The City of San Francisco, CA is currently in the process of developing a ***Sewer System Master Plan.*** To ensure that the planning process is comprehensive and consistent with the needs of the City, an independent Technical Advisory Committee (TAC) was formed. Several TAC meetings were scheduled prior to the completion off the Master Plan by the end of 2006. Key findings from the fourth meeting of the TAC held on November 6, 2006 are presented in this Executive Summary. More detailed meeting minutes are also included in this report. The agenda for the November 6, 2006 meeting is included in Appendix A. Summary reports for the first three TAC meetings, held on March 5 and 6, 2006, June 1 and 2, 2006, and September 6, 2006, respectively are on file at the SFPUC. Brief summaries of the first three meetings are included in this report

The focus of the fourth TAC meeting was threefold: (1) to hear the presentation of the Master Plan that will be given to the Commissioners on November 14, 2006, (2) and offer suggestions for improving the presentation, and (3) to discuss the letter sent by the Sustainable Watersheds Alliance, or SWAle (formerly known as the Alliance for a Clean Waterfront) to the TAC outlining their concerns and objectives. Detailed minutes of the one-day meeting were taken by one of the TAC members, a member of the city staff, and by the project manager for the consulting consortium of engineering firms responsible for completing the work on the master plan. The minutes taken by the three different scribes are presented in Appendixes B, C. and D, respectively of this report.

Presentation of the Master Plan

The Master Plan update was presented by Mr. Jon Loiacono. The slide presentation consisted of some 78 slides. The presentation of the Master Plan to the Commissioners is intended to be an update on the status of the Master Plan program. It is not considered to be a request for a decision at this time. It is a

progress report for the Commission. The objective of the 2006 Master Plan update is to implement a sustainable plan to deal with specific problems with the current wastewater management system and to develop a range of solutions to these problems that will also improve the quality of life in the City.

Critique of Presentation

San Francisco Public Utilities Commission Wastewater Enterprise (WWE) staff asked that the TAC provide comments on the presentation. All of the TAC members present (Dr. J. Middlebrooks was absent) offered a variety of comments on all aspects of the presentation. Three key observations are as follows: (1) the presentation included too many slides and, as a result, the important concepts and take home message were lost; (2) the role of the TAC was not emphasized enough, especially the rationale offered by the TAC for the alternatives and the programs; and (3) a vision for the future should be clearly set forth in the beginning of the presentation.

The full range of comments on the presentation offered by the TAC members and the public may be found in Appendixes B, C, and D. Because of the importance of the TAC rationale for selecting the key elements and programs of the Sewer Master Plan the rationale, presented the minutes of the third TAC meeting, as part of the *TAC Recommended Master Plan Components and Elements* statement, is repeated here following the executive summary.

Letter From SWAle to the TAC

Three days before the fourth meeting, the TAC members received a letter and a statement of *Wastewater Master Plan Objectives* from the SWAle. Based on a preliminary review, the TAC found the material presented to be thoughtful and well reasoned. However, because the letter and the objectives statement was received too late for the TAC members to review thoroughly and respond to thoughtfully, it was agreed that the SWAle letter and the *Wastewater Master Plan Objectives* statement would be included in the minutes from the fourth meeting. Further, it was agreed that the minutes from the fourth TAC meeting would be

made available before the presentation of the Master plan to the PUC Commissioners. The SWAle letter and *Wastewater Master Plan Objectives* are presented following the TAC rationale statement, as noted above.

Comparison of TAC Rationale and SWAle Objectives

In developing the Master Plan, it is of critical importance that the basis for developing programs and alternatives be stated clearly so that everyone can assess the soundness of the findings and conclusions. It is for this reason, that the rationale offered by the TAC is repeated in this summary report along with the Master Plan objectives offered by SWAle. In comparing the TAC rationale with the objectives of SWAle, it is clear that a greater number of issues have been identified by the TAC including those identified by SWAle. Similarly, it is clear the SWAle objectives are presented with far greater specificity as compared to the TAC rationale. It is anticipated that the WWE will, before the next TAC meeting, develop a comprehensive guidance document to go alone with the Master Plan that will incorporate the TAC rationale issues and SWAle objectives, which, in turn, will allow for metrics to be developed for comparisons and evaluations.

The TAC offered the following rationale for its consensus opinion on the most attractive combination of components and elements for the Master Plan. The full statement may be found in the minutes to the third TAC meeting, along with other consensus statements.

Rationale for Master Plan Recommendations

The Master Plan, first and foremost, must offer a vision for the future which provides: (1) remedies for existing infrastructure problems, (2) effective wastewater and solids management for the foreseeable future (i.e., 30 years), and (3) opportunities to implement new developments in a time frame that extends well beyond the current planning horizon (i.e., 100 years). Specifically, the City of San Francisco Sewer System Master Plan must meet the following criteria:

- Correct existing infrastructure problems (repair and rehabilitate existing collection system infrastructure including odor management, flooding relief, solids processing facilities at the Southeast plant, grit control at the Oceanside plant, *etc*.)
- Address future population, employment, and industrial changes in the service area of the system
- Be sustainable with respect to energy and other resources
- Maintain seismic integrity
- Have robust wastewater and sludge treatment processes that can meet current and future discharge requirements
- Minimize environmental impacts
- Meet homeland security concerns
- Consider the potential benefits of decentralization
- Be consistent with other SFPUC initiatives (*e.g.*, the *Recycled Water Master Plan for the City and County of San Francisco*

- Provide flood relief related to subsidence and topographical conditions (e.g., the Cayuga watershed, the “South of Market” area)
- Minimize, to the extent possible, the number and volume of combined sewer overflows to the bay and ocean**.**
- Incorporate sustainable and green technologies, to the extent practical, and provide opportunities for their further use in the future.
- Incorporate low impact development (LID), to the extent practical.
- Consider water reuse and conservation.
- Consider water reuse and treated discharge locations which enhance public and ecological benefits.
- Consider climate change impacts.
- Include wastewater treatment, stormwater treatment, and water reclamation on Treasure Island.
- Address environmental justice concerns.

Recommended Master Plan Components and Elements

Using the above rationale as a lens, the TAC offered what it believed to be the most attractive combination of components and elements for the City of San Francisco Master Plan (see minutes from the third TAC meeting).

November 3, 2006

Dr. George Tchobanoglous, Chair
Technical Advisory Committee
San Francisco Public Utilities Commission
1145 Market Street, 5th floor
San Francisco, CA 94103

Dear Dr. Tchobanoglous;

The Sustainable Watersheds Alliance, or SWAle (formerly known as the Alliance for a Clean Waterfront) has been working for several years to enact a just and sustainable wastewater program in San Francisco. Many of our member organizations were key players in the formation of the Technical Advisory Committee (TAC). As you know, the intent behind the formation of the TAC a decade ago was to provide expert advice to both wastewater staff and the public on the feasibility of the enterprise's plans, and to recommend prudent alternatives. After a slow start to the TAC, we have been very happy to see your expertise regularly consulted in the current Wastewater Master Plan process.

As San Francisco's Wastewater Master Plan process approaches its first milestone, the November 14th Commission briefing, we would like to offer you and your colleagues our perspective of the process and its opportunities, and give you the opportunity to critique our preferred goals and objectives. We apologize for the tardiness of this request.

While we have had substantial and regular input with the planning team regarding the master plan, our members remain concerned that the process and its outcomes have been too narrowly defined. Despite the assurances of staff that the final plan will be comprehensive and incorporate the state-of-the-art, sustainable technologies we have been advocating, the PUC proposals to date have focused strictly on large-scale plumbing alternatives. Efforts that should be contributing to development of alternatives, such as stormwater and watershed planning, are moving at a slower timetable than the master plan process. The search for alternatives to the Southeast Plant has been inadequate; and while clear policy decisions must be made before real alternatives are chosen, those policy questions have yet to be clearly defined.

While our expertise is necessarily less than that possessed by either the TAC or the Wastewater Planning staff, our organizations do have the advantage of having worked in the community, and we have some understanding of what issues may be contentious, and what elements may help to winning the public support that will be critical to financing and implementing the plan.

We have taken the liberty of developing our own goals for the plan, as well as recommended strategies to meet those goals. We request that the TAC review and comment on the attached program; further, we ask that you as a group undertake a similar exercise. At previous meetings, we feel that the TAC has taken a reactive rather than proactive role in the process. This role does not take full advantage of your considerable collective expertise, nor does it provide the planning staff with the best advice in setting direction for their work.

We would like to express our deep appreciation to the TAC members for their involvement in this process, and look forward to a more interactive relationship in the coming months.

Sincerely,

Alex Lantsberg
Sustainable Watersheds Alliance

Jennifer Clary
Clean Water Action

Linda Hunter
Farallones Marine Sanctuary Association

Kelly Quirke
Friends of the Urban Forest

Sudeep Rao
Literacy for Environmental Justice

Judy West
Madrina Group

Arthur Feinstein
San Francisco Tomorrow

Ruth Gravanis
Treasure Island Wetlands Project

Cc: Tom Franza
Jon Loiacono

Attachment

Wastewater Master Plan Objectives

SWAle supports the development of an environmentally just and sustainable wastewater program that recognizes that *all* water is a resource. In viewing the development of the SFPUC Wastewater Master Plan through that lens, the following priorities become clear:

- *Pollutant loading* to the Bay and Ocean must be continually and significantly reduced,
- The *volume* of water entering the system for treatment must be minimized,
- A *reliable* and *flexible* system is essential in order to respond to catastrophic events and address water supply issues,
- The Plan must redress the *environmental injustices* created by the last Master Plan,
- The Plan must provide *environmental benefits*,
- The Plan must take proactive steps to address the impact of *climate change*, and
- The Plan must specifically address ways to achieve both economic and environmental *sustainability*.

While we have assigned specific objectives and strategies for each goal, the implementation of green infrastructure alternatives is common to all. Our organizations strongly feel that such options must be an essential component of the Wastewater Master Plan, and that they must be assigned quantifiable targets. Without meaningful goals, these options merely become window dressing for the rebuild of the current system, rather than practical, multiple benefit solutions to real challenges.

Goal: Redress Environmental Justice Issues in Bayview Hunters Point

The decision to centralize the City's wastewater treatment in this neighborhood in the prior master plan process has been acknowledged by staff to be a mistake. The treatment of 80 percent of San Francisco's wastewater in the Bayview has led to myriad problems, including odors, mosquitoes, local flooding, and a concentration of combined sewer discharges at Islais Creek. The development of this master plan gives the PUC an opportunity to correct the City's error.

Key Objectives:

1) Replace Southeast Water Pollution Control Plant at an appropriate location away from residences;
2) Reduce local flooding;
3) Eliminate untreated and minimally treated discharges into Islais and Yosemite Creeks;

4) Provide economic development opportunities for local contractors and robust workforce development for local residents;
5) Provide environmental benefits to the community.

Recommended Strategies:

a. Develop environmental justice guidelines with community to guide planning effort;
b. Investigate watershed-based decentralized treatment options to reduce the volume of sewage and stormwater transported to the Bayview Hunters Point neighborhood;
c. Develop a clear procedure and criteria for identifying and evaluating alternative plant locations that includes strong neighborhood involvement and involves public agencies that control potential sites;
d. Develop minimum site design guidelines (for instance, all processes covered, no discernible odor at nearest residences, appropriate shielding/landscaping);
e. Apply Low Impact Development (LID) technologies to improve the appearance of the neighborhood, reduce street flooding and to reduce or eliminate overflows.
f. Institute community-based water quality testing at <u>all</u> Bayside outfall areas, report test results to the community (online), and post unhealthy contaminant levels at Bayside fishing piers, small boat launch areas, and other locations that provide access to water contact recreation

Performance measures

i. Support of affected communities for decision on size and location of treatment facilities.
ii. Reduction in volume of sewage and stormwater transported to the Southeast neighborhood for treatment.
iii. Quantified reduction in peak stormwater flows as well as in Sewage and Stormwater Overflows in neighborhood.
iv. Number of jobs at all levels (entry, journeymen, professional) held by southeast residents.
v. Measurable improvement in bay water quality at testing sites.

Key Policy Decisions

- SFPUC should adopt a resolution acknowledging the unfair burden placed on the residents of Bayview Hunters Point by the concentration of wastewater treatment facilities in their neighborhood;
- The Mayor's Office should ensure city department coordination in the site selection process.

Goal: Reduce pollutant loading to Bay and Ocean

The discussion on whether to discharge treated effluent to the bay and ocean has been largely a discussion of potential regulatory drivers. Instead, the PUC's priority should be

to minimize the number of pollutants and the total volume discharged to the environment. As part of that priority, the Wastewater Master Plan should analyze a suite of options that can be implemented over the period of the plan and that will result in continuous improvement in the quality (which in SF often means the quantity as well) of discharges.

Key Objectives:

1) Minimize Combined Sewer Discharges by volume;
2) Increase dry-weather treatment to tertiary level;
3) Increase level of wet-weather treatment;
4) Achieve at least secondary treatment for all discharges.

Recommended Strategies

a. Continually review best practices of other cities and counties in the development of green infrastructure strategies for stormwater diversion and treatment and use pilot projects to determine the most effective strategies for the City;
b. Develop quantifiable goals for total pollutant loading as well as for key individual pollutants;
c. Include provisions for tertiary treatment in all site options;
d. Increase pollution prevention activities to keep key contaminants out of system;
e. Employ upstream LID strategies to keep stormwater out of the combined system as well as to desynchronize the flow to reduce peak stormwater volumes;
f. Rebuild current bay outfall; consider additional outfalls as needed;
g. Institute community-based water quality testing at <u>all</u> Bayside outfall areas, report test results to the community (online), and post unhealthy contaminant levels at Bayside fishing piers, small boat launch areas, and other locations that provide access to water contact recreation.

Performance Measures

i. Number of pilot projects completed; volume of reduction attained by implementation of successful programs.
ii. Number of postings at beaches and bayside water recreation areas.
iii. Water sampling at outfalls shows reduced incidence of contamination.
iv. Quantified reduction in Combined Sewer Discharges, measured by watershed.
v. Goals for reduction in inputs of target contaminants into the collection system are met.
vi. Removal of Mission and Islais Creeks from Clean Water Act 303(d) listing.

Key Policy Decisions

- Commission should adopt a policy of minimizing pollutant loading in their discharges, and direct staff to include quantifiable goals for reducing loading in the WWMP.
- Commission should direct staff to consider more proactive pollution prevention strategies, including federal, state and local legislation as needed to remove priority pollutants from the marketplace.

Goal: Reduce the total volume of water entering the system

Once a drop of water enters the collection system, it takes energy and chemicals to treat it, no matter how clean it was upon entry. Moreover, saltwater intrusion into the collection system on the Bayside makes recycling more resource intensive and expensive. The most sustainable, cost-effective option, therefore, is to maximize use of water before it enters the collection system for treatment, and to reduce the overall volume of water that requires treatment.

Key Objectives:

1) Minimize the volume of stormwater entering the collection system,
2) Reduce water use through conservation,
3) Support on-site water reuse.

Recommended Strategies

a. Review best practices of other cities and counties in the development of green infrastructure strategies for stormwater reduction;
b. Encourage on-site graywater systems in lieu of recycled water in dual-plumbed buildings;
c. Identify opportunities for rainwater storage, such as cisterns under playing fields and disconnected downspouts;
d. Develop recycled water supply for eastside commercial use;
e. Jointly market consumer options for LID and water conservation technologies.

Performance Measures

i. Set quantifiable targets by watershed for overall stormwater diversion to be met using green infrastructure strategies.
ii. Set green infrastructure targets for each watershed based upon peak volumes in a 100-year storm event.
iii. Measure and report water consumption reduction measures implemented and resulting volume reduction.
iv. Measure and report green roofs installed, trees planted, green space added to streets, public plazas and parks, down spouts disconnected.
v. Measured reduction in water use due to reuse strategies.

Key Policy Decisions

- Commission to adopt an overall stormwater reduction policy through green infrastructure strategies as a primary policy foundation for Master Plan.

Goal: Maximize Flexibility and Reliability

Given the high probability of major seismic activity impacting San Francisco within the next 30 years, and the likelihood that parts of the system will be unusable after such an event, the Wastewater Master Plan needs to identify how the system can function in such an event. Additionally, our relationships with neighboring communities, such as Brisbane and Daly City should be clearly outlined in the document, and their concerns identified and addressed.

Key Objectives

1) Ensure operation of system in case of an unplanned outage, extreme weather or seismic event;
2) Ensure security of system in design of new facilities;
3) Ensure system is properly maintained;
4) Expand green infrastructure components of system to reduce portion of system susceptible to damage from seismic event or other disaster.

Recommended Strategies

a. Develop quantifiable level of service goals for operational and seismic reliability; identify critical facilities and prioritize upgrades to meet those goals (for example; all 30" mains and pump stations operational within 6 hours; ability to treat all dry weather flows to secondary standards within 12 hours);
b. Incorporate green infrastructure to reduce the likelihood of untreated sewage releases in the event that an outage occurs during a storm;
c. Consider intertie between Daly City and Oceanside plant to provide redundancy on West side;
d. Decentralize treatment to minimize widespread problems;
e. Encourage use of cisterns to provide emergency and drought supplies;
f. Develop recycled water supply for eastside commercial uses to reduce stress on water system and increase economic recovery after event;
g. Develop ongoing maintenance program for collection system using industry best practices and providing training and funding for workers;
h. Develop operational scenarios for 100, 200, and 500-year storm events; use green technology strategies to achieve goal of no flood damage in 100-year storm events.

Performance Measures

i. No untreated or minimally treated discharges as a result of an unplanned outage or seismic event.
ii. Reduction in odor complaints.
iii. Decrease in unplanned maintenance activities.
iv. No property damage due to flooding or backflow in 100-year storm events.

Key Policy Decisions

- Commission should require the Wastewater Enterprise to develop quantifiable water supply goals as part of the WWMP for use by the Water Enterprise in revising their 2030 demand estimate.

Goal: Sustainability

"A Sustainable Society meets the needs of the present without sacrificing the ability of future generations and non-human forms of life to meet their own needs." --UN

A sustainable approach means: not letting the solution to one problem become the cause of another; applying the precautionary principle; and seeking solutions that provide multiple benefits. Economic sustainability is a key component of this approach. The need for cost-effectiveness should be evaluated in terms of lifetime costs and benefits, which will sometimes mean greater up-front capital outlays in order to reap the benefits of lower O&M costs over time.

Key Objectives

1) Minimize use of potable water,
2) Maximize use of stormwater,
3) Achieve a net decrease in greenhouse gas emissions,
4) Minimize use of toxic chemicals,
5) Meet zero-waste targets through a reduce, reuse, recycle approach,
6) Require future development to fully offset its contribution to the wastewater system.

Recommended strategies

a. Use gravity instead of pumping wherever possible (for instance, decentralized treatment);
b. Incorporate renewable energy for pumping and treatment;
c. Consider use of UV disinfection, using photovoltaic as energy source;
d. Identify recycled water source for current and future purple piping;
e. Expand scope of purple piping ordinance to all new developments in San Francisco, including redevelopment areas;
f. Encourage inclusion of purple piping in Brisbane redevelopment areas;
g. Maximize use and production of recycled water and decentralize the locations of the recycled water plants to minimize pumping for distribution to receiving sites;
h. Use no Tuolumne River water for LID projects - instead use drought tolerant plantings, stored stormwater, or recycled water;
i. Use renewable membranes for MBF alternatives;
j. Explore ways to maximize use of biosolids;
k. Adopt green infrastructure strategies such as green roofs, expanded street landscaping in flood-prone areas, disconnecting downspouts in order to reduce overall volume of stormwater entering system and energy costs of treatment;
l. Require new real estate development to fully offset wet weather inputs to the system.

Performance Measures

i. Measure and report net energy consumption annually.
ii. Measure and report water consumption reduction measures implemented and resulting volume reduction
iii. Measure and report green roofs installed, trees planted, green space added to streets, public plazas and parks, down spouts disconnected.
iv. Compare Ecological Footprint, before and after.
v. Use emerging measurement tools, such as those for greenhouse gas emissions.

Key Policy Decisions

- Commission should commit to expansion of Purple Piping ordinance and provision of recycled water supply to serve both the current and projected scope of the ordinance.
- SFPUC, as well as Mayor and Supervisors, should commit to zero use of Tuolumne River water for street beautification projects.
- SF PUC should involve Brisbane city officials, as well as developer of Brisbane Baylands project, in Master Planning effort.

Goal: Address Climate Change

We applaud the Wastewater planning team for proactively looking at the impacts of climate change on the system. Their consultants estimate a 1'-3' rise in sea level in this century (assuming no full-scale glacial meltdown). In addition, more violent swings in weather are expected to occur, with longer droughts but also more extreme rain events. Both effects will result in increased flooding in already low-lying areas of the City, and will also increase the area of the City subject to such events. The most at-risk areas are the inner Mission's Industrial Protection Zone and large areas of the South of Market.

Additionally, rising tides already overwhelm the combined sewer overflow outfalls of the transport structures that ring the City several times each year. This situation can be expected to worsen over time, which will require the PUC to install control structures (tidegates) to prevent Bay water from entering the system, pumps to discharge wastewater when the outfalls can't be used, and eventually to abandon or relocate the outfalls.

Key Objectives

1) Minimize and if possible eliminate Combined Sewer Discharges,
2) Reduce and if possible eliminate flooding in low-lying areas,
3) Develop building requirements to protect new developments from flooding,
4) Ensure new plants can accommodate future sea level rise,
5) Encourage car-free developments to reduce climate change impacts, improve water quality, and increase opportunities for stormwater capture.

Recommended Strategies

a. Develop models for 100-, 200-, and 500-year storms to identify areas at current and future flooding risk; make this information publicly available;
b. Work with City Planning to create incentives for sustainable development that address the issues of stormwater diversion and rising sea level;
c. Add backflow prevention activities in flood-prone areas;
d. Educate the public about the threat to low-lying areas;
e. Establish disclosure requirements in flood-prone or liquefaction areas and include PUC concerns;
f. Employ LID strategies on a watershed basis to reduce Combined Sewer Discharges in and upstream of defined flood or liquefaction zones;
g. Revise City datum to ensure new construction is built above flood levels, and consider raising street grades in low-lying areas;
h. Adopt green infrastructure strategies such as green roofs, expanded street landscaping in flood-prone areas, disconnecting downspouts in order to reduce overall volume of stormwater entering system; consider offering incentives for stormwater retention in flood-prone watersheds;
i. Design new treatment plants to accommodate greater than currently expected sea level rise.

Performance Measures

i. Quantified reduction in number, volume of Combined Sewer Discharges.
ii. Revision of City datum.
iii. Development of BMPs for new developments.
iv. Measurable decrease in backflows.
v. Measurable decrease in Combined Sewer Discharges.

Key Policy Decisions

- Commission should establish a “zero overflow” goal.
- Commission should direct staff to work with Department of Building Inspection, City Planning to update City datum.
- Commission should direct staff to work with City departments to develop protocol to identify and protect flood or liquefaction zones.

Goal: Environmental Benefits

The construction of San Francisco’s sewer system spelled the demise of the City’s natural hydrology. The city’s streams have become major conduits for the sewer system, and their flows are now sent to the treatment plants to be treated and discharged as sewage. Water that was once used as part of the City’s potable supply also now contributes significantly to the overflows that occur during rainstorms. The WWMP gives SFPUC the opportunity to correct past misjudgments and also to address the need for additional green space in San Francisco. San Francisco currently provides only about half the open

space for its residents that are recommended by the state, and the population of the City is expected to increase by 100,000 people in the next 25 years.

Key Objectives

1) Restore or mimic natural hydrology where appropriate and feasible,
2) Improve and increase open space opportunities within San Francisco.

Recommended Strategies

a. Use watershed component of WWMP to investigate opportunities for stream restoration or re-creation (for example, canyon restoration at SF State, parts of Islais Creek);
b. Use watershed and recycled water components of WWMP to identify opportunities for wetlands creation (for example, Hunters Point shipyard, Port property, Lake Merced);
c. Investigate watershed-based decentralized treatment options to restore natural hydrology where possible;
d. Encourage use of Green Infrastructure strategies to increase both public and private open space opportunities (i.e., street greening, green roofs);
e. Identify opportunities to disconnect stream flows from combined system (for example, Lake McNab in McLaren Park, parts of Islais and Mission Creeks).

Performance Measures

i. Increase in acreage of open space.
ii. Number of city blocks with greening plans, and number of plans implemented.
iii. Increase in habitat within City limits.
iv. Reductions in Sewage and Stormwater Overflows, measured by watershed.

Policy Decisions

- Commission should direct staff to include an environmental benefit component in the WWMP.
- Commission should establish a policy of reducing stream flows into combined system.
- Commission should direct staff to work with Mayor's office to develop appropriate funding guidelines and additional funding sources for this program.

The City and County of San Francisco, CA is currently in the process of developing a ***Sewer System Master Plan.*** To ensure that the planning process is comprehensive and consistence with the needs of the City, an independent Technical Advisory Committee (TAC) was formed. This report contains a summary of the fourth TAC meeting. Along with a summary of fourth meeting of the TAC, information on the charge to the TAC, the membership of the TAC, the meeting schedule, and a brief review of the first three TAC meetings is presented for completeness, should the summaries of the first three TAC meetings not be available.

TECHNICAL ADVISORY COMMITTEE CHARGE

The TAC was formed to:

1. Review and comment on major milestone reports and/or technical memoranda prepared by the Planning and Engineering teams,
2. Provide an independent extramural view of the work to be undertaken, and
3. Offer advice and council on topics that should be considered as part of the master plan

TAC MEMBERSHIP

The TAC is comprised of eight members, selected to represent a broad range of disciplines:

Robert Gearheart
Darla Inglis
David Jenkins
Michael Josselyn
Larry Kolb
Cecil Lue-Hing
E. Joe Middlebrooks (Absent for fourth TAC meeting)
George Tchobanoglous, Chair

MEETING SCHEDULE

The first TAC meeting was held on March 5 and 6, 2006 in San Francisco at the PUC offices. The second meeting was held on June 1 and 2, 2006. The third was held on September 6, 2006. The fourth meeting, the subject of this report, was held on November 6, 2006. The next meeting of the TAC is scheduled for after the first of the year.

REVIEW OF FOURTH TAC MEETING

The focus of the fourth TAC meeting was threefold: (1) to hear the presentation of the Master Plan that will be given to the Commissioners on November 14, 2006, (2) and offer suggestions for improving the presentation, and (3) to discuss the letter sent by the Sustainable Watersheds Alliance, or SWAle (formerly known as the Alliance for a Clean Waterfront) to the TAC outlining their concerns and objectives. Detailed minutes of the one-day meeting were taken by one of the TAC members, a member of the city staff, and by the project manager for the consulting consortium of engineering firms responsible for completing the work on the master plan. The minutes taken by the three different scribes are presented in Appendixes B, C. and D, respectively of this report.

Presentation of the Master Plan

The presentation of the Master Plan to the Commissioners is intended to be an update on the status of the Master Plan. It is not considered to be a request for a decision at this time. It is a progress report for the Commission. It was noted that previous Master Plans were issued in 1899, 1935 and 1974. The 1899 plan dealt with how to put the system together. The 1935, the plan dealt with consolidation and the implementation of dry weather treatment facilities. The 1974 plan was prepared to deal with the Clean Water Act in which secondary treatment objectives and the goal of treating more of the wet weather flows and reducing overflows were set forth. The objective of the 2006 Plan update is to implement a sustainable plan to deal with specific problems with the current wastewater management system and to develop a range of solutions to these problems that will also improve the quality of life in the City. It will include features such as low

impact development, water reuse, energy-use reduction, improve reliability, and adapt to potential rising sea level.

Critique of Presentation

WWE staff asked that the TAC provide comments on the presentation. All of the TAC members present (Dr. J. Middlebrooks was absent) offered a variety of comments on all aspects of the presentation for details. Some key observations are as follows: (1) the presentation included too many slides and, as a result, some of the concepts and important take home messages were lost; (2) the maximum number of words or data entries on a slide should be limited to less than thirty; (3) the TAC's role was not emphasized enough, especially the rationale offered by the TAC for the alternatives and the programs; (4) the issue of sustainability with respect to energy is difficult to justify because not enough has been done in the past to maintain the system and more energy will be needed to fix the system; (5) the sustainability argument should be based on the maintenance of the health of the environment, not focused on energy; and (6) a vision for the future should be clearly set forth in the beginning of the presentation.

The full range of comments on the presentation offered by the TAC members may be found in Appendixes B, C, and D. Because of the importance of the TAC rationale for selecting the key elements and programs of the Sewer Master Plan the rationale, presented the minutes of the third TAC meeting, as part of the *TAC Recommended Master Plan Components and Elements* statement, is repeated in this report following the executive summary.

Public Comment

In addition comments made by the TAC, the public are also had a number of comments on the Master Plan presentation, which are also included in Appendixes B, C, and D. An important concern of the public was that more coordination with other utilities needs to be undertaken so that projects are

planned properly when replacement is done. For example, MUNI is embarking on a big program that should be incorporated into planning for the replacement of the sewer system

Letter From SWAle to the TAC

Three days before the fourth meeting, the TAC members received a letter and a statement of *Wastewater Master Plan Objectives* from the Sustainable Watersheds Alliance, or SWAle (formerly known as the Alliance for a Clean Waterfront). Based on a preliminary review, the TAC found the material presented to be thoughtful and well reasoned. However, because the letter and the objectives statement was received too late for the TAC members to review thoroughly and respond to thoughtfully, it was agreed that SWAle letter and the *Wastewater Master Plan Objectives* statement would be included in the minutes from the fourth meeting. Further, it was agreed that the minutes from the fourth TAC meeting would be made available before the presentation of the Master plan to the PUC Commissioners. The SWAle letter and *Wastewater Master Plan Objectives* are presented following the TAC rationale statement, as noted above.

Comments From SWAle Members

A representative of SWAle stated that they were working on the letter over a number of months and were not exactly clear about the schedule. An apology was offered for its lateness, but SWAle members believe the objective statement demonstrates the need for specific performance standards and monitoring to assure effectiveness of the program. SWAle would like the TAC to give input on the sustainability analysis for the WWE and to give stronger advice on the direction that they should take. The TAC should be involved in the balancing of costs associated with the selection of activities. SWAle wants to see something that is clear on performance standards for the various project elements.

REVIEW OF FIRST THREE TAC MEETINGS

A brief review of the first and second TAC meetings is presented below for continuity.

First TAC Meeting–March 5 and 6, 2006

Prior to the first meeting of the TAC the City sent out a series of reports and technical memoranda for review. An agenda, prepared by the City engineering staff, was emailed to the TAC members prior to the first meeting. The agenda for the first TAC meeting was designed to provide the TAC members with a thorough introduction to the many issues to be resolved in the development of the master plan and included of a field trip on the first day, to familiarize the TAC members with the physical characteristics of the City and the facilities used for the management, treatment, and disposal of wastewater and residuals. Detailed minutes of the two-day meeting were taken by one of the TAC members, a member of the city staff, and by the project manager for the consulting consortium of engineering firms responsible for completing the work on the master plan. The minutes taken by the three different scribes are presented in Appendixes B, C. and D, respectively in the summary report for the first TAC meeting.

The presentations during the first TAC meeting were informational in nature and essentially served as an extension of the material contained in the reports and technical memoranda made available previously to the TAC. The principal subjects covered in the first TAC meeting included (1) the collection system, (2) stormwater management, (3) effluent discharge options, (4) biosolids management, (5) water reuse, and (6) master plan guidance. The key findings and recommendations made by the TAC following the first meeting were organized around these subjects. A summary report of the first TAC meeting is on file at the SFPUC. An important question posed by the City at the first TAC meeting concerned the continued use of a combined wastewater collection system. The TAC developed a consensus opinion on the question that was included in the summary report for the first meeting and is included in this report following the TAC Recommended Plan.

Second TAC Meeting–June 1 and 2, 2006

An agenda for the second TAC meeting was sent out prior the meeting. The agenda for the second TAC meeting was designed to highlight key issues related to the Master Plan. Detailed minutes of the two-day meeting were taken by one of the TAC members, a member of the city staff, and by the project manager for the consulting consortium of engineering firms responsible for completing the work on the master plan. The minutes taken by the three different scribes are presented in Appendixes B, C. and D, respectively in the summary report for the second TAC meeting.

The presentations at the second meeting, as noted above, were limited to the key issues related to the Master Plan. Ample time was allowed for TAC interaction with city staff members, the public, and consultants. The principal issues addressed in the second meeting included: (1) collection system, (2) wastewater treatment, (3) biosolids management, (4) effluent discharge, (5) sitting of facilities, (6) disinfection of treated effluent, (7) stormwater management, (8) disinfection of combined sewage discharges, and (9) master plan guidance. The key findings and recommendations made by the TAC following the second meeting were organized around these subjects. A summary report of the second TAC meeting is on file at the SFPUC.

Third TAC Meeting–September 6, 2006

The focus of the third TAC meeting was twofold: (1) presentation of the preliminary alternatives under consideration for the Master Plan by the project team and (2) follow up presentations by project team and PUC staff members on topics and issues raised during the first two TAC meetings. Detailed minutes of the one-day meeting were taken by one of the TAC members, a member of the city staff, and by the project manager for the consulting consortium of engineering firms responsible for completing the work on the master plan. The minutes taken by the three different scribes are presented in Appendixes B, C. and D, respectively in the summary report for the third TAC meeting.

Presentation of Preliminary Alternatives In presenting the preliminary alternatives, the Project Team was seeking input from the TAC on the suggested alternatives. More specifically, the project team was concerned with whether the TAC thought all of the needed elements for the master plan had been considered. During and following the presentation of the alternatives, there was considerable discussion of the merits and limitations of each of the alternative, including a number of comments from the public. Ultimately, it was suggested by the TAC that several alternatives could be combined to form a more suitable alternative.

It was the preliminary opinion of the TAC members that such a combined alternative would provide the biggest benefits, meet all of the program objectives, and provide the vision that is a necessary part of any Master Plan. This portion of the TAC meeting was concluded with a recommendation that the TAC further formulate the proposed alternative including its rationale and the recommended components and elements to be included in the Master Plan. The recommended plan as developed by the TAC is presented following the Executive Summary in the summary of the third TAC meeting. In addition the consensus opinions reached by the TAC on several important aspects of the Master Plan are also included in the minutes of the third TAC meeting.

Presentation of Updates on Specific Topics and Issues Following the presentation and discussion of the alternatives, several presentations were made on topics and issues that had been raised in the first two TAC meetings including (1) collection system model and design storm, (2) new bayside outfall alternatives, (3) odor control, (4) disinfection, and (5) reclamation update.