# LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works

TAC

September 21, 2007

Dear Neighbors,

Since its inception in March 2007 the TAC has completed two pro/con analyses reports. The first report focused on the components of a wastewater system, the second focused on the sample projects used by the County Project Team to determine the range of the proposed assessment.

For comparison purposes the County Team developed four examples of alternative project, encompassing a range of technologies that would be fundable and permitable, in addition to the Tri-W project. By no means however, are those projects to be considered the only viable alternatives, other alternatives will be considered in the next phase of the project.

The low and high range of estimated project costs shown reflects options evaluated in the Fine Screening Report and not a specific technology or site.

The County Team used a detailed financial model to estimate monthly charges which include the assessment, operations and maintenance charges, capital rates and charges, and certain on-lot costs. The low and high range of costs reflects the significant impact financing will have on the bottom line. Low monthly costs assume:

- $45 million in grants
- 95% of the debt financed through the State Revolving Fund (SRF) repaid over 30 years and the remaining 5% of debt financed through municipal bonds.
- Exclusion of payback of the previous CSD's State Revolving Fund loan

High monthly costs assume:

- No grants for the project
- 50% of debt financed through SRF loan over 20 years and 50% through municipal bonds
- Payback of the previous CSD's State Revolving Fund loan

The county is working diligently to secure the most advantageous financing for our wastewater project. They are also seeking grants for individuals who may not be able to afford the monthly costs. We have an opportunity to affect the success of their efforts by contacting our state and federal representatives about which we will learn more later.

If the Proposition 218 passes, the county will continue to lead Los Osos in its effort to design, construct and fund the most cost effective and environmentally responsible wastewater project possible. Please be assured that during the next phase there will be opportunity for public input through both the community survey and the environmental review process.

We hope the attached pro/con analysis of the sample projects and their respective costs are helpful in your decision-making process for this Proposition 218 vote.

Sincerely,

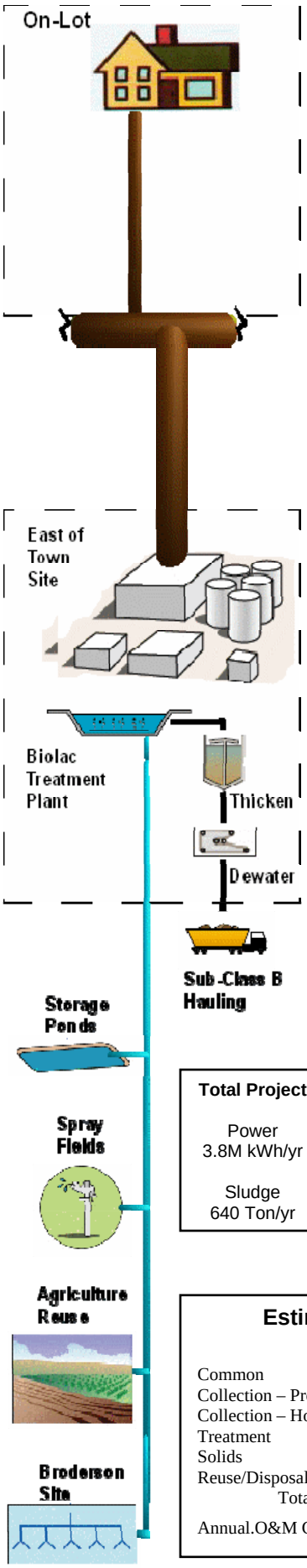
The TAC

# Sample Project A

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

| Collection | Treatment | Effluent Disposal | Solids Disposal | Site |
|---|---|---|---|---|
| Gravity | BIOLAC | 40% - 50% Reduction in Sea Water Intrusion (SWI)* | Sub-Class B | East of Town |

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




## 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 the greatest capacity of all the effluent disposal options and are particularly useful for start-up and emergency discharge operations only
- 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 on non-prime agricultural land, located near the Los Osos landfill site, in close proximity to spray fields and potential agricultural reuse areas. They appear to be in a predominately downwind position with respect to the low density residential area located near LOVR (requires further analysis). When combined, the sites are adequate in size and provide flexibility for possible on-site alternative energy and emergency storage in the event of system failure.

## Cons

- Gravity collection systems have higher capital costs then STEP due to slope requirements, deeper trenching, possible dewatering (special handling of collected water may be required), and results in greater in-town traffic impacts. It requires larger pipes and results in more solids (increased bio-solids disposal costs). The needed 20 pump stations have permanent impact, requiring additional footprint and odor control. There is also an increased risk of inflow and infiltration of groundwater which may require additional monitoring and repair. Gravity collection pipes need cleaning every 2 years with attendant odors.
- The use of Spray fields involves the export water from the groundwater basin. Anything other than temporary use of spray fields will detrimentally impact the sustainable yield of the groundwater basin. Spray Fields have the greatest footprint of all the effluent disposal options, highest land cost, and may have potential environmental impact associated with pipelines leading to them.
- Agriculture Reuse requires contractual agreements with third parties.
- 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 quality 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 are located near churches, a cemetery and in a low density residential area. The 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 that area.

**Total Project**

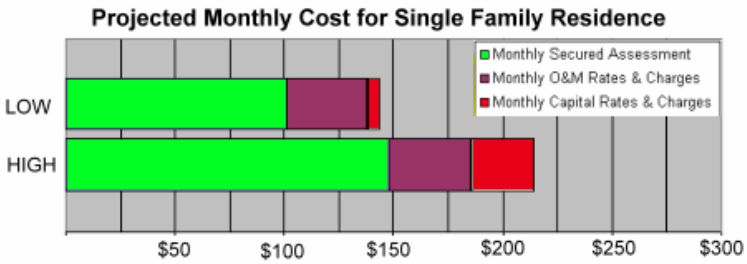
Power
3.8M kWh/yr

Sludge
640 Ton/yr

## Estimated Project Costs

| | High | Low |
|---|---|---|
| Common | $ 7.0M | $ 2.7M |
| Collection – Project | $105.9M | $ 95.7M |
| Collection – Homeowner | $ 19.5M | $ 17.3M |
| Treatment | $ 24.0M | $ 23.6M |
| Solids | $ 3.4M | $ 2.6M |
| Reuse/Disposal | $ 23.4M | $ 23.0M |
| Total | $183.2M | $165.0M |
| Annual.O&M Costs | $ 2.6M | $ 2.5M |

**Note:** All cost data is from County Project Team (9/6/2007). Costs have been escalated to 2011 levels.




Secured assessment is a function of capital costs less grants.

Capital rates and charges are a function of loan and/or bond rates, terms and grants.

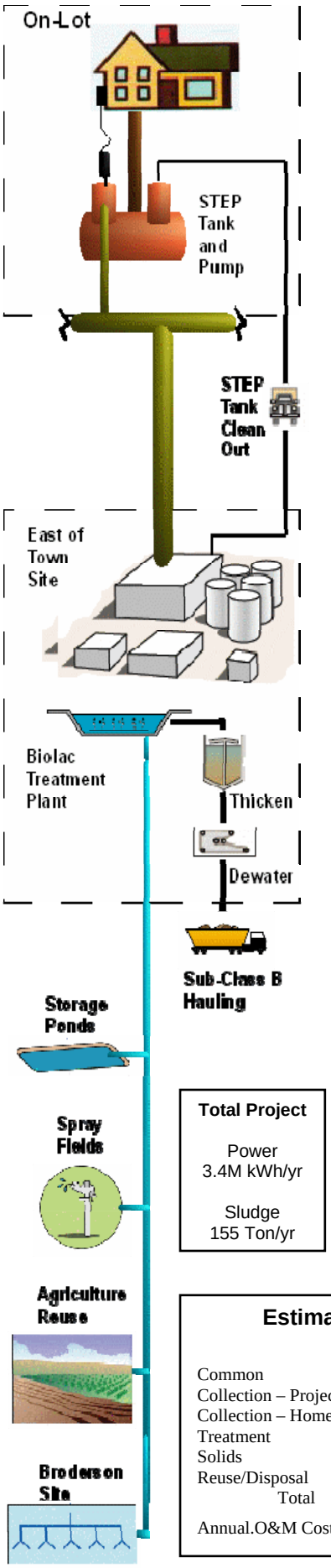
In addition homeowners can expect to pay a one time cost between $1,400 and $4,900 for on-lot and connection expenses.

# Sample Project B

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

| Collection | Treatment | Effluent Disposal | Solids Disposal | Site |
|---|---|---|---|---|
| STEP | BIOLAC | 40% - 50% Reduction in Sea Water Intrusion (SWI)* | Sub-Class B | East of Town |

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




**Total Project**

Power
3.4M kWh/yr

Sludge
155 Ton/yr

## Pros

- STEP collection systems have lower capital cost then gravity. They provide primary treatment in the on-lot tank which results in reduction of costs associated with bio-solid 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 pressurized pipes allow for shallow trenching and horizontal boring which will reduce road and traffic impacts during construction.
- BIOLAC treatment has a small footprint (8-10 acres).
- Spray Fields have the greatest capacity of all the effluent disposal options and are particularly useful for start-up and emergency discharge operations only.
- 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 on non-prime agricultural land, located near the Los Osos landfill site, in close proximity to spray fields and potential agricultural reuse areas. They appear to be in a predominately downwind position with respect to the low density residential area located near LOVR (requires further analysis). When combined, the sites are adequate in size and provide flexibility for possible on-site alternative energy and emergency storage in the event of system failure.

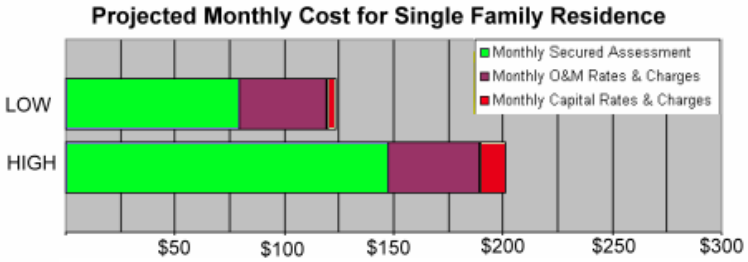
## Cons

- STEP collection has higher O&M cost than a gravity system. It results in construction and permanent impacts on individual property, including large footprint, greater amount of yard restoration after installation, maintenance and nuisance of pumping of septic tank. There are potential odor issues of vents if not properly maintained (100 - 500 collection vents located throughout community). Due to the number of active system components on each lot, periodic maintenance and repair will be required.
- The use of Spray fields involves the export water from the groundwater basin. Anything other than temporary use of spray fields will detrimentally impact the sustainable yield of the groundwater basin. Spray Fields have the greatest footprint of all the effluent disposal options, highest land cost, and may have potential environmental impact associated with pipelines leading to them.
- Agriculture Reuse requires contractual agreements with third parties.
- 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 quality 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 are located near churches, a cemetery and in a low density residential area. The 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 that area

## Estimated Project Costs

| | High | Low |
|---|---|---|
| Common | $ 7.2M | $ 2.8M |
| Collection – Project | $ 86.8M | $ 70.8M |
| Collection – Homeowner | $ 30.2M | $ 21.6M |
| Treatment | $ 27.1M | $ 26.8M |
| Solids | $ 2.4M | $ 1.4M |
| Reuse/Disposal | $ 24.0M | $ 23.7M |
| Total | $177.7M | $147.1M |
| Annual.O&M Costs | $ 2.8M | $ 2.7M |

**Note:** All cost data is from County Project Team (9/6/2007). Costs have been escalated to 2011 levels.




Secured assessment is a function of capital costs less grants.

Capital rates and charges are a function of loan and/or bond rates, terms and grants.

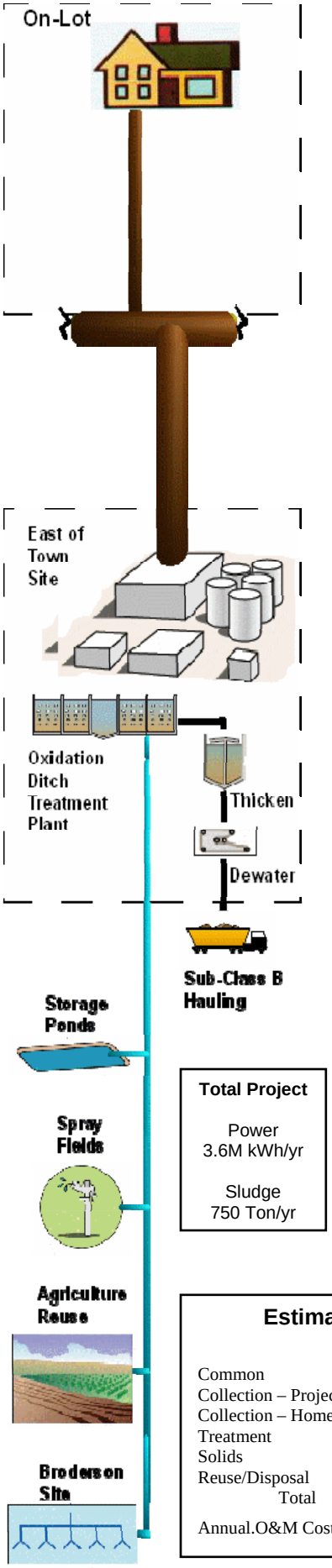
In addition homeowners can expect to pay a one time cost between $2,400 and $7,550 for on-lot and connection expenses.

# Sample Project C

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

| Collection | Treatment | Effluent Disposal | Solids Disposal | Site |
|---|---|---|---|---|
| Gravity | Oxidation Ditch | 40% - 50% Reduction in Sea Water Intrusion (SWI)* | Sub-Class B | East of Town |

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




## 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 the greatest capacity of all the effluent disposal options and are particularly useful for start-up and emergency discharge operations only.
- 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 on non-prime agricultural land, located near the Los Osos landfill site, in close proximity to spray fields and potential agricultural reuse areas. They appear to be in a predominately downwind position with respect to the low density residential area located near LOVR (requires further analysis). When combined, the sites are adequate in size and provide flexibility for possible on-site alternative energy and emergency storage in the event of system failure.

## Cons

- Gravity collection systems have higher capital costs then STEP due to slope requirements, deeper trenching, possible dewatering (special handling of collected water may be required), and results in greater in-town traffic impacts. It requires larger pipes and results in more solids (increased bio-solids disposal costs). The needed 20 pump stations have permanent impact, requiring additional footprint and odor control. There is also an increased risk of inflow and infiltration of groundwater which may require additional monitoring and repair. 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 requires contractual agreements with third parties.
- 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 quality 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 are located near churches, a cemetery and in a low density residential area. The 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 that area.

**Total Project**

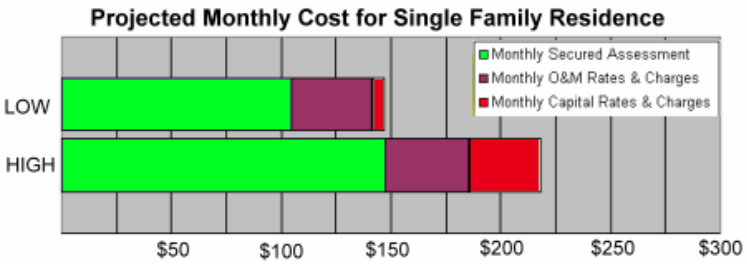
Power
3.6M kWh/yr

Sludge
750 Ton/yr

## Estimated Project Costs

| | High | Low |
|---|---|---|
| Common | $ 7.0M | $ 2.8M |
| Collection – Project | $105.9M | $ 95.7M |
| Collection – Homeowner | $ 19.5M | $ 17.3M |
| Treatment | $ 27.5M | $ 27.0M |
| Solids | $ 3.4M | $ 2.6M |
| Reuse/Disposal | $ 23.4M | $ 23.0M |
| Total | $186.7M | $168.4M |
| Annual.O&M Costs | $ 2.6M | $ 2.5M |

**Note:** All cost data is from County Project Team (9/6/2007). Costs have been escalated to 2011 levels.

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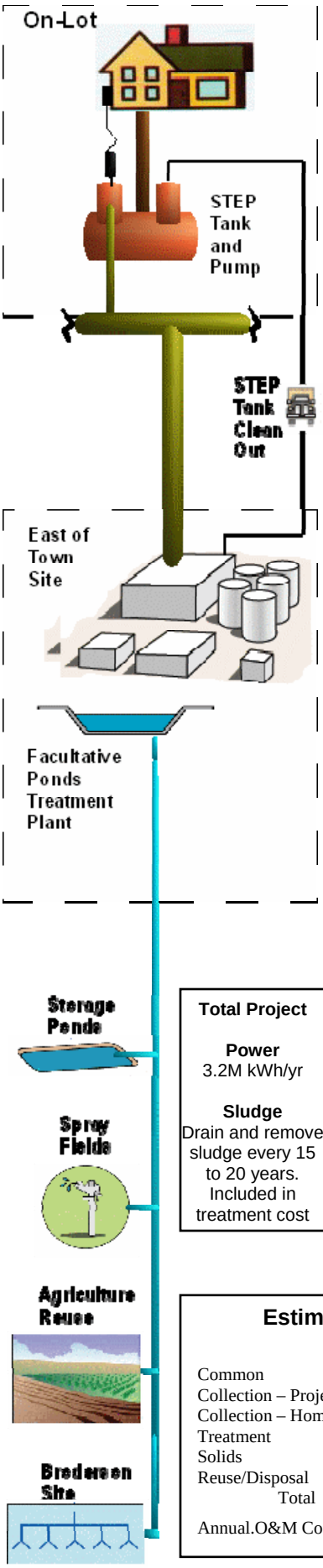
In addition homeowners can expect to pay a one time cost between $1,400 and $4,900 for on-lot and connection expenses.

# Sample Project D

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

| Collection | Treatment | Effluent Disposal | Solids Disposal | Site |
|---|---|---|---|---|
| STEP | Facultative Ponds | 40% - 50% Reduction in Sea Water Intrusion (SWI)* | None | East of Town |

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




## Pros

- STEP collection systems have lower capital cost then gravity. They provide primary treatment in the on-lot tank which results in reduction of costs associated with bio-solid 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 pressurized pipes allow for shallow trenching and horizontal boring which will reduce road and traffic impacts during construction.
- Facultative Ponds have lowest energy usage and greatly reduces solids production and disposal (dredging is required every 20 years).
- Spray Fields have the greatest capacity of all the effluent disposal options and are particularly useful for start-up and emergency discharge operations only.
- 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 on non-prime agricultural land, located near the Los Osos landfill site, in close proximity to spray fields and potential agricultural reuse areas. They appear to be in a predominately downwind position with respect to the low density residential area located near LOVR (requires further analysis). When combined, the sites are adequate in size and provide flexibility for possible on-site alternative energy and emergency storage in the event of system failure.

## Cons

- STEP collection has higher O&M cost than a gravity system. It results in construction and permanent impacts on individual property, including large footprint, greater amount of yard restoration after installation, maintenance and nuisance of pumping of septic tank. There are potential odor issues of vents if not properly maintained (100 - 500 collection vents located throughout community). Due to the number of active system components on each lot, periodic maintenance and repair will be required.
- Facultative Ponds require a larger footprint (16-20 acres), have greater construction impacts and may require additional treatment to comply with discharge limits for certain disposal methods.
- The use of Spray fields involves the export water from the groundwater basin. Anything other than temporary use of spray fields will detrimentally impact the sustainable yield of the groundwater basin. Spray Fields have the greatest footprint of all the effluent disposal options, highest land cost, and may have potential environmental impact associated with pipelines leading to them.
- Agriculture Reuse requires contractual agreements with third parties.
- 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 are located near churches, a cemetery and in a low density residential area. The 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 that area.

**Total Project**

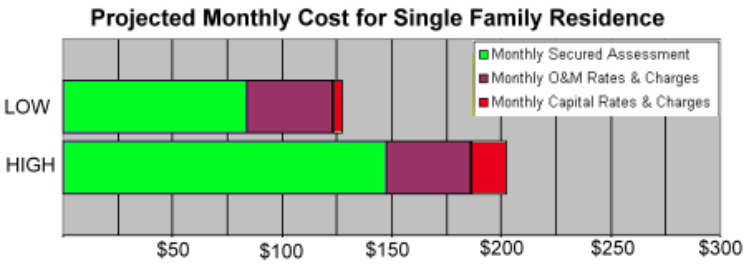
**Power**
3.2M kWh/yr

**Sludge**
Drain and remove sludge every 15 to 20 years. Included in treatment cost

## Estimated Project Costs

| | High | Low |
|---|---|---|
| Common | $ 7.2M | $ 2.8M |
| Collection – Project | $ 86.8M | $ 70.8M |
| Collection – Homeowner | $ 30.2M | $ 21.6M |
| Treatment | $ 33.4M | $ 33.1M |
| Solids | $ - | $ - |
| Reuse/Disposal | $ 24.0M | $ 23.7M |
| Total | $181.6M | $152.0M |
| Annual.O&M Costs | $ 2.6M | $ 2.6M |

**Note:** All cost data is from County Project Team (9/6/2007). Costs have been escalated to 2011 levels.

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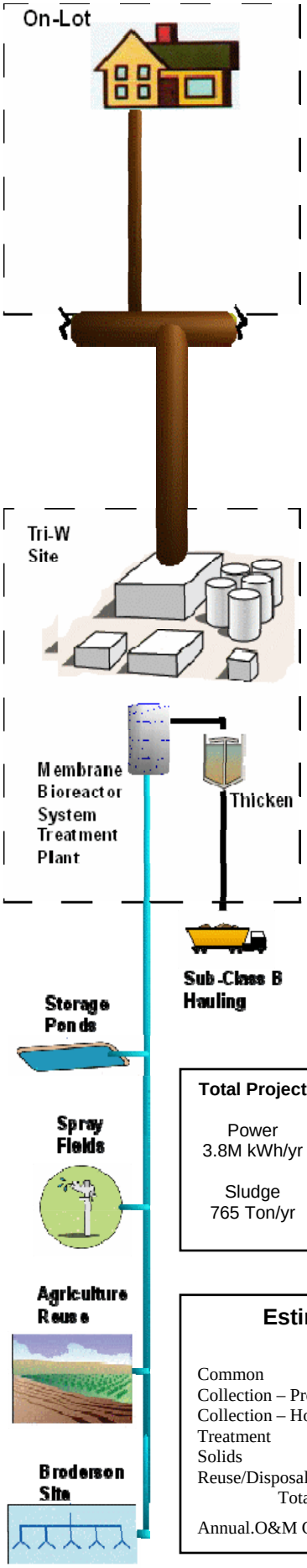
In addition homeowners can expect to pay a one time cost between $2,400 and $7,550 for on-lot and connection expenses.

# Sample Project E

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 |

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




**Total Project**

Power
3.8M kWh/yr

Sludge
765 Ton/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 the greatest capacity of all the effluent disposal options and are particularly useful for start-up and emergency discharge operations only.
- 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

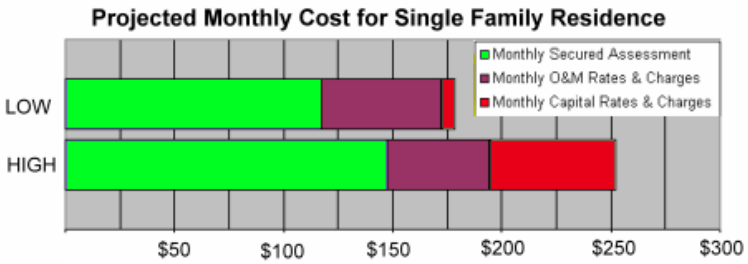
## Cons

- Gravity collection systems have higher capital costs then STEP due to slope requirements, deeper trenching, possible dewatering (special handling of collected water may be required), and results in greater in-town traffic impacts. It requires larger pipes and results in more solids (increased bio-solids disposal costs). The needed 20 pump stations have permanent impact, requiring additional footprint and odor control. There is also an increased risk of inflow and infiltration of groundwater which may require additional monitoring and repair. 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
- The use of Spray fields involves the export water from the groundwater basin. Anything other than temporary use of spray fields will detrimentally impact the sustainable yield of the groundwater basin. Spray Fields have the greatest footprint of all the effluent disposal options, highest land cost, and may have potential environmental impact associated with pipelines leading to them.
- Agriculture Reuse requires contractual agreements with third parties.
- 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 quality 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, aesthetic mitigation, 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.

## Estimated Project Costs

| | High | Low |
|---|---|---|
| Common | $ 6.8M | $ 2.7M |
| Collection – Project | $ 92.0M | $ 90.7M |
| Collection – Homeowner | $ 19.0M | $ 16.9M |
| Treatment | $ 70.6M | $ 69.6M |
| Solids | $ 4.5M | $ 3.5M |
| Reuse/Disposal | $ 31.1M | $ 27.9M |
| Total | $224.0M | $211.3M |
| Annual.O&M Costs | $ 3.1M | $ 3.1M |

**Note:** All cost data is from County Project Team (9/6/2007). Costs have been escalated to 2011 levels.

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In addition homeowners can expect to pay a one time cost between $1,400 and $4,900 for on-lot and connection expenses.