**STAFF REPORT**

**TO:** **HONORABLE MAYOR AND CITY COUNCIL**

**FROM:** **GREG RAY, PUBLIC WORKS DIRECTOR/CITY ENGINEER**

**SUBJECT:** **STATUS REPORT – WATER RESOURCES**

---

## BACKGROUND

The purpose of this report is to provide the Council with a brief update regarding the status of water supply and demand in the City of Grover Beach. This report includes recent updates on efforts to address potential supply deficiencies and reliability of existing water supply sources and updates on operational and administrative issues concerning County Flood Control Zone 3 that operates Lopez Lake.

A detailed status report is included as Attachment 1 to this report. A history of Grover Beach water resources is included as Attachment 2 to this report.

## DISCUSSION

*Water Demand*

The City's water supply sources amount to 2,207 acre-feet (AF) per year. The trend toward reduced per-capita demand has continued since the last report. It is estimated that current water supply allocations will be sufficient to serve the City at buildout.

Recently the NCMA (Northern Cities Management Area) Technical Group formed a subcommittee with the NMMA (Nipomo Mesa Management Area) to coordinate development of a groundwater model. The NCMA Technical Group believes this model is necessary in order to study and understand the interactions between groundwater in the Nipomo Mesa and the NCMA and also to understand the effects of various groundwater management activities on the groundwater supply.

The 2010 NMMA Annual Report indicates that demand for groundwater in the Nipomo Mesa exceeds available supply. In addition, the report indicates that underflow from the Nipomo Mesa area to the NCMA area no longer exists. Staff understands that the Nipomo Community Services District is moving forward with plans to develop a supplemental water supply for the Mesa in compliance with the Santa Maria Groundwater Basin Settlement Agreement.

*Water Quality*

Water sampling of sentry wells in 2009 indicated the possibility of the onset of sea water

---

**APPROVED FOR FORWARDING**

**ROBERT PERRAULT**
**CITY MANAGER**

**Please Review for the Possibility of a Potential Conflict of Interest:**

- ☑ **None Identified by Staff**
- ☐ **Bright**
- ☐ **Shoals**
- ☐ **Molnar**
- ☐ **Nicolls**
- ☐ **Peterson**

**Meeting Date: October 17, 2011** **Agenda Item No. 7**

intrusion indicators. It is generally believed that above average rainfall has been the primary factor affecting this improvement in sampling results.

*Lopez Spillway Raise*
The possibility of increasing the storage capacity and therefore the safe yield of the Lopez Lake water supply system was first studied in 1985. More recently, the Cities of Grover Beach, Arroyo Grande, and Pismo Beach together have funded a feasibility study by Stetson Engineers. The City's prorated share is approximately $10,000. The Study is nearly complete and staff expects to receive a draft for review in late October.

*Emergency and Permanent State Water Purchase*
Recent efforts to develop an agreement with the Central Coast Water Authority (CCWA) for purchase of emergency State Water have stalled due to above average rainfall at the beginning of this year and the CCWA's perception that there is no longer a pending emergency.

*Lopez Dam Surplus Water*
Due to heavy rain in late 2010 and early 2011 there was a surplus of about 2,400 acre-feet available for the 2010-2011 water year. The City received 435 acre-feet of surplus water between April and October of 2011. Additional surplus water is projected to accrue during the 2010-2011 water year which will become available after April 2012. Per the Zone 3 contract, a water year is the period between April 1 and March 31.

Cost of surplus water is presently estimated to be about $50.00 per acre foot, very low compared to other potential water sources. By reducing pumping during delivery of surplus Lopez water, the City can see substantial savings in pumping costs.

*Habitat Conservation Plan*
The Habitat Conservation Plan (HCP) is an ongoing and protracted effort by Zone 3 to create an action plan which is acceptable to National Marine Fisheries, U.S. Fish and Wildlife Service and the California Department of Fish and Game. The HCP, once approved, will provide a beneficial habitat for endangered species, including South Central Coast Steelhead, the Red-Legged Frog and Tidewater Goby. The need for the HCP is driven by irregularities between the existing water rights permit for Lopez Dam and the actual operating mode of the dam.

Next steps in the Plan approval process include development of NEPA and CEQA environmental documents, a final Environmental Impact Statement (EIS), comment responses and an Implementing Agreement. Currently this process is stalled while County Zone 3 staff debates various strategies on how to proceed. The current options appear to be to submit the HCP as is and begin the processing for CEQA and NEPA documents or to make revisions to the HCP to address potential study deficiencies. The Zone 3 Technical Advisory Committee has requested an updated schedule from the County to be presented to the Advisory Committee. To date the cost of the HCP is just over $1,000,000. This is a budgeted item in the Zone 3 Budget. Costs will be ongoing through completion of in-stream improvements. Annual monitoring costs will continue thereafter.

*Recycled Water (Wastewater Reclamation)*
In 2001, the Wallace Group completed a Water Recycling Report and also completed an additional report regarding the use of recycled waste water as a possible water source. At the time, these costs were estimated in excess of $5,000 per acre ft. In January 2009, the Wallace Group completed an update of the report including revised costs. Costs for developing this source as a domestic water supply continue to appear prohibitive, but there appears to be some

potential for use in irrigation of cropland. Most recently the South San Luis Obispo Community Services District staff toured farms in northern California with local farmers to better understand how farmers in northern California are using recycled water in their farming practices.

*Ongoing Water Resource Management*
Based on this update staff would suggest the Council consider the following:

1. Continue the annual groundwater monitoring program.

2. Continue to pursue reliable water source options as outlined in this report.

3. Continue additional engineering assistance as may be necessary to assist with Zone 3 related activities.

4. Continue to work cooperatively on a policy and staff level with the jurisdictions comprising the Northern Cities to identify additional potential sources of reliable water and to identify opportunities to share surface water and as may be necessary to identify opportunities to decrease ground water pumping.

5. Continue to work cooperatively with the NMMA, the County and other NCMA jurisdictions to develop a groundwater model of the entire NCMA/NMMA groundwater basin in order to better understand the interactions between different areas of the basin, to determine the effects of current levels of groundwater extraction and to evaluate the benefits of other groundwater management strategies.

## ALTERNATIVES

The Council has the following alternatives to consider:

1. Receive and file the report; or

2. Provide staff with additional direction.

## RECOMMENDATION

It is recommended that the Council receive and file this report.

## FISCAL IMPACT

This is a status report. No additional direct financial impact is anticipated as a result of this report. At present, the Water Fund has sufficient funds budgeted to cover the initial costs associated with ongoing water supply management activities. As the City continues to develop its water strategy, new costs associated with the development of the strategy will be identified and staff may need to return to the Council for further budget amendments.

## PUBLIC NOTIFICATION

The agenda was posted in accordance with the Brown Act.

## ATTACHMENTS

1. Water Resources Status Report
2. Water Resources - A Historical Perspective

## STATUS REPORT – WATER RESOURCES

### BACKGROUND

The purpose of this report is to provide the Council with an update to the report presented to Council in March 2011 regarding the status of water supply and demand in the City of Grover Beach. This report includes updates on efforts to address potential supply deficiencies and reliability of existing water supply sources and updates on operational and administrative issues concerning County Flood Control Zone 3 that operates Lopez Lake.

The City has two principal water sources: ground water and surface water. At present, the total amount of water available to the City is 2,207 AF per year. This amount is detailed as follows:

| Water Source | Acre Ft (AF) |
|---|---|
| Ground Pumping | 1,198 |
| Agricultural land conversion | 209* |
| South County Zone 3 (Lake Lopez) | 800 |
| Total | 2,207 |

*The agricultural land conversion allocation is a credit based on conversion of previously irrigated cropland into developed land. In 1983, the Cities of Grover Beach, Arroyo Grande, Pismo Beach and the Oceano Community Services District signed the "Gentlemen's Agreement" to limit groundwater pumping among the four agencies to a level determined to be sustainable. The agricultural land conversion credit was part of this original agreement. The City of Grover Beach has received credit for 70 acres of land converted to residential development since 1983.

Water rates for water customers in the City of Grover Beach are based primarily on the cost of the water source. Other costs factored into the rates include capital costs and operation and maintenance of the water system. The current cost of water from the City's existing sources is approximately $1,440 per acre-foot for Lopez water and $450 per acre-foot for ground water.

The primary factors affecting the need for additional reliable water supply are per-capita demand and reliability of existing supplies. Ongoing water conservation efforts and changes in landscaping trends have resulted in a fairly consistent reduction in water demand over the last seven years. The reliability of existing water supplies has been an ongoing concern since formation of the "Gentlemen's Agreement" to manage groundwater pumping in 1983. More recently, during a short period of time in 2009, groundwater monitoring wells exhibited signs of potential saltwater intrusion. A complaint filed in 1995 against the County Flood Control District Zone 3 challenging Lopez Dam's effect on endangered steelhead trout has resulted in a protracted effort by the County to obtain a new permit for operation of Lopez Dam based on a modified water release program. Depending on the outcome of efforts to comply with the Endangered Species Act, the water supply allocation to the City of Grover Beach and other Zone 3 agencies could be reduced.

### RECENT CHANGES IN WATER SUPPLY AND DEMAND

The City's water supply sources amount to 2,207 acre-feet (AF) per year. Current trends

indicate that the City will have sufficient water for the anticipate buildout population. Recently the State passed Senate Bill SBX7-7 that mandates a 20-percent reduction in per-capita water use by 2020. The ability to comply with this new mandate will have a significant effect on the estimated need for additional water. The City is currently using approximately 81% of its water supply allocation. According to the most recent SLOCOG population estimates, the City is expected to reach its buildout population of approximately 15,000 in the year 2040. If the City can successfully meet the mandated demand reduction, it is estimated that current water supply allocations will be sufficient to serve the City at buildout.

In 2002, the City, along with the Cities of Arroyo Grande and Pismo Beach and the Oceano Community Services District (referred to as the "Northern Cities") became a party to the Santa Maria Valley Litigation regarding regional water impacts. Six years ago, the City became a party to a settlement agreement to end this litigation. In accordance with the Settlement Agreement, the Northern Cities have engaged the firm of GEI Consultants to complete an extensive monitoring of the water basin and to prepare an annual report that is provided to the Court and interested parties. The monitoring being done by GEI Consultants includes groundwater surface elevation monitoring to see how the groundwater system is responding to annual rainfall and the extraction of water by urban and agricultural entities. The monitoring specifically includes the study of four "sentry" wells located along the coast from Pismo Beach to just south of Oceano. These wells are situated in such a location as to provide "early warning of impending deterioration of water quality and, in particular, sea water intrusion.

The sentry wells have been in place for some time and have been monitored inconsistently since the 1970s. In 2009, Todd Engineering (a predecessor to GEI Consultants) sampled the sentry wells as a part of their monitoring activity. The sampling took place in May and August of 2009. The results of these tests displayed a rise in sodium, chloride, and potassium in one well located in Oceano. According to water experts at Todd Engineering, the rise in these water constituents indicated the possibility of the onset of sea water intrusion. Annual monitoring in 2010 and 2011 has not indicated recurrence of the sea water intrusion indicators.

## WATER SUPPLY OPTIONS

The City has two water supply sources: Lopez Lake and groundwater. Reliability of these sources is generally dependent on local climate and long-range climatic conditions. Demand for these supplies depends on population growth and estimates have fluctuated significantly in recent history. Recent drought conditions have raised staff concerns regarding the likelihood that we will need to at least identify a short-term emergency water supply in the next two to five years. Ultimately, the City should continue to evaluate opportunities to develop a third source of reliable water. The primary factor influencing any future decision to develop new sources of water is the estimated cost per acre-foot of new water compared to the cost of existing sources.

The City has been pursuing several water supply source options. The following is a status report.

### *Water Conservation*

Primarily due to the recent drought conditions, the City has been following water conservation protocols found in the adopted Urban Water Management Plan. These protocols encourage local water consumers to voluntarily avoid wasteful water practices. In addition, the current water conservation program includes:

- Free low-flow toilets and water fixture retrofits
- High-efficiency washing machine rebates
- Water irrigation sensors and controllers

- Rebates for Turf Removal and Drought-tolerant Plant Replacement
- Tiered Water Rate Structure

Staff is hopeful that these efforts will result in an approximate 5% reduction in water demand. In order to meet the per-capita water consumptions reductions associated with SBX7-7, it may be necessary to continue with the water conservation program on an ongoing basis.

*Desalination Plant*
Construction of a desalination plant at the South San Luis Obispo County Sanitation District Plant site was reviewed in a study completed by the Wallace Group in 2008. The South County Cities and the Oceano Community Services District received a Clean Water Grant that paid the majority of the costs associated with the study. The study revealed that, while construction of the plant would be feasible, it would be expensive to construct. Construction was estimated in the study to cost $37,500,000. In addition, substantial ongoing operational and maintenance costs would also be incurred. Ultimately, it was estimated that the per acre foot cost for this alternative would be $3,380. Consequently, until advances in desalination technology significantly reduce the cost of this process, this option is not recommended.

*Lopez Spillway Raise*
The possibility of increasing the storage capacity and therefore the safe yield of the Lopez Lake water supply system was first studied in 1985. At that time, it was estimated that raising the dam spillway would result in an additional safe yield at the lake of 800 AF. In 2008, the URS Corporation was commissioned by the County of San Luis Obispo to further study this option at the request of the Zone 3 Advisory Committee. Results of this second review indicated that, while there are regulatory hurdles to overcome, the project could result in a safe yield of between 731 and 916 AF. This increase would conceivably be shared among those entities sharing in the cost of improvements. The URS Corporation study indicated that a project cost would be in the order of $5,000,000. City Engineer Jim Garing estimated the cost per acre ft., once this improvement is completed, at about $800 per acre foot. Timing of the actual production of additional water from this project would be at least five years from authorization to proceed.

The Cities of Grover Beach, Arroyo Grande, and Pismo Beach together have funded a feasibility study by Stetson Engineers. The City's prorated share is approximately $10,000. The Study is nearly complete and staff expects to receive a draft for review in late October.

*Wastewater Reclamation*
In 2001, the Wallace Group completed a Water Recycling Report and also completed an additional report regarding the use of recycled waste water as a possible water source. The results of these reports indicated the costs for upgrading the South County Sanitation Plant and the costs of transmission would be prohibitive. At the time, these costs were estimated in excess of $5,000 per acre ft. Following the completion of the City of Pismo Beach's tertiary wastewater treatment plant, the City of Pismo Beach issued its own report on reclamation. While at first glance it would appear that the costs for the use of reclaimed or recycled wastewater might be high, properly treated water, however, may be a source of reinjection into the water basin and the costs associated with this option should be further reviewed. In January 2009, the Wallace Group completed an update of the report including revised costs. Costs for developing this source as a domestic water supply continue to appear prohibitive, but there appears to be some potential for use in irrigation of cropland.

*Emergency and Permanent State Water Purchase*
In 1993-1995, the City had the option of purchasing water originating in Northern California and

owned by the State. The City of Grover Beach chose not to purchase State Water at that time. The County of San Luis Obispo has retained approximately 17,000 acre ft of State Water, some of which is obligated to several agencies as drought buffer water. After subtracting the drought buffer water, approximately 15,000 acre ft of State Water remains within the ownership of the County. During off peak periods, the transmission line has the capacity to transmit State Water to the South County. Developing a permanent allocation of County-owned water is likely to be time consuming and costly. Staff recommends that it is prudent to negotiate with the County for a temporary purchase of State Water when the capacity in the transmission line is available. This water could then be stored in Lopez Lake and available for use during drought years, or to offset groundwater pumping on a temporary basis. Recent efforts to develop an agreement with the Central Coast Water Authority (CCWA) for purchase of emergency State Water have stalled due to above average rainfall at the beginning of this year and the CCWA's perception that there is no longer a pending emergency.

*Lopez Dam Surplus Water*

Surplus Lopez water is made available each year if total water use by all contractors plus downstream release is less than the annual safe yield of the Lopez project. From about 1998 until the present, surplus Lopez water has not been available for a variety of reasons, including:

a. Need to lower lake level prior to and during dam seismic remediation project
b. Added downstream releases for environmental purposes pursuant to agreement with National Marine Fisheries, and the Department of Fish and Game
c. Dry watershed conditions

In April of 2007, the San Luis Obispo County Board of Supervisors approved implementation of the Interim Downstream Release Schedule for the Lopez Project. The Interim Downstream Release Schedule (IDRS) is a plan to manage downstream releases to both protect endangered species and to conserve water supplies. These seemingly conflicting goals are accomplished through close monitoring of measured in-stream flows, weather prediction and experience gained with recently installed multiple monitoring points in Arroyo Grande Creek.

By April 2010, a return to a wetter weather pattern and implementation of the IDRIS had reduced downstream releases, resulting in a surplus of about 2,400 acre-feet available for the 2010-2011 water year. The City received 435 acre-feet of surplus water between April and October of 2011. Additional surplus water is projected to accrue during the 2010-2011 water year which will become available after April 2012. Per the Zone 3 contract, a water year is the period between April 1 and March 31.

Cost of surplus water is presently estimated to be about $50.00 per acre foot, very low compared to other potential water sources. By reducing pumping during delivery of surplus Lopez water, the City can see substantial savings in pumping costs. A disadvantage of surplus water is that it is not guaranteed to be available every year and is unlikely to be available after a succession of dry years; therefore, it is not considered a permanent source of additional water supply.

## ONGOING WATER RESOURCE MANAGEMENT ACTIVITIES

*Groundwater Monitoring*

As noted previously, in accordance with the Settlement Agreement, the Northern Cities have engaged the firm of GEI Consultants to complete an extensive monitoring of the water basin and to prepare an annual report that is provided to the Court and interested parties. The monitoring being done by GEI Consultants includes groundwater surface elevation monitoring to see how the groundwater system is responding to the continuing drought and the extraction of

water by urban and agricultural entities.

Efforts undertaken since the 2009 monitoring report include hiring a new water engineering firm to prepare the annual reports and perform well monitoring, upgrading the monitoring wells to preclude contamination from the surface, surveying the wells to assure that water levels are taken on a consistent datum and installation of sensors in three wells to provide more insight into fluctuations in water quality and well levels.

*UWMP 2010 Update and SBX7-7 (California's 20x2020 Water Conservation Plan)*
In February 2008, Governor Schwarzenegger directed state agencies to initiate a comprehensive plan for the improvement of the Sacramento-San Joaquin Delta and to reduce statewide per capita urban water use. On November 10, 2009, the Governor signed Senate Bill No. 7; Chapter 4 (SB 7), requiring the State to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The State would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. This undertaking created California's 20x2020 Water Conservation Plan ("20x2020 Plan").

One way of envisioning the impact of requiring a 20% savings in water use is to examine a typical residential lot. As an example, a typical residential lot would have 2,400 square feet of landscaping, principally lawn. In that example the lot would, at present, use about 360 gallons per day, of which about 150 gallons per day is required to irrigate the landscaped portion of the lot. Faced with a 20% reduction in water use, the same lot would be allocated 80% of 360 gallons or 288 gallons per day, a reduction of 72 gallons per day. This reduction could be accomplished through a change in landscaping which reduces the landscape water use by 50% or 75 gallons per day, or through a combination of interior home water use reductions and a reduction in landscape irrigation water. In the example above, a 50% reduction in lawn would achieve an overall 20% reduction in water use for the lot. While this is achievable, it would not be without considerable expense and effort for the homeowner.

As the land use changes citywide, the ease of achieving a 20% reduction in water use changes. For example, in a high density residential land use, one might be required to eliminate all landscaping which requires irrigation in order to achieve a 20% overall reduction. In the case of a Central Business District use, almost all of the required savings would have to be achieved by reducing indoor water use.

*San Luis Obispo County Flood Control and Water Conservation District, Zone 3*
Zone 3 encompasses the Arroyo Grande Creek watershed below Lopez Dam, the cities of Arroyo Grande, Grover Beach, Pismo Beach, and the Oceano Community Services District, Port San Luis Harbor District, and a number of smaller entities in the vicinity of Avila Beach.
Five agencies contract for treated Lopez water, including Arroyo Grande, Grover Beach, Pismo Beach, Oceano CSD and County Service Area 12 (CSA-12). CSA-12 includes Port San Luis Harbor District, Avila Beach, and a number of smaller agencies in the Avila Beach area who subcontract to CSA-12 for water.

At present, Zone 3 is governed by the County Board of Supervisors under the advice of the Zone 3 Advisory Committee. Each contracting agency provides a delegate or alternate delegate to the Zone 3 Advisory Committee. In addition, there is an Agricultural Delegate and a Member- at-Large Delegate to the committee and their respective alternates. The Zone 3 Advisory Committee is advised by the Zone 3 Technical Advisory Committee (TAC). Zone 3 TAC is staffed by the professional staff members of the five contractors, as well as County of

San Luis Obispo staff.

Zone 3 operates within the constraints of an annual budget which is formulated and reviewed each year, beginning with Zone 3 TAC, a subcommittee of the contractors. City Managers and Financial Officers, as well as District General Managers, review the budget before it goes to City Councils and Boards of Directors for approval. After that it goes to the County Board of Supervisors for final approval.

## FACTORS AFFECTING EXISTING WATER SUPPLY

The City's primary water supply concerns include potential reduction in groundwater quantity and quality, interruption or reduction in the available supply from Lopez Dam, and natural or human caused disasters.

*Saltwater Intrusion*
In late 2009, one of four sentry wells along the coast exhibited high concentration of ions associated with seawater intrusion. Although only one of the four sentry wells was affected, Northern Cities staff was concerned and all City Councils and District Boards were alerted to the potential loss of water supply which could be caused by seawater intrusion. Steps were taken to reduce groundwater pumping and to acquire emergency State Water to supplant the water lost through reduced pumping. Fortunately, the 2009-2010 water year was wetter than normal and subsequent monitoring of all sentry wells indicated that the signature of seawater intrusion, which had previously arisen, had disappeared by early 2010. Water year 2010-2011 has also been wetter than average and quarterly monitoring reports of sentry well water quality have not indicated a return of seawater intrusion.

*Groundwater Demand*
Staff is aware of falling groundwater levels in areas of the Nipomo Mesa. Past studies seem to show that water levels have been falling since 1965. Historically there was some recovery during periods of above average rainfall, but according to the Nipomo Mesa Management Area (NMMA) Annual Report during last year's above average rainfall the well levels continued to drop. Staff is also concerned that in past NMMA Annual Reports NMMA water experts indicated that there was significant northwesterly flow of groundwater from the Orcutt area to Santa Maria under the Nipomo Mesa and toward the Northern Cities Area. However, water experts cited in the NMMA 2010 Annual Report indicated that historic underflow may now be entirely interrupted, impacting groundwater availability in the Northern Cities Management Area.

*Changes in Water Quality*
The City Engineer has recently become aware that nitrate levels in groundwater have been rising under the Cypress Ridge development on the Nipomo Mesa. Early testing done on the five wells which were to serve this development showed very low levels of nitrate. Today, at least two wells show nitrate levels of about twice the maximum allowable level. Rural Water Company, owner of the water system, is taking steps to blend the high nitrate water with other lower nitrate wells in order to comply with drinking water standards. This high nitrate water may eventually migrate toward the Northern Cities Area.

The City's deeper wells have not historically had nitrate problems, but the City's shallow wells have long been high in nitrate. In recent years, nitrate levels have declined to near or below maximum levels. Shallow wells in the City are treated at the City's Nitrate Removal Plant at Mentone Avenue and South 16$^{th}$ Street or blended at the City's reservoirs.

*California Sportfishing Protection Alliance*
In 1995, the California Sportfishing Protection Alliance (CSPA) filed a complaint with the Department of Water Resources which alleged that Lopez Dam was not being operated within the constraints of the originally issued Water Rights Permit. Essentially, CSPA complained that operators were not releasing water downstream during the months of July, August, and September or that the amount of water released did not equal the amount of lake inflow during those months. Research indicates that the Water Rights Permit does seem to require the release downstream of at least the same amount as is flowing into the lake during the months of July, August and September.

At the time of the complaint, the dam was being operated in a much different manner than it is at present. At the time of the complaint, the amount of water being released from the dam was regulated so that a live flowing stream was not created or permitted westerly of the 22nd Street Bridge in Oceano, regardless of inflow. In recent history, sufficient water has been released to ensure that endangered species are not stranded and that a flowing stream exists to the Oceano Lagoon. Also the Interim Downstream Release Schedule (the IDRIS) was implemented in 2007, resulting in environmentally protective rates of downstream water release. As a result of all of the above actions, it is believed that the complaint as framed by CSPA in 1995 is no longer applicable to Zone 3.

*Habitat Conservation Plan*
The Habitat Conservation Plan (HCP) is an ongoing and protracted effort by Zone 3 to create an action plan which is acceptable to National Marine Fisheries, U.S. Fish and Wildlife Service and the California Department of Fish and Game. The HCP, once approved, will provide a beneficial habitat for endangered species, including South Central Coast Steelhead, the Red-Legged Frog and Tidewater Goby. The need for the HCP is driven by irregularities between the existing water rights permit for Lopez Dam and the actual operating mode of the dam. Because of these irregularities, Zone 3 staff began application for a new water rights permit circa 1995. At that time staff was told that an HCP would be required in order for the State to issue a new operating permit for Lopez Dam.

The HCP would provide specific operating parameters for timing and amount of downstream water release from the dam, in-stream improvements to facilitate and enhance the environment appropriate to endangered species and, finally, would provide an "incidental take" permit which will protect the Zone in the event of any incidental harm to endangered species which may result as a consequence of dam operations.

The HCP has progressed through initial studies and to a draft plan which was presented to National Marine Fisheries in 2005. Between 2005 and the present, ongoing consulting and new information requests have been processed concluding with the most recent study of steelhead habitat above Lopez Dam. 'Over the last several years, a major issue has involved the amount and timing of water releases from the dam in order to provide both minimum flows during dry periods and attraction flows during wetter years. The most recent communications between Zone 3 staff and National Marine Fisheries indicates that the seasonal in-stream flow and related dam releases are essentially agreed upon.

Next steps will include NEPA and CEQA environmental documents, final Environmental Impact Statement (EIS), comment response and Implementing Agreement. Currently this process is stalled while County Zone 3 staff debate various strategies on how to proceed. The current options appear to be to submit the HCP as is and begin the processing for CEQA and NEPA documents or to make revisions to the HCP to address potential study deficiencies. The Zone 3 Technical Advisory Committee has requested an updated schedule from the County to be

presented to the Advisory Committee. To date the cost of the HCP is just over $1,000,000. This is a budgeted item in the Zone 3 Budget. Costs will be ongoing through completion of in-stream improvements. Annual monitoring costs will continue thereafter.

**ATTACHMENT 2**

## CITY OF GROVER BEACH WATER RESOURCES - HISTORICAL PERSPECTIVE

In the early to late 1950s, several wells were drilled in what is now known as 16th Street Park. These wells (Well #1, #2 and #3), were drilled into the Tri-Cities Mesa groundwater basin to a depth of about 200 feet. These wells produce large quantities of relatively good quality groundwater, except for nitrate concentrations.

In the mid 1950s the Town of Grover pumped on average 350 to 500 acre feet per year from the 16th Street Park wells. By 1966 the City of Grover City pumped a maximum of 875 acre feet from the groundwater basin.

The City of Grover City signed a contract with the San Luis Obispo County Flood Control and Water Conservation District in 1965, receiving an entitlement to 800 acre feet per year of Lopez water. Because of the availability of Lopez water, the amount of groundwater being pumped by the City declined immediately after 1970 to less than 100 acre feet per year, but thereafter increased steadily with increasing population in the city.

Due to the high nitrate concentration in the shallow groundwater, the City constructed a blending pipeline in 1972 which extended from the 16th Street Park well field up to Reservoir 1 at the Hillcrest Reservoir site in order to be able to blend high nitrate water with Lopez water.

In order to provide additional options for dealing with the high nitrates in the shallow groundwater being pumped from the 16th Street Park wells, in 1978 the City drilled a deep well at the southeast corner of the park. This well extended into what is known as the Careaga formation, existent between a depth of about 300 feet to about 600 feet. This formation provides water relatively free of nitrates but higher in other mineralization. With the new deep well and the older shallow wells, some blending on site was possible, providing water to the citizens of Grover City which met all of California Title 22 standards.

***Gentlemen's Agreement*** –

In February of 1983, the City Council adopted Resolution No. 83-1, which in essence was the "Gentlemen's Agreement". This agreement provided for subdivision of the safe yield of the Tri-Cities Mesa Groundwater Basin amongst the Cities of Arroyo Grande, Grover City, Pismo Beach, and the Oceano Community Services District, and the agricultural community. This agreement provided for a division of the safe yield of the basin be accomplished based upon the following figures.

| | | |
|---|---|---|
| Applied irrigation | - | 5,300 acre feet |
| Subsurface flow to ocean | - | 200 acre feet |
| Urban Use | | |
| City of Arroyo Grande | - | 1,202 acre feet |
| City of Grover City | - | 1,198 acre feet |
| City of Pismo Beach | - | 700 acre feet |
| Oceano Community Services District | - | 900 acre feet |

All of the above mentioned public agencies agreed to the safe yield distribution as noted and for the first time the City of Grover City had a limitation on the amount of groundwater it could pump in any given year.

As of February 1983, the total water resources available to the City of Grover City were groundwater (1,198 acre feet) plus Lopez water (800 acre feet) for a total of 1,998 acre feet per year.

***Nitrate Removal –***

In 1987, the City constructed the Nitrate Removal Plant at the northwest corner of 16th Street Park. This plant is still in operation, removing nitrates from the three shallow groundwater wells at the park. This facility allowed the City to utilize its full allocation of groundwater from the groundwater basin, regardless of nitrate content. In combination with the deep well at the southeast corner of 16th Street Park, as well as Lopez water available up at the City's Hillcrest Reservoir site, the City had available to it several options regarding blending and source availability to provide reliable water to its citizens.

***Lopez Contract, Surplus Water –***

One of the provisions of the Lopez Water Supply Contract is that a total amount of 4,200 acre feet of water is reserved for downstream release to satisfy instream and agricultural uses downstream of the dam. The Lopez Water Supply Contract considers that the Lopez Lake water supply system has a safe annual yield of 8,730 acre feet. Subtracting the 4,200 acre feet leaves 4,530 acre feet for the urban users. Of those 4,530 acre feet, the City of Grover Beach is entitled to 800 acre feet.

From the inception of the Lopez Water Supply Project until about 1998, the project was operated so that downstream water releases did not flow on the surface as a live stream past the 22nd Street bridge in Oceano. If water was allowed to flow to the ocean, it was being wasted and therefore every effort was made to reduce downstream releases so flow to the ocean did not occur. Because of this mode of operation, up until 1998, no more than 3,300 acre feet was released downstream in any given year. This meant that a considerable amount of water was available as "surplus water". Surplus was available to the urban contractors at a very low cost, usually on the order of $60 to $100 per acre foot.

Pursuant to the Endangered Species Act, two endangered species, steelhead trout and the red-legged frog, were named to be present on the Lopez Creek reach between the dam and the ocean. Significant fines or other penalties are possible if one is found to have harmed an endangered species.

In 1998, agents from the Department of Fish and Game discovered two dead steelhead, which had been stranded as a result of low flows from Lopez Creek. As a result of this finding, Zone 3 staff agreed to increase downstream releases from Lopez dam to preclude strandings in the future. Because of this increased downstream release, beginning in 1998, there has not been surplus water available.

***Agricultural Conversion –***

Agricultural uses generally consume approximately 3 acre feet of water per acre per year of crop production. Urban uses, on the other hand, typically use less than that amount of water per year. This means that if agricultural land within a city is converted from agricultural use to urban use, there would typically be an amount of water which would be credited to the City's groundwater account, depending on the type of urban use actually approved. In the City of

Grover Beach, there have been a number of areas which had previously been under agricultural irrigation which have been converted to urban use, most typically to residential use. Considering all the areas converted from agricultural use to some type of urban use, the City has acquired an increase in its annual entitlement to groundwater of 209 acre feet since 1983. This means that the total water resource entitlement to the City of Grover Beach as of the writing of this report is 800 acre feet of Lopez water plus 1,198 of ground water plus 209 acre feet of Agricultural Conversion water, equaling 2,207 acre feet of water per year.

The method of calculating the agricultural conversion amount has been different between the Cities of Arroyo Grande, Grover Beach and Pismo Beach. Because of these differences and in order to settle the amount of agricultural conversion among the various agencies, agreement was reached in 2007 on the methodology and actual amount of conversion. The 209 acre feet represented here for the City of Grover Beach is the latest figure which has been agreed upon amongst the Cities of Arroyo Grande, Grover Beach, and Pismo Beach, and the Oceano Community Services District.

It is presently anticipated that upon conversion of the remaining agricultural lands within the City of Grover Beach, an additional 70 acre feet of agricultural conversion credit will likely be realized. In that event, the total water resource available to Grover Beach will be 2,277 acre feet per year.

***Groundwater Litigation -***

In the late 1990s, a number of property owners in the Santa Maria Valley area instigated a groundwater lawsuit. This litigation ultimately encompassed over 1,000 litigants, including the Northern Cities area comprised of Pismo Beach, Grover Beach, Arroyo Grande, and the Oceano Community Services District. Out of that litigation arose a settlement agreement, which required the Northern Cities area to continue to operate on a safe yield basis as it had done in the past. In addition, the settlement agreement required the Northern Cities to communicate with each other, as well as the Nipomo Mesa Management Area. The Settlement Agreement also required the Northern Cities to prepare an annual report describing groundwater conditions within the Northern Cities area and to monitor groundwater elevations and quality to be on guard against any deterioration in the quality or quantity of the groundwater available.

In accordance with the Settlement Agreement, the Northern Cities have engaged the firm of Todd Engineers to prepare a Monitoring and Reporting Plan and to prepare the annual report which is required under the agreement. The first annual report was filed with the court in April of 2009 and monitoring of the general groundwater condition by Todd Engineers in the Northern Cities area has continued.

The monitoring being done by Todd Engineers includes groundwater surface elevation monitoring to see how the groundwater system is responding to the continuing drought and the extraction by urban and agricultural entities. In addition, the monitoring specifically includes the study of four (4) sentry wells along the coast, from Pismo Beach to south of Oceano. These wells are situated in such locations as to provide what is believed to be "early warning" of impending deterioration in water quality and, in particular, sea water intrusion.

Monitoring of these sentry wells has been done by others in the past, including January 1966, June 1976, and March 1996. Most recently, Todd Engineers has sampled the sentry wells in May of 2009 and August of 2009. The May 12, 2009 sampling of the sentry wells raised some concerns with regard to the sentry well on the north side of Pier Avenue, just to the east of the

State Park entrance. This sentry well has three separate zones which are monitored. Each zone is separate from the other.

Results of the May 12, 2009 monitoring indicate that the two lowest zones of this sentry well display a significant rise in sodium, chloride, and potassium. All of these constituents are common in sea water; therefore, the possibility of the onset of sea water intrusion was raised at this location. The other three sentry wells, as of the May 12th monitoring, did not show substantial rises in sodium, chloride or potassium. Because of the concerns which arose as of the May sampling event, the Northern Cities staff asked Todd Engineers to resample the sentry wells in August of 2009. This was accomplished on August 20, 2009. The results of the August 20th sampling indicate that the water quality at the Pier Avenue sentry well has deteriorated substantially over the quality which had existed as of May 2009. For that sentry well, chloride, sodium and potassium all increased by as much as 100 percent over the period. On the other hand, the other three sentry wells did not indicate significant increases in those constituents and in fact, in some cases, those constituent levels went down slightly over the same period.

Public Works staff from the Cities of Pismo Beach, Arroyo Grande, and Grover Beach, and the Oceano Community Services District are currently analyzing the latest results and are preparing a response plan to minimize further degradation of groundwater quality at this location. In addition, Todd Engineers has submitted an updated monitoring and reporting plan to assist the Northern Cities in dealing with this condition. The cost of this plan is in the amount of $131,700.