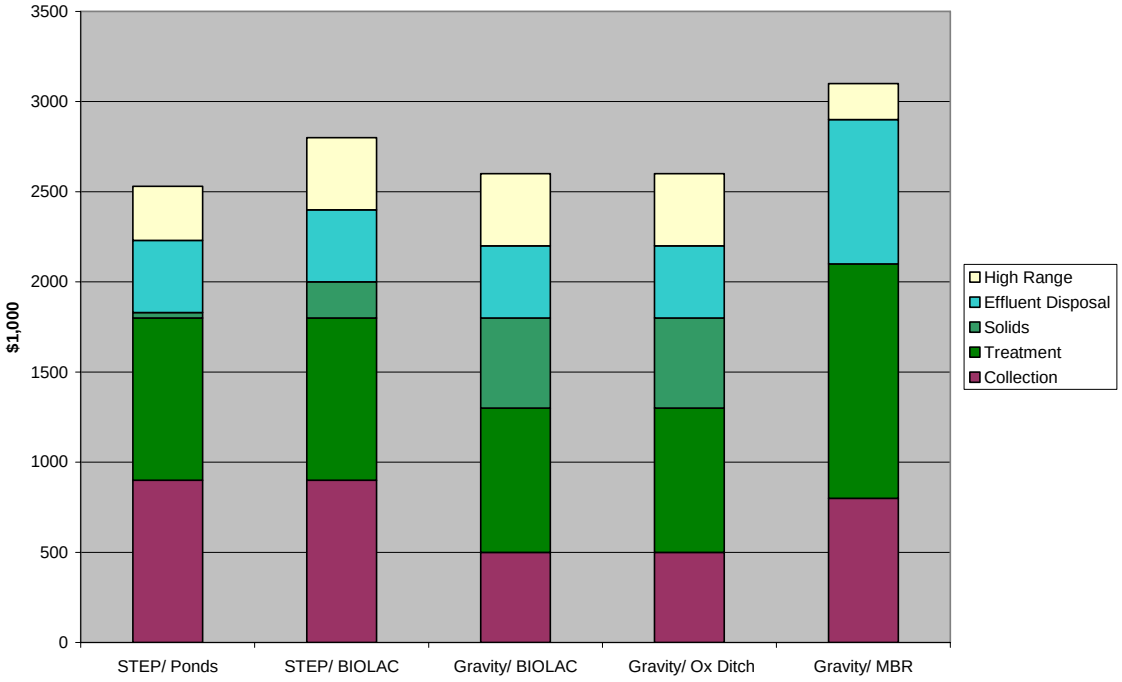
8/28/07

CAPITAL COST COMPARISON



- Component capital costs include 15% overhead and profit, 8% tax on materials, and escalation of 5% per year to mid-point of construction, June 2011 (total 24.5%).
- High range includes cost of Belt Filter Press for dewatering solids.
- Collection costs for Tri-W were based on Gravity collection system for other projects, less cost of conveyance out of town.

ANNUAL O&M COMPARISON



- Annual O&M costs include 2.5% escalation per year to June 2011 (total 10.4%) for inflation.
- Due to a higher production of solids for Ox Ditch (4,100 #/day) compared to BIOLAC (3,500 #/day), we would expect the thickening, dewatering, and hauling of solids to be approximately 17% higher for Ox Ditch.

DRAFT, September 10, 2007

Summary of Comments on Pro/Con Analysis
By John Brady

Project A Suggested changes

Pro

- (Replace 1st bullet with this – also use in all subsequent STEP pros) STEP collection system has lower capital costs than gravity. It provides primary treatment in the on-lot tank, which results in significant reduction in costs associated with biosolids management. STEP has no manholes or lift stations, which minimizes the risk of storm water inflow and infiltration of groundwater (I/I). By reducing I/I, the volume of wastewater requiring treatment is reduced. The small diameter pressurized pipes of a STEP system allows for shallow trenching and horizontal boring, which will reduce road and traffic impacts.

- (replace 3rd bullet with this – also use in all subsequent spray field pros) Spray field disposal has the greatest capacity of all the effluent disposal options, which is particularly advantageous for start-up and emergency discharge operations.

- (Replace 6th bullet with this – also use in all subsequent east of town site pros) East of town sites are on non-prime agricultural land, located near the Los Osos Landfill site, in close proximity to spray fields and potential agricultural reuse areas and do not appear to be in an apparent upwind position with respect to the low density residential area located near Los Osos Valley Road. When combined, the sites are adequate in size and flexibility for future expansion and emergency storage in the event of system failure.

Con

- (Replace 1st bullet with this - also use in all subsequent STEP pros) STEP has a higher O&M cost than a gravity system. STEP collection results in construction and permanent impacts on individual property, including a large footprint, greater amount of yard restoration after installation, maintenance and nuisance of regular pumping of septic tanks. There are potential odor issues of vents, if not properly maintained (100-500 vents throughout the collection area). Due to the various system components on every serviced lot within the collection area, the collection system will have a large number of active components that will require service and repair.

- (replace 2nd bullet and use this) Facultative Ponds require a larger footprint (16 – 20 acres), have greater construction impacts and may require additional treatment to comply with discharge limits for the certain disposal methods.

- (replace3rd bullet and use this– also use in all subsequent spray field cons) The use of Spray Fields involves the export of water from the groundwater basin. If used in the long term, the sustainable yield of the basin may be detrimentally impacted. Spray Fields also have the greatest footprint of all the effluent disposal options, highest land costs and may have potential environmental impacts associated with the pipeline leading to the Spray Fields

- (replace 4th bullet and use this– also use in all subsequent agricultural reuse cons) Agricultural reuse requires the cooperation of third parties

- (replace 6th bullet and use this– also use in all subsequent east of town site cons) East of town sites have increased costs and impacts from piping influent from the collection area and returning treated effluent to Broderson. Concerns have been raised by residences of the low density residential area located in the Los Osos Creek Valley near Los Osos Valley Road, about locating the treatment plant in their area of the basin.

Summary of Comments on Pro/Con Analysis
By John Brady

Project B Suggested Changes

Pro

- Same comments as Project A and the following:
- Remove 6th bullet. Biosolids is mainly a gravity issue. STEP greatly reduces the significance of biosolids.

Con

- Same comments as Project A and the following:
- Remove 5th bullet. Biosolids is mainly a gravity issue. STEP greatly reduces the significance of biosolids.

Project C Suggested Changes

Pro:

- (replace 6th bullet and replace – also use in all subsequent Sub-class B pros) Transporting and disposing of Sub-Class B Biosolids has the lowest capital costs among all of the biosolids management methods reviewed. This option also has the flexibility to be upgraded to other biosolids management methods and has a low acreage requirement.

Cons

- (replace 1st bullet and use this - also use in all subsequent Gravity cons) Gravity collection requires installation of larger diameter pipes with a specific slope requirement. This results in higher installation costs as compared to a STEP system due to the need for deeper trenching, possible dewatering in some trenches (with potential additional costs if the pumped water is contaminated), the potential for soil erosion from excavated soils, and a longer installation schedule, with attendant in-town construction traffic nuisance. This form of collection also results in higher volume of biosolids generation, which will require additional costs to manage. Gravity systems are also at risk for inflow of storm water and infiltration of groundwater into the collection system, which results in larger volumes of wastewater requiring treatment. The 20 pump stations will have a permanent impact within the collection area, requiring additional footprint and odor control. Gravity pipe require cleaning every two years, with the potential for associated odor issues.
- (replace 5th bullet and use this - also use in all subsequent Sub-Class B cons) Transporting and disposing of Sub-Class B Biosolids involves management of the largest volume and lowest quality of biosolids as compared to other methods. This method has the largest carbon footprint, highest transportation costs and presents a potential traffic nuisance issue. It is the most restrictive disposal option and has the potential for future cost increases associated with increased regulation.

Project D and E Suggested changes: none, other than the repeated pros and cons as noted

Summary of Comments on Pro/Con Analysis
By John Brady

Format

- The separate page with Capital Cost Graphs/O&M Cost Graphs for each of the Sample Projects. If we have a separate page on costs, we need to include the monthly billing graphs on same page. The monthly billing is the only way to characterize the combine impact of capital and O&M costs.

- A combination of "as presented August 28" and alternative #1. add the billing graph adjacent to the test in Alternative #1. There is space to the left of text on bottom of page.

- The costs presented at top, add one line showing O&M below Capital costs. Also eliminate "Estimated Total Project Costs XXX to XXX" from top of page.

- At bottom of page, change "Note: Source is Project Team" to "Note: Data Provided by County Project Team"

Dear Mr.Wimer, Paavo and All:

Your concerns are justified as the County VPA/TAC has not addressed these concerns adequately much less define them.

1. Our upper aquifer, where the collection system is to be installed, is formed by clay lenses (large shallow bowls) where septic effluent is captured in pools. Geologic formation has occurred over hundreds of thousands of years by the low spots collecting organic matter that forms clay bowls that hold that water.

2. High groundwater may be found throughout the community regardless of elevation. These are scattered throughout Los Osos/Baywood. What was once considered an inferred fault is a large clay lens with a western edge bordering the Tri-W site. We know by elevation maps there is consistent high groundwater around the Bay at 5 feet to grade. The Gas Company contractors have records of replacing lines under water.

3. First problem is trench dewatering in gravity pipe installations. At a depth of around 20 foot by the bay (conservative estimate) the clay lenses are conduits for groundwater. Imagine a many layered cake, the icing between the layers is clay on which the water is riding. Each layer leaks water into the trench. That water must be removed before the pipeline is installed. Once the pipe has been covered those cut layers continue to seep in the filled cut and the pipes are covered with water causing a liquefaction condition.

4. When earthquakes and their tremors shake the ground, the slope of the pipes can sag causing the bell and socket connections to separate a little or a lot. The gravity flow will stop and backup to one of the 800 manholes and cause overflows. This allows huge amounts of water to enter the pipe and overload the treatment facility. As time goes by more damage occurs throughout the system requiring expensive maintenance and repair as well as sanitary overflows leading to disciplinary action from the Water Board.

5. Worse still, our lower drinking water aquifer has saltwater intrusion from over pumping. The upper aquifer, where the proposed collection pipes are designed to be installed, will leak raw sewage into these waters and water that was potable will require more expensive treatment. Eventually more and more of this sewage will pollute our drinking water supply forcing

Submitted by
Al Barrow
9/10/07

us to purchase water from other communities, if it is available. We are in the 8th year of a drought and NOAA predictions show it will continue. Snow packs from where our water comes are at 50%, reservoirs are below 50% throughout the Western USA. Farmers are at 1/2 rations in the state and water contract deliveries are 1/3 off promised delivery. LAMW Department has purchased large aquifer to offset their shortages. The competition for water in the Western Region is growing. We are in a water shortage while demands are rapidly growing. A sustainable water and sewer policy is needed for Los Osos. If that isn't bad enough we will see large amounts of our water supply leak into the 40 miles of gravity pipes as much as 365 to 1,000 acre feet or enough for 2,500 families a year when the system has aged.

6. Now take a look at the other collection system proposed which was originally designed for the LOCSD in 1999. STEP/STEG, which means septic tank effluent pump/septic tank effluent gravity. These are installed like water pipes and similar in size from 1" laterals to 10" major mains. Most streets will be 3 inches. These are small enough to easily directional bore or mole along the side of the pavement saving expensive road replacement required with the gravity trenching, up to 8 million.

7. Because Los Osos has known archeological resources that are protected under state law (SHIPO), and endangered species that are also protected (Shoulder banded Snails etc and we are designated an Environmentally Sensitive Habitat Area under USF&WS federal protection) we must respect these Coastal Resources under the Coastal Act as well. The HDD (directional drilling) will give that protection using standard exray equipment all infrastructure, artifacts and remains are recognized allowing the pipeline to go under or around by controlling the direction of the bore. Both Tidwell and Daleo have inspected Los Osos and assured us that this is the preferred method of installation. The fiber optic cable was done in this manner on LOVR.

8. These pipes are bonded together at the joints to withstand these pressures. They are installed at about 4 feet to grade and can have all pipes installed in less than a year from start up. The greatest benefit for us is that they are sealed and will not pollute our drinking water supply.

9. Gravity collection under the guiding principles of the recent SLO County analysis (VPA Carollo) can not be a viable technology as it reduces our water supply causing less than Level I Saltwater Intrusion Mitigation.

Submitted by
Al Barrow
9/10/07

Gravity collection has to be removed as a viable option to save our water supply. The collection cost savings is $8.7 million versus $70 million. Although it is true that the onsite cost are as much as $15 million greater the environmental and financial savings are superior.

10. Gravity collection pipes need to be 1/2 empty to allow the laterals to dump sewage into the collection system since the laterals are connected to the upper portion of the pipe. When backups do occur some of the 800 manholes are at risk of odor and overflows. This requires vacumm truck crews to suck up the sewage and clear the pipe blockage. This maintenance needs to be budgeted. When sags occur chronic overflow conditions exist requiring reinstallation and disruption of service. This is a plan to fail.

Thank You,

Al Barrow, President, Citizens for Affordable and Safe Environment & Coalition for Low Income Housing & LOCSD WWAC

submitted by
Al Barrow
9/10/07
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