UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 9
75 Hawthorne Street
San Francisco, California 94105-3901

Mail Code: WTR-4

ENVIRONMENTAL ASSESMENT FOR THE BUCKSKIN SANITARY DISTRICT SEWAGE WASTEWATER FACILITY IMPROVEMENTS PROJECT

EXECUTIVE SUMMARY

This Environmental Assessment (EA) was prepared to examine the impacts arising from the construction of a portion of a sanitary sewer system in the Holiday Harbor area in Parker, Arizona. The proposed project is a portion of a sanitary sewer system that will eliminate septic tanks located within the prism of the Colorado River. These septic tanks may be leaching contamination into the river. Once the entire system is complete, the reused water will replace the Colorado River water currently being used to irrigate the Emerald Canyon Golf Course in La Paz County, Arizona.

The project is a part of the Buckskin Sanitary District (District) which was formed in 1984 to address an agreement with Arizona Department of Environmental Quality (ADEQ) to provide a sanitary sewer system for the area along the Arizona side of the Colorado River between the Parker Dam (northern limit) and the Colorado River Indian Community (southern limit). With the exception of areas that already had sewer systems installed, the properties within the District are being served by private septic systems, some of which are either inadequate or antiquated. ADEQ has a moratorium against new development using septic systems within the District.

Since 1984, the District has been in the process of constructing infrastructure to meet the requirements of the agreement. This project "Holiday Harbour Sanitary Trunk Sewer" is part of the improvements to meet the agreement. The timing of this project is based upon a roadway improvement project for the Arizona Department of Transportation (ADOT). In 2006 ADOT approached the District, explaining they were in the process of designing roadway improvements along State Route 95 (SR95) through the Holiday Harbour area of the District. Since the only roadway through the District at this location is SR95, any sanitary sewer improvements would need to utilize the ADOT right-of-way. ADOT requested the District include the sanitary sewer improvements, which would also affect the pavement and traffic flow within this area, as a supplement to ADOT's roadway improvements. This way, new pavement would not be cut in the future and traffic and residents in this area would not be inconvenienced more than once. The district's plan is to construct the proposed project within ADOT's pavement saw-cut moratorium, thereby avoiding certain fines and pavement overlay costs. Also, by working with ADOT, permits for infrastructure have been expedited, utility information has been more accurate, and cost savings have been identified since pavement restoration is not necessary and traffic control is being provided for the entire project, not just the sanitary sewer portion.

PREVIOUS STUDIES INCORPORATED BY REFERENCE

Appendix A: Categorical Exclusion completed for ADOT – February, 2009
Appendix B: Draft Biological Evaluation completed by ADOT – August, 2008

Appendix C: Geotechnical Evaluation completed for Buckskin Sanitary District – April, 2008
Appendix D: Design Report completed for Buckskin Sanitary District – August, 2008

ANALYSIS OF ALTERNATIVES

ALTERNATIVE 1 – PROPOSED ACTION

Gravity service connections, gravity sewers and force mains. The main sewer lift station would be constructed in the future. This will include the abandonment of the current septic systems by the property owner and the requirement that the property is connected to the sewer collection system. At certain properties, due to the topography in the area, a private pump station will need to be installed to pump the sewage from the property to the gravity sewer. The majority of these locations will occur to properties which are located directly along the Colorado River.

a. Present Worth or Equivalent Annual Cost

Salvage Values are estimated for each item based on their "future worth" (at the end of 20 years). Salvage value percentages are used as listed in Table E-2-a (1).

Table E-2-a (1)
Estimate Salvage Values

Item	Salvage Value
Land	100%
Pipes, Manholes	50%
Lift Station Components, Valves	20%
Rock Excavating	0%
Clearing and Grubbing	0%

"Present Worth Cost Analysis" summarizes system values, including capital costs (present worth), O&M expenses (annual costs) and salvage values (future worth. The amortization factor of 2.9% for 20 years (design period) of continuous compounding is considered reasonable for evaluation purposes. This rate is based on the Bureau of Reclamation Discount Rate for Water projects. Table E-2-a (2) includes the Present Worth Value for Alternative 1

Table E-2-a (2)
Present Worth – Alternative 1

Item	Source	Gravity Sewer
Total Capital Cost	Input	$1,306,764
20-Year Salvage Value	Input	$425,988
Annual Capital Cost (+)	(TCC*(A/P))	$87,025

Item	Source	Gravity Sewer
Annual Salvage Value (-)	(SV*(A/F))	$16,015
Annual O&M Costs (+)	Input	$15,000
Total Annual Costs	(ACC-ASV+AOMC)	$86,010
Present Worth Value	**TAC*(P/A)**	**$1,291,523**
Annual Rate OMB Circular No. A-94, Appendix C (2009 Rate)	2.9%	
Annual given Present (A/P)	0.066596	
Annual given Future (A/F)	0.037596	
Present given Annual (P/A)	15.01596	

b. Reliability

This system is the most reliable since it is completely operated by gravity. Operation and Maintenance will only require cleaning of the sewer system once per year.

c. Complexity

This system is not very complex as it is based upon gravity to move the sanitary sewage.

d. Environmental Factors

Since this system does not have items that may break down and cause a sewer spill, it is the most environmental friendly. It also does not have the smaller lift stations which use electricity.

e. Feasibility

This system has already been designed and approved by ADEQ.

f. Operation and Maintenance Requirements

Operation and Maintenance will only require cleaning of the sewer system once per year.

ALTERNATIVE 2 – NO ACTION

The no action alternative would leave the area using inadequate or antiquated septic systems. ADEQ has entered into an agreement with the Buckskin Sanitary District for the removal of septic systems within the prism of the Colorado River. A significant number of the existing systems have either failed, are failing, or are not in compliance with current standards.

ALTERNATIVE 3 –

On-site (at each residence) lift stations with gravity sewers and force mains. Each of the residences located along Riverside Drive will require an individual grinder pump lift station. A gravity sewer system will still be required for the communities to the east of the project. The main sewer lift station would be constructed in the future. As in Alternative 1, this would include the abandonment of current septic systems and the requirement that the property is connected to the sewer collection system.

"Present Worth Cost Analysis" summarizes system values, including capital costs (present worth), O&M expenses (annual costs) and salvage values (future worth. The amortization factor of 2.9% for 20 years (design period) of continuous compounding is considered reasonable for evaluation purposes. This rate is based on the Bureau of Reclamation Discount Rate for Water projects. Table E-2-a (3) includes the Present Worth Value for Alternative 2.

Table E-2-a (3)
Present Worth – Alternative 2

Item	Source	Gravity Sewer
Total Capital Cost	Input	$1,323,973
20-Year Salvage Value	Input	$424,098
Annual Capital Cost (+)	(TCC*(A/P))	$88,171
Annual Salvage Value (-)	(SV*(A/F))	$15,944
Annual O&M Costs (+)	Input	$25,000
Total Annual Costs	(ACC-ASV+AOMC)	$97,227
Present Worth Value	**TAC*(P/A)**	**$1,459,956**
Annual Rate OMB Circular No. A-94, Appendix C (2009 Rate)	2.9%	
Annual given Present (A/P)	0.066596	
Annual given Future (A/F)	0.037596	
Present given Annual (P/A)	15.01596	

a. Reliability

This system is not as reliable. It will feature a number of small lift stations which will need regular maintenance. Operation and Maintenance will only require cleaning of the sewer system once per year.

b. Complexity

This system is more complex with the small individual lift stations. Each of the individual lift stations will require instrumentation and controls.

c. Environmental Factors

The small lift stations may break down or be subject to power failures. Also, the small lift stations use more power than a conventional gravity sewer system.

d. Feasibility

Not as feasible as Alternative 1. The majority of the gravity sewer system proposed in Alternative 1 will still be required. ADEQ does not like to approve pressure sewer systems except in special circumstances.

ALTERNTIVES CONSIDERED BUT ELIMINATED FROM FURTHER REVIEW

Optimum Utilization using Existing Facilities -
ADEQ has a moratorium on either replacing septic systems ort adding new septic systems within the District. In the advent of a failure of a septic system, a new system cannot be installed. The current options to homeowners are to either haul the sewage or abandon the property.

PRESENT ENVIRONMENT

COMMUNITY LOCATION AND SERVICE AREA

The community that is affected by this project is located between the Colorado River (west) and mountains (east). The project is located on private land that is surrounded by BOR and Arizona State Trust Land. The planning area for this project is from Milepost 156.63 to Milepost 157.45 along Arizona State Route 95.

The community is residential in nature. There are recreational uses, including boat ramps, associated with the Colorado River. The land use is generally for private homes.

Latitude – 34^{o}15’44” N
Longitude – 114^{o}07’46” W

POPULATION

Table 3-2-1 below lists the current and future approximate populations to be served by this project. It includes the upstream as well as the adjacent population.

Table 3-2-1
Population Projections

Area	Current Population	Future Population
Upstream (Parker Dam)	1,729	4,193
Holiday Harbour Area	2,405	2,531
Total	4,134	6,724

TOPOGRAPHY

The general physiography and topography of the project areas is generally flat ground following the Colorado River from north to south. The ground rises quickly from the Colorado River to the west to the mountains to the east. However; since the project is linear from north to south, the project follows the flat areas.

GEOLOGY

The project limits are within an area of fill either transported by the Colorado River or from runoff from the mountains located east of the project area.

SOILS

The natural soils generally consist of firm to very stiff clayey soils and medium dense to very dense granular soils. Water was not encountered on the date of the soil borings at the depth explored. The depth of the borings was greater than the depth of the proposed sanitary sewer.

CLIMATE AND AIR QUALITY

This project is located in western Arizona along the Colorado River. The climate is desert.

Based on the Categorical Exclusion completed for ADOT, this project will not have an adverse affect on air quality.

SURFACE WATER AND WETLANDS

The surface water flow is from the hills to the east to the Colorado River to the west. For the area within the residential area, ADOT is placing culverts and catch basins to direct the flow across SR95 to the Colorado River. These improvements are part of the ADOT portion of the project.

In the southern portion of the project, there is a named wash at Gier's Wash. The dual force mains will be located upstream of the roadway crossing a minimum of 24-inchs and encased in concrete under the scour depth. Further south, there is an unnamed wash where the dual force mains will also be located upstream of the roadway crossing a minimum of 24-inchs and encased in concrete under the scour depth. At this location ADOT is replacing an existing culvert with dual 10-foot-wide by 6-foot-high concrete box culverts.

GROUNDWATER RESOURCES

The groundwater flow follows the surface water flow from the mountains to the east toward the Colorado River to the west. The project will not impact the groundwater based upon the geotechnical report that was prepared for this project.

FLOODPLAINS

Based on the FEMA Maps, there are no floodplains within the sanitary sewer project limits.

VEGETATION

At the south end of the sanitary sewer project, there is salt cedar, honey mesquite, paloverde habitat. With the exception of the area at the south end of the project, the project is located within the existing roadway prism and there is no vegetation.

FISH AND WILDLIFE

According to the ADOT Environmental Planning Group Draft Biological Evaluation for the SR 95 Holiday Harbour project, the following species have been identified as possibly being in the project area. However, the sanitary sewer project will have no effect on these species.

- Bald Eagle
- California Brown Pelican
- Desert Pupfish
- Gila Topminnow
- Southwestern Willow Flycatcher
- Yuma Clapper Rail
- Yellow-billed Cuckoo
- Banded Gila Monster
- California Leaf Nosed Bat

ENDANGERED OR THREATENED SPECIES AND CRITICAL HABITAT

This information is based upon the ADOT Environmental Planning Group Draft Biological Evaluation for the SR 95 Holiday Harbour project. The report identifies that the Razorback Sucker and the Bonytail Chub as endangered species which would be analyzed in detail. Since these are located within the Colorado River and the sanitary sewer improvements are not located within the river, these will not be impacted by the sanitary sewer system improvement. However, not completing the project may have an adverse impact on the quality of the water within the Colorado River.

ENVIRONMENTALLY SENSATIVE AREAS

There are no environmentally sensitive areas within the saniatary sewer portion of the project.

HISTORIC, PREHISTORIC, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

There are no areas which are historic, prehistoric, architectural, archeological, or cultural resources exist with the limits of the sanitary sewer portion of the project.

AESTETIC RESOURCES

There are no aesthetic resources within the limits of the sanitary sewer portions of this project.

HAZARDOUS MATERIALS

There are no hazardous materials within the limits of the sanitary sewer portions of this project.

EVALUATION OF IMPACTS

SURFACE WATER AND WETLANDS **-** There are no designated wetlands within the project limits.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

FLOODPLAINS **-** There are no designated flood plains within the limits of the sanitary sewer portion of the project.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

SIGNIFICANT AND/OR IMPORTANT FARMLANDS **-** There is no farmland within the project limits.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

COASTAL ZONES

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

WILD AND SCENIC RIVERS - The project is located within the current ADOT right-of-way for State Route 95.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

COASTAL BARRIER RESOURCES

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

AIR QUALITY - No long term impact due to the sanitary sewer portion of the project. The roadway portion, being completed by ADOT, will have a positive long-term affect on the air quality within the project area.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

VEGETATION -

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – Limited impact to non-endangered species

Alternative 2 – Limited impact to non-endangered species

THREATENED AND ENDANGERED SPECIES AND CRITICAL HABITIAT - This information is based upon the ADOT Environmental Planning Group Draft Biological Evaluation for the SR 95 Holiday Harbour project. This document will be included as Appendix E in this report. The report identifies that the Razorback Sucker and the Bonytail Chub as endangered species which would be analyzed in detail. Since these are located within the Colorado River and the sanitary sewer improvements are not located within the river, these will not be impacted by the sanitary sewer system improvement. However, not completing the project may have an adverse impact on the quality of the water within the Colorado River.

No Action Alternative – Possible long term impact due to degradation of water quality in the Colorado River.

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

TOPOGRAPHY

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

GROUNDWATER RESOURCES – Failing septic systems have capacity to adversely affect groundwater resources.

No Action Alternative – Potential adverse affect

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

HAZARDOUS MATERIALS

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

ENVIRONMENT SENSATIVE AREAS

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

GEOLOGY, SEISMIC CONSIDERATIONS, AND SOILS

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

NATIONAL NATURAL LANDMARKS

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL SITES

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

AESTETIC RESOURCES

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

LAND USE AND ZONING – There are no immediate impacts to land use and zoning. However, with the installation of a centralized sanitary sewer system, the moratorium placed on construction by ADEQ will be lifted and new residential development can proceed within the District as a whole.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – Potential for new development

Alternative 2 – Potential for new development

SOCIOECONOMIC IMPACTS

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

UTILITIES - The sanitary sewer portion project will not affect any utilities. The sanitary sewer was designed to avoid any conflicts with the existing utilities.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

TRANSPORTATION AND ACCESS - Since this project as a part of the ADOT roadway project, the impact is significantly lessened than if this project would be constructed separately in the future. The impacts to the traveling public through this corridor will only be affected once. If this project would be delayed, the impacts to the travelling public on this highly travelled section of Arizona State Route 95 would be significant.

No Action Alternative – Significant delays to the travelling public in the future.

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

CLIMATE

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

NOISE CONSIDERATIONS - The sanitary sewer portion of the project will not add to the current noise levels.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

ENVIRONMENTAL JUSTICE CONSIDERATIONS

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – Temporary impacts to homes and businesses along SR 95 during construction. Mitigation factors include limiting closures to one day and providing a minimum notice of 48 hours for each closure.

Alternative 2 – Temporary impacts to homes and businesses along SR 95 during construction. Mitigation factors include limiting closures to one day and providing a minimum notice of 48 hours for each closure.

TRIBAL ISSUES – No impact to any tribal lands

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

ENERGY USE

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact for current construction. Future construction includes a wastewater treatment facility which will increase the District's energy use.

Alternative 2 – Individual lift stations at each resident would increase the energy use within the District.

WATER USE – This is a sanitary sewer project.

No Action Alternative – No impact

Alternative 1 (Preferred Alternative) – No impact

Alternative 2 – No impact

SUMMARY OF IMPACTS

The impacts to the area include construction impacts within an existing roadway corridor. ADOT currently is planning to construct a storm sewer system and reconstruct the roadway within the corridor as part of the same project. The overall impacts to the environment and the public will be minimal, including some impacts to access and traffic delays.

PROJECT BENEFITS

This project will provide the backbone of a gravity sewer system within the project limits. In constructing this project as part of the ADOT roadway project, the traffic and access impacts are lessened and the overall cost of the project is approximately 30% less than constructing as a completely separate project.

Once the entire sanitary sewer system is complete, including the wastewater treatment facility, the septic systems will be abandoned and the potential pollution into the Colorado River will be eliminated.

SHORT-TERM USE OF THE ENVIRONMENT VERSUS LONG TERM PRODUCTIVITY

The impact to the environment during construction will be minimal. The long term impacts, including the removal of the septic systems, the treatment of the wastewater, and the reuse of the wastewater at the Emerald Canyon Golf Course will be significant. For every gallon of reclaimed water used, there is one less gallon removed from the Colorado River for irrigation of the golf course.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

During this project, the only resources which will be committed are manholes and sewer pipe. Labor will be used during installation of these materials.

CUMULATIVE IMPACTS

As part of the Holiday Harbour project, ADOT is widening SR95 to add dual left turn lanes through the residential portion of the project. This will promote traffic flow, safety and lessen fuel usage as there will be fewer delays, especially for truck traffic.

This project includes the construction of an upgraded storm drain system as well as a new storm drain crossing. This will lessen the possibility of flooding in both the downstream residences as well on the roadway.

Since the sanitary sewer is deeper than the storm drain system, it will be constructed before it. The impact is that the construction duration is longer than if only one of the elements was constructed. However, it is construction duration shorter than if the components were constructed separately. The impact to both the residences and traveling public is less than if the components were constructed separately.