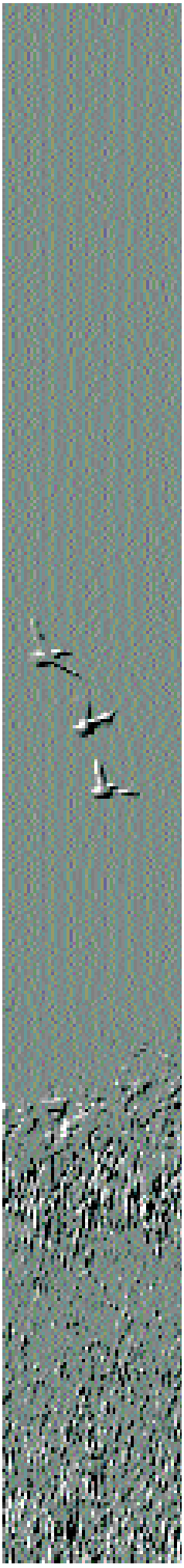


Executive Summary

The Las Vegas Wash (Wash) is a critical element in the overall environmental and water resource challenge facing southern Nevada. The Wash provides only about 2 percent of the total water inflow to nearby Lake Mead (97 percent comes from the Colorado River and 1 percent from the Virgin and Muddy Rivers), but that 2 percent has important implications. The Wash is the primary outlet for water flows from the metropolitan Las Vegas Valley (Valley), and these flows are comprised of a varying mix of stormwater, treated wastewater, landscape and surface street runoff, and intercepted shallow ground water. The largest component on a regular basis is treated wastewater, but the treated wastewater flows are often overshadowed by unpredictable storm events. These storm events can deliver massive volumes of runoff to the Wash, resulting in erosion, headcutting, and loss of habitat and infrastructure.

Headcutting is the erosion of a streambed that occurs at a steep section of the channel and migrates upstream due to the water eroding the bed material.

The issues posed by the Wash are important for a number of reasons, not the least of which is the fact that Lake Mead is the largest reservoir on the Colorado River system. With approximately 26 million acre-feet of storage capacity, Lake Mead provides water to Arizona, California, Nevada and several Native American Tribes. The lake plays an instrumental role in regulating and protecting the delivery of water to those entities, and southern Nevada has a vested interest in protecting the lake's water quality as much as possible. In addition, flows in the Las Vegas Wash are instrumental in sustaining wetlands and other habitats that have become home to many wildlife species. Flows through the Las Vegas Wash also provide Nevada with "return flow credits" that increase the amount of Colorado River water the state can remove from Lake Mead. These credits represent an important element in southern Nevada's long-term water resource planning.

For thousands of years Las Vegas, meaning "meadows" in Spanish, has been a source of water in the dry Mojave Desert. These meadows, or wetlands, were supported by a spring complex known as the Big Springs, which were located in the central part of the Valley, the area now bounded by U. S. 95, Alta Drive, and Valley View Boulevard. Las Vegas Creek was formed by these springs and flowed through the central Valley, percolating into the ground-water system before it could reach the lower part of Las Vegas Wash. What is now considered the lower Las Vegas Wash was ephemeral with the exception of a small spring and wetland area, near what is now known as Three Kids Wash. The Big Springs and associated wetlands began to decline and finally disappear as the Valley developed and ground-water extraction increased to meet the populations needs. However, with urbanization, wetlands developed in the early 1950's near what is now Charleston Boulevard and Boulder Highway, due to the collection and discharge of wastewater.

The Las Vegas Valley has changed dramatically in the last 50 years, and the changes have had significant effects on the Las Vegas Wash. Increasing flows of treated wastewater transformed a once ephemeral desert wash into a perennial system supporting an extensive marshland of cattails and abundant wildlife. During the 1970s, flows in the Las Vegas Wash fed about 2,000 acres of wetlands (Figure A) and provided habitat to more than 300 species of birds, mammals, reptiles, and fish. Today (Figure B), approximately 150 - 160 million gallons of water move through the Wash each day – an amount that can rise dramatically during storms and heavy flood events. The resulting erosion has carved into the banks of the Wash, destabilizing the channel and increasing sedimentation into Las Vegas Bay, the place where the Wash enters Lake Mead. Wetlands have declined to about 200 - 300 acres, and recent years have seen an increase in water quality concerns with the discovery of contaminants such as perchlorate and urban chemicals in flows from the Wash.

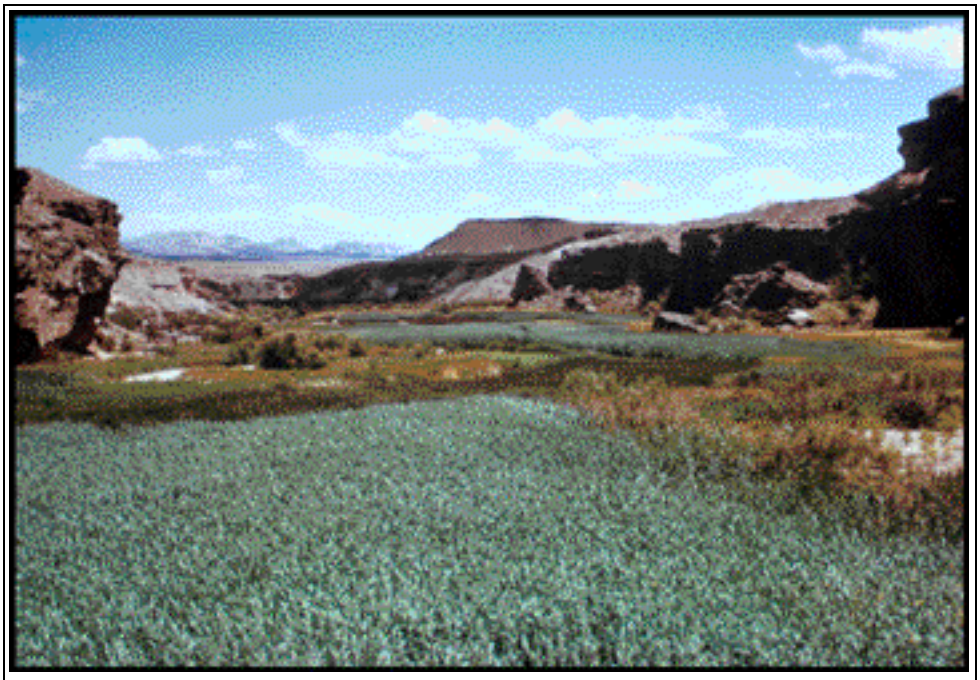
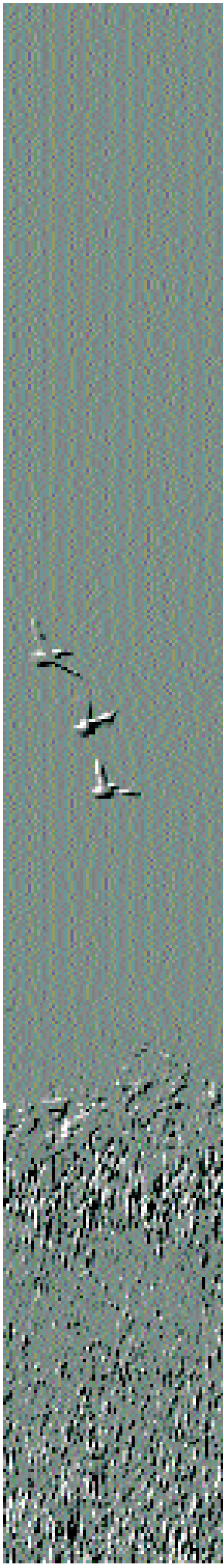


Figure A – Las Vegas Wash, 1970 (Vernon Bostick).



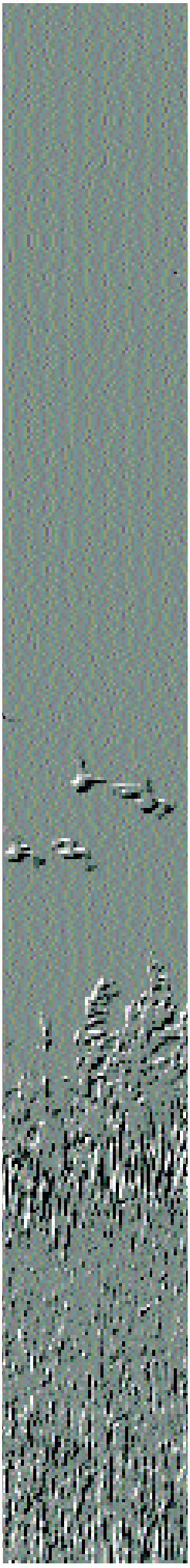


Figure B – Las Vegas Wash following rain event, 1999 (Southern Nevada Water Authority).

Addressing the situation is not an easy task. There are more than two dozen local, state and federal agencies with their own responsibilities, authorities and scope of activities in or around the Las Vegas Wash. Many past efforts to reverse the continuing erosion of the Wash, while serious and committed in nature, were difficult to coordinate and did not involve all stakeholders. The Las Vegas Wash Coordination Committee (LVWCC) has undertaken a comprehensive approach, relying on full stakeholder involvement, to addressing and managing the issues posed by the Las Vegas Wash.

The Road to Comprehensive Management

The Las Vegas Wash Coordination Committee is the outcome of two public processes that began in 1997. In response to growing concerns over water quality issues in Lake Mead and the Las Vegas Wash, the Nevada Division of Environmental Protection (NDEP) initiated the Lake Mead Water Quality Forum (Forum) in February 1997. The Forum meets monthly and is comprised of local, state and federal agencies with an interest in Lake Mead environmental issues and water quality standards. To provide the Forum with public input and recommendations in the area of water quality, the Southern Nevada Water Authority (SNWA) established a Water Quality Citizens Advisory Committee (WQCAC) in July 1997. The WQCAC met twice each month and was comprised of local citizens with an interest in water quality issues.

During 1997 and 1998, these two groups met separately to discuss and share issues concerning Lake Mead and the Las Vegas Wash. The WQCAC ultimately developed recommendations in nine areas. These recommendations were presented to the Southern Nevada Water Authority Board of Directors and the Lake Mead Water Quality Forum in June and July 1998, respectively.

One of the WQCAC's recommendations was the development of a comprehensive plan for the long-term management of the Las Vegas Wash.

The committee suggested that the plan should be a consensus-based document prepared jointly with stakeholder groups and agencies. The process should also provide opportunities for substantial public involvement as well as input from the WQCAC. The plan should address such issues as implementation, existing institutional mechanisms to perform work, funding, and the need for additional authorities, if necessary.

Because the Las Vegas Wash is surrounded by many complex issues and is not the responsibility of any one public entity, the WQCAC concluded that an interagency and community-wide effort was needed to address the situation. The WQCAC's ninth and final recommendation was that the development of a comprehensive management plan should be coordinated through the SNWA, an existing entity comprised of seven municipal water and wastewater entities that have responsibility for a variety of water resource issues in the Las Vegas Valley. The Lake Mead Water Quality Forum agreed and the Las Vegas Wash Coordination Committee was formed.

Las Vegas Wash Coordination Committee Members

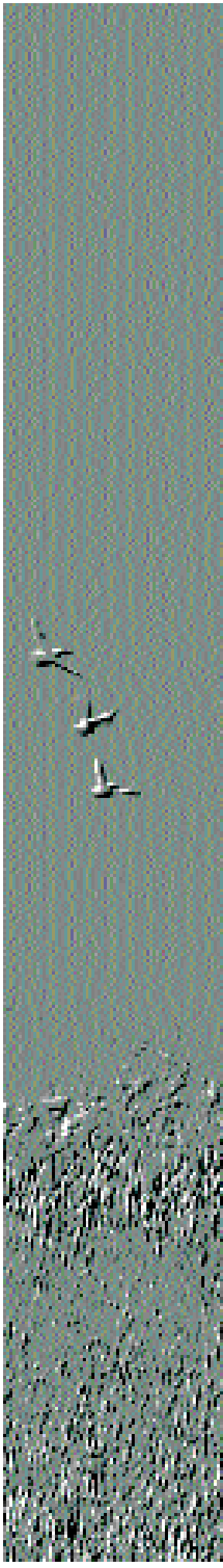
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Sanitation District
- Clark County Departments of Comprehensive Planning and Parks and Recreation
- Clark County Health District
- Clark County Regional Flood Control District
- Southern Nevada Water Authority
- Basic Management, Inc.
- Lake Las Vegas Resort
- Las Vegas Bay Marina Owner
- Water Quality Citizens Advisory Committee (2 members)
- Friends of the Desert Wetlands Park
- University of Nevada, Las Vegas
- Nevada Division of Wildlife
- Nevada Division of Environmental Protection
- Nevada State Health Division
- Conservation District of Southern Nevada
- Colorado River Commission
- National Park Service
- U.S. Bureau of Reclamation
- U.S. Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service
- U.S. Geological Survey
- U.S. Natural Resources Conservation Service

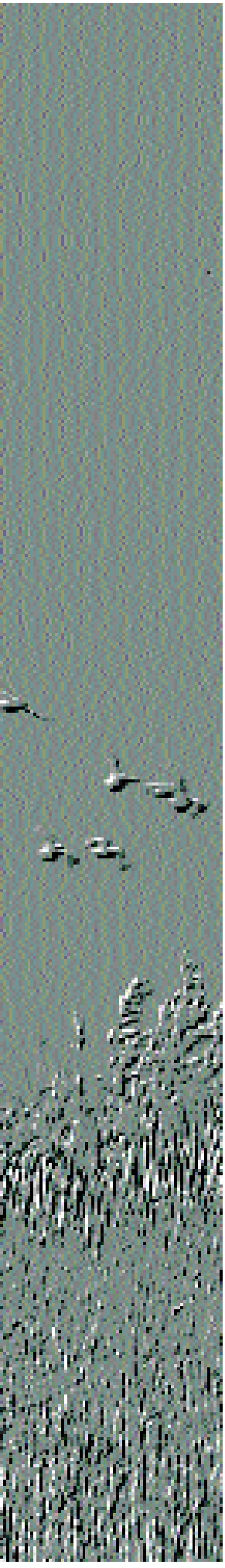
The Las Vegas Wash Coordination Committee

In the summer of 1998, the Southern Nevada Water Authority developed and implemented an action plan outlining the membership of the Las Vegas Wash Coordination Committee. The action plan provided a framework for the LVWCC process and established a timeline for specific goals. In September 1998, the SNWA established a project coordination team to provide administrative and technical support to the LVWCC. One month later, the Las Vegas Wash Coordination Committee convened for the first time. To support the LVWCC in its first year, participating entities have committed considerable staff and resources.

The Las Vegas Wash Coordination Committee combines local, state, and federal agencies with members of the public, business people, and representatives of environmental groups.

To facilitate the vast amount of work required to develop a comprehensive management plan, study teams were implemented as part of the LVWCC process. While the committee focused on conceptual and strategic direction for stabilization and enhancement of the Las Vegas Wash, the study teams





focused on issues or concerns in specific areas. The study team areas were selected in accordance with issues identified by the Water Quality Citizens Advisory Committee, the Lake Mead Water Quality Forum, and the Las Vegas Wash Coordination Committee.

Las Vegas Wash Coordination Committee Study Teams

To accomplish their work, the study teams drew upon staff from existing agencies, outside experts and other sources. More than 140 individuals participated in the study team activities. Each team met at least monthly, discussed and researched issues, and developed recommendations for consideration by the Las Vegas Wash Coordination Committee. The recommended actions resulting from the study team activities provide the basis from which will evolve a long-term management program to stabilize and restore the Las Vegas Wash. The recommended actions are described in more detail in Study Team Chapters 6 through 14 and in Section IV, Summary of Recommendations.

Las Vegas Wash Coordination Committee Study Teams

- Jurisdictional & Regulatory
- Erosion & Stormwater
- Wetlands Park
- Alternate Discharge
- Shallow Ground Water
- Environmental Resources
- Land Use
- Public Outreach
- Funding

The Comprehensive Adaptive Management Plan

To facilitate long-term planning and implementation of solutions for the Las Vegas Wash, the Las Vegas Wash Coordination Committee, under recommendations from the Water Quality Citizens Advisory Committee, set as their goal the development of a comprehensive plan that would provide a roadmap for the long-term stabilization, enhancement, and management of the Wash. In developing the plan, the LVWCC wanted to ensure that the content was comprehensive in nature, covering all the important issues facing the Wash, but also was easily adaptable, in order to reflect the changing conditions and needs.

The Las Vegas Wash Comprehensive Adaptive Management Plan (LVWCAMP) is not intended to be a capital improvement plan, focusing just on implementing engineering solutions. This document serves as the basis from which to implement the 44 actions recommended by the study teams and as a guidance instrument from which to develop a long-term management plan under full stakeholder involvement. A specific timeline was intentionally not included in this document in order to maintain the flexibility and adaptability desired. It is anticipated that once some of the key "initial steps" (discussed in the next section) occur, the oversight entity with the LVWCC will be in a better position to develop goal-specific timelines.

Since it was the desire of the LVWCC to develop the LVWCAMP under full stakeholder involvement, an intensive five-week comment period was

highlighted by presentations of the document to the full Las Vegas Wash Coordination Committee, the Water Quality Citizens Advisory Committee, and five community workshops designed to seek public input. The document was also made available on the LVWCC Web site (*www.lvwash.org*). The public outreach process was successful. More than 230 comments were reviewed and incorporated, as applicable, into the final document. Efforts were made to make revisions that would be acceptable to all LVWCC entities and not to express opinions reflective of just one or a few entities. All comments are summarized, along with an explanation of the action taken regarding incorporation into the document, in Appendix 15, Summary of Comments and Responses.

Initial Steps

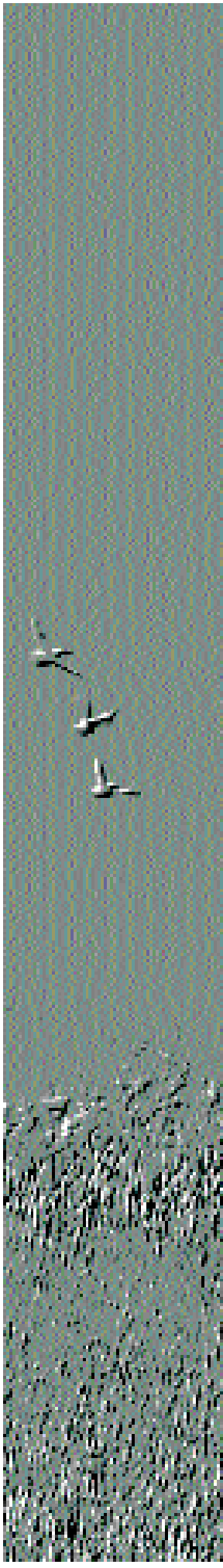
To begin meeting the challenges of stabilizing, restoring, and managing the Las Vegas Wash, certain actions must precede others. The following three initial steps provide the foundation for the implementation of the LVWCAMP and the long-term management of the Las Vegas Wash.

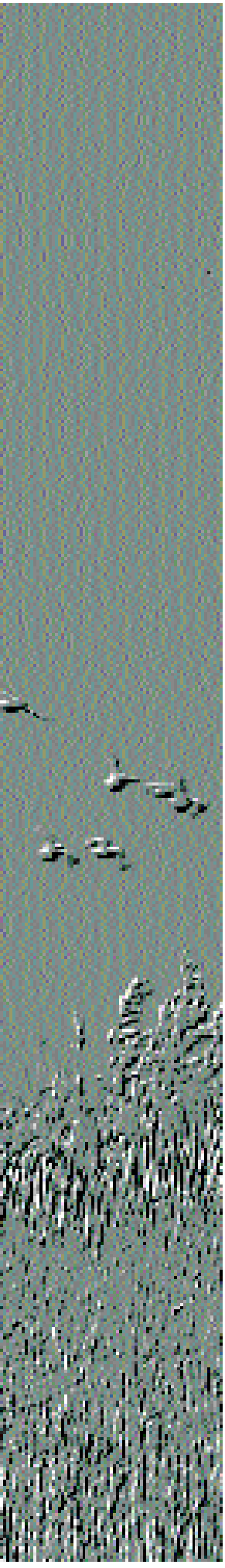
Form an agency to oversee and coordinate the management and restoration of the Wash.

Following a series of analyses and discussions, the Jurisdictional & Regulatory Study Team concluded that implementation of the comprehensive adaptive management plan should follow the Southern Nevada Strategic Planning Authority recommendations that such issues should be handled by a local entity. Administering the plan's implementation from within the local community would ensure accountability at the most immediate level. Local control would also allow for more responsive and informed decision-making. Forming this management entity is one of the first steps to be taken if the process of comprehensive adaptive management is to be realized.

After considering several possible models, the study team narrowed its focus to two options. Option 1 was to establish a new joint powers authority whose members would be comprised of appropriate local entities such as those mentioned above. Option 2 was to utilize existing local agencies through interlocal agreements to administer and implement the Comprehensive Management Plan.

The team identified several entities in the Las Vegas Valley with the staffing, expertise, support infrastructure, or scope of activities in place to tackle many of the challenges associated with managing and restoring the Las Vegas Wash. These entities are Clark County, Clark County Regional Flood Control District, Clark County Sanitation District, Conservation District of Southern Nevada and the Southern Nevada Water Authority.





Many of the local agencies support utilization of an existing board or authority with the creation of interlocal agreements with appropriate agencies. They are recommending the Southern Nevada Water Authority be designated the lead agency which would enter into interlocal agreements with various local agencies as necessary to implement the comprehensive adaptive management plan. For example, interlocal agreements would be necessary with Clark County Parks and Recreation for construction and management of the Clark County Wetlands Park and with Clark County Regional Flood Control for flood control facilities in Las Vegas Wash.

Stabilize the Wash.

Another important step is to stabilize the existing environment in the Wash. A report outlining possible actions was developed as the result of a two-day engineering workshop conducted by the Las Vegas Wash Coordination Committee in August 1999, and subsequent analysis by the Erosion & Stormwater Study Team.

The workshop brought together engineering professionals from private firms, local and regional public entities, and other organizations with an expertise in environmental restoration projects. Participants developed consensus on the issues surrounding the Wash and delved into specific methods that could be used in an overall stabilization plan for the Wash. The discussions covered types and methods of structures, development priorities, and studies needed to understand the dynamics of the Wash more fully. Specific action items were developed to address each conclusion and can be found in the recommendations from the Erosion & Stormwater Study Team in Chapter 6. The workshop yielded the following three conclusions:

Erosion in the Las Vegas Wash needs immediate attention. The Wash must be stabilized as soon as possible to implement any plan for a wetlands park or comprehensive management of the Wash ecosystem. Changing topography has forced the redesign of erosion control structures in the Wash, and if not addressed, these conditions will make it difficult to design and implement any kind of facilities or management options.

Dry weather flows (treated wastewater, shallow ground water, and urban runoff) should be considered separately from stormwater flows. Since the dry weather flow volume (about 240 cubic feet per second) is significantly less than storm flow (ranging from 500 to >10,000 cubic feet per second), it is prudent to consider any engineering solutions based on the individual flows.

Any reestablishment of wetland areas on a large scale must be done "off-stream" or out of the Wash channel. Some wetlands will be created in the channel of the Las Vegas Wash through installation of erosion control structures and the resulting ponding of water that will occur behind those structures. But erosion and headcutting in the Wash itself will likely preclude the establishment of large areas of wetlands in the channel itself. Instead, any large area of wetlands (more than what will be created behind each structure) to be developed will need to be designed off-stream from the main wash channel.

Make decisions regarding the amount of in- and off-stream wetlands needed.

Given the possibility of limited wetland development in the channel of the Las Vegas Wash as indicated in the previous Initial Step, it is critical that decisions be made concerning how many acres of wetlands (and land) are needed for both in- and off-stream. This step is essential in order to define the most feasible location of where wetlands can be developed, and to ensure any ongoing actions to stabilize the Wash complement the goal of wetland development.

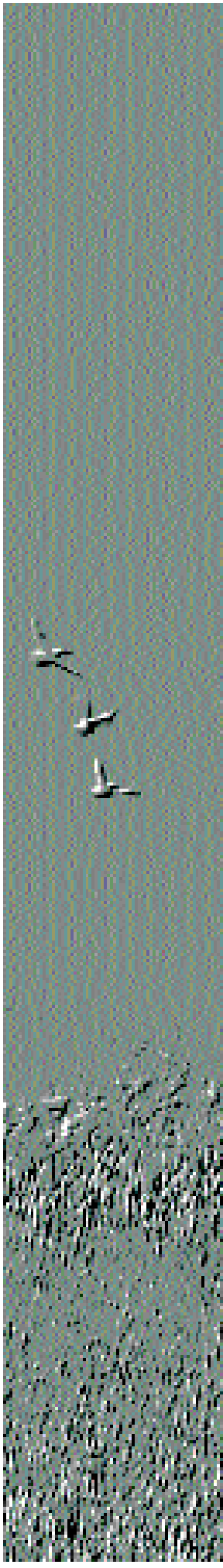
By taking these first incremental steps, the process of actively restoring and managing the Las Vegas Wash can begin. This process will involve a number of concurrent actions tied to the recommendations of the nine study teams. These actions, in turn, will support the development of the more long-term restoration and management activities that are the objective of this Las Vegas Wash Comprehensive Adaptive Management Plan.

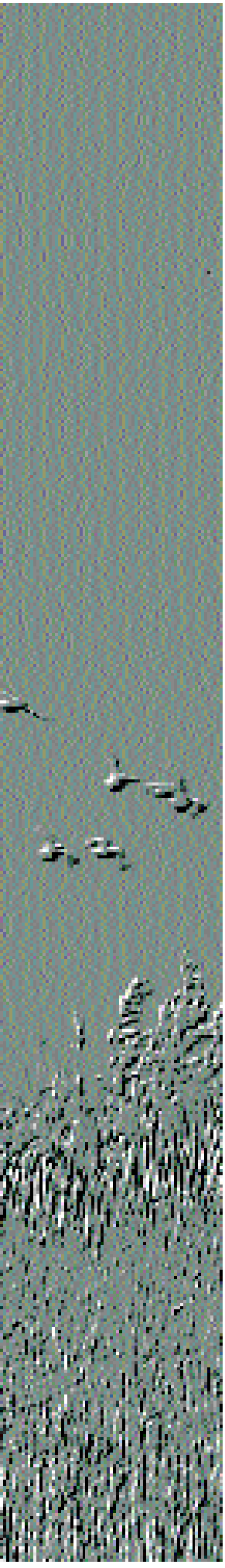
Key Recommendations

The following key recommendations summarize the most important actions developed by the study teams, in general order of priority. The actions are not exclusive or independent of the many other recommendations contained in this plan; rather, they have been highlighted to give the reader a sense of the larger activities required to begin restoring and managing the Wash. A complete list of all study team recommendations is provided in Section IV of this plan. The activities of each study team are described in more detail in Chapters 6 through 14.

Action: ***Define the structure for local oversight of the Las Vegas Wash Comprehensive Adaptive Management Plan.***

To ensure successful coordination and implementation, the Jurisdictional & Regulatory Study Team recommended that one oversight body be identi-





fied to implement the LVWCAMP and manage the Las Vegas Wash into the future. For the purposes of this plan, this oversight body will be called the "Las Vegas Wash Management Entity."

This action item follows the lead established by the Southern Nevada Strategic Planning Authority, which recommended that regional issues in southern Nevada be addressed locally and that local agencies employ mechanisms such as interlocal agreements, when necessary, to organize themselves for such activities. Agencies throughout the Las Vegas Valley currently use interlocal agreements for various purposes such as wastewater treatment. For this reason, the Jurisdicational & Regulatory Study Team believed interlocal agreements or Memorandums of Agreement (MOAs) could be used to facilitate jurisdictional relationships as well.

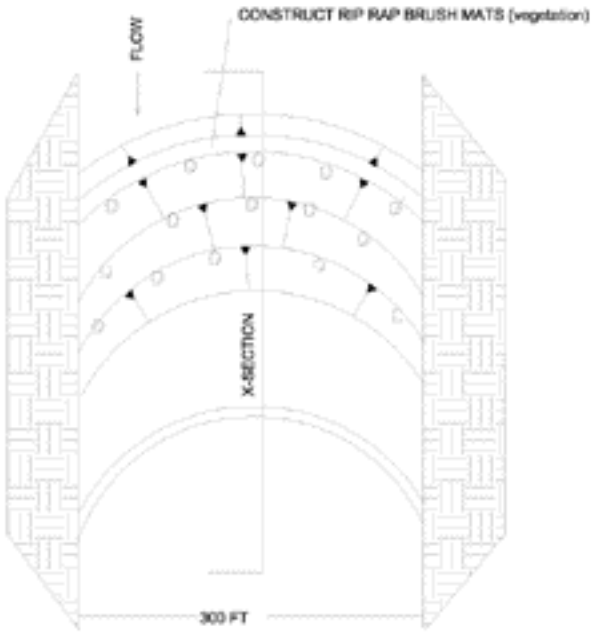
Action: Install erosion control structures.

To aid in stabilizing the Wash as soon as possible, the Erosion & Stormwater Study Team recommended the development of prototype structures that can be installed quickly and that are less expensive than permanent structures. Suggested conceptual designs include utilization of gabions, sheet pile, cellular coffer dams, inflatable dams, bio-engineered dams (using vegetation for stabilization), rip rap filled dams and geotextile envelopes. Two conceptual designs, and their associated cross-section views, are shown in Figures C, D, E and F.

As a corollary to this, an engineering analysis should be conducted to identify specific sites for installation of the prototype structures. Existing studies have already identified potential sites for approximately 15 erosion control structures, which would help stabilize the channel and reduce catastrophic erosional events. As a result of the engineering workshop, the sites were reviewed and five priority sites were identified (Figure G). The five priority sites include:

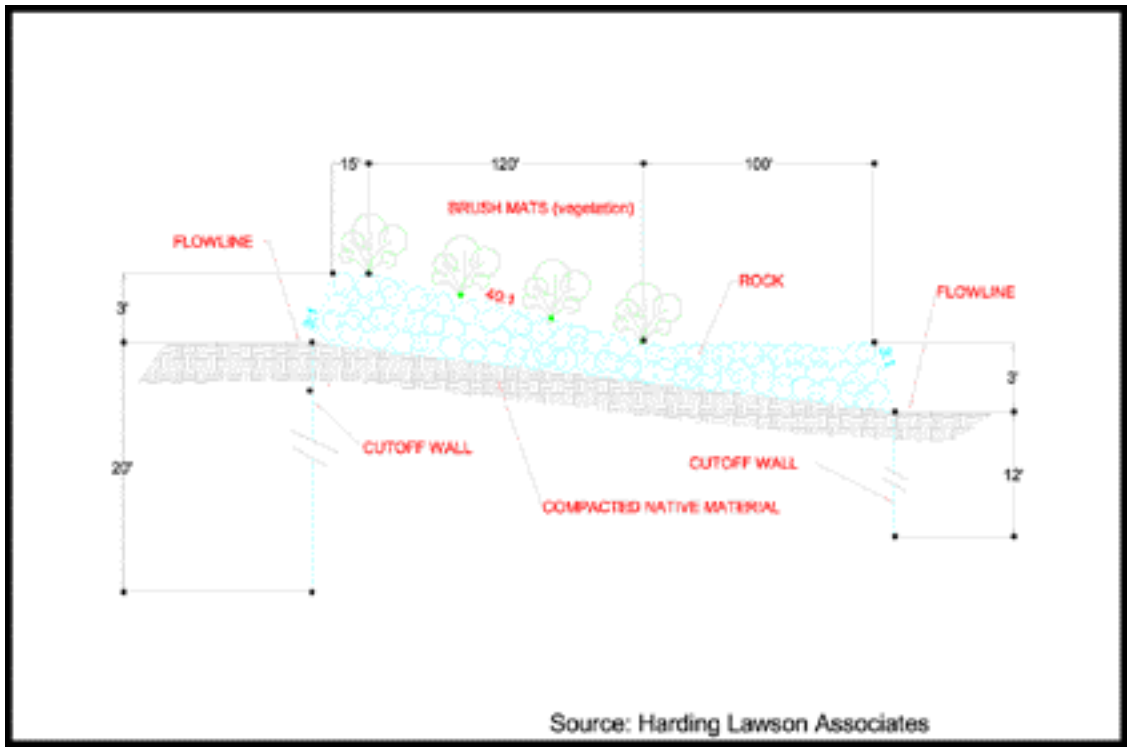
- A site downstream of Clark County's Advanced Wastewater Treatment Plant discharge
- A site downstream from the confluence of Duck Creek and the Wash
- The site of the Pabco Road Erosion Control Structure
- The site of the abandoned SNWA Lateral
- A site near Three Kids Wash (also the site of the future water supply lateral)

In addition, eight other potential sites (Figure H) have been identified by the Southern Nevada Water Authority. The sites were selected on the basis of criteria such as active headcut location, property ownership and suitability for regulatory permitting and construction. These sites include five locations upstream from the Lake Las Vegas intake (1-5), two locations



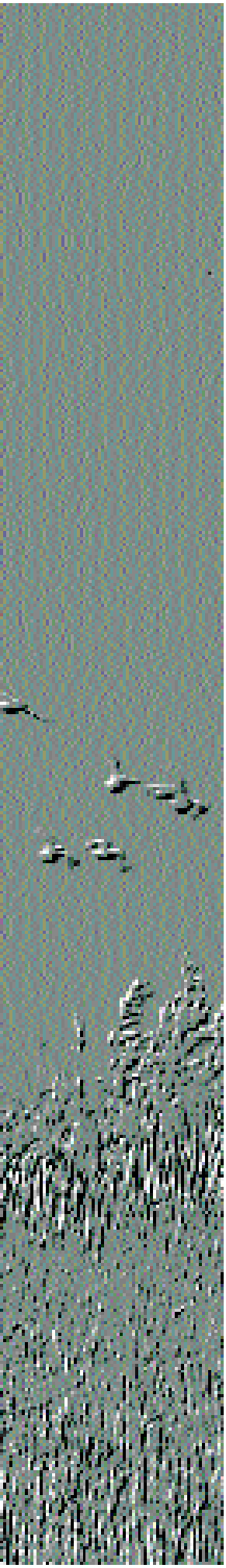
Source: Harding Lawson Associates

Figure C – Plan view of prototype erosion control structure.



Source: Harding Lawson Associates

Figure D – Cross section view of Figure C.



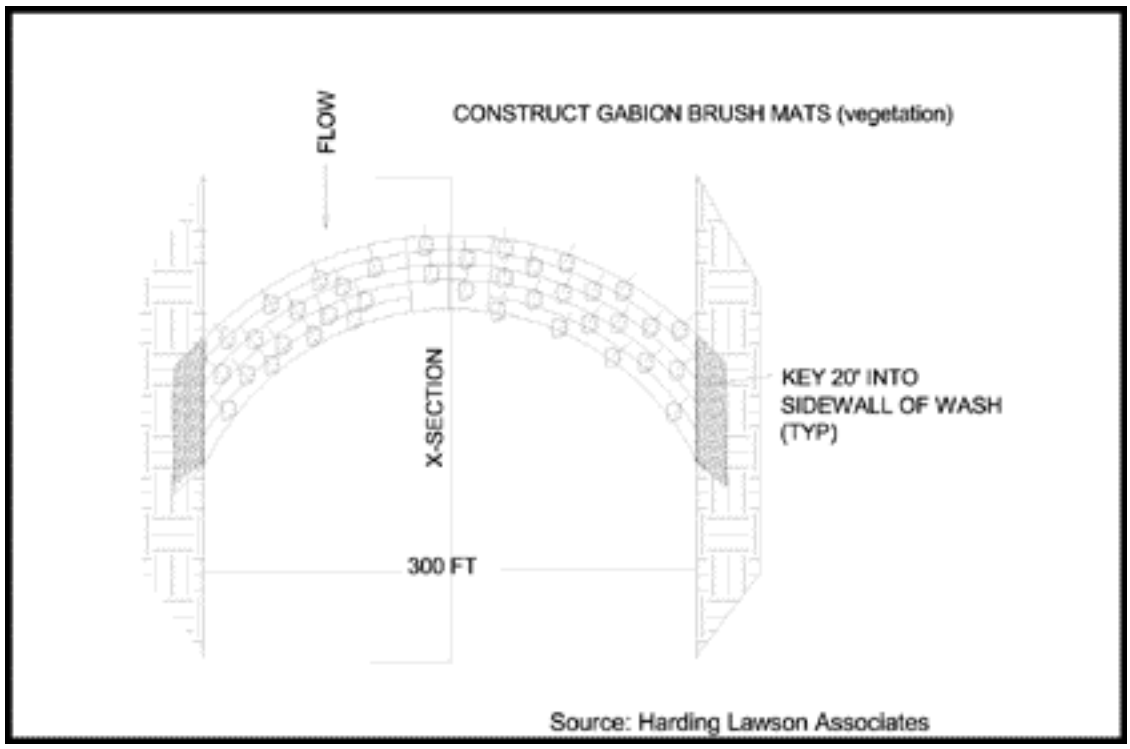


Figure E – Plan view of prototype erosion control structure.

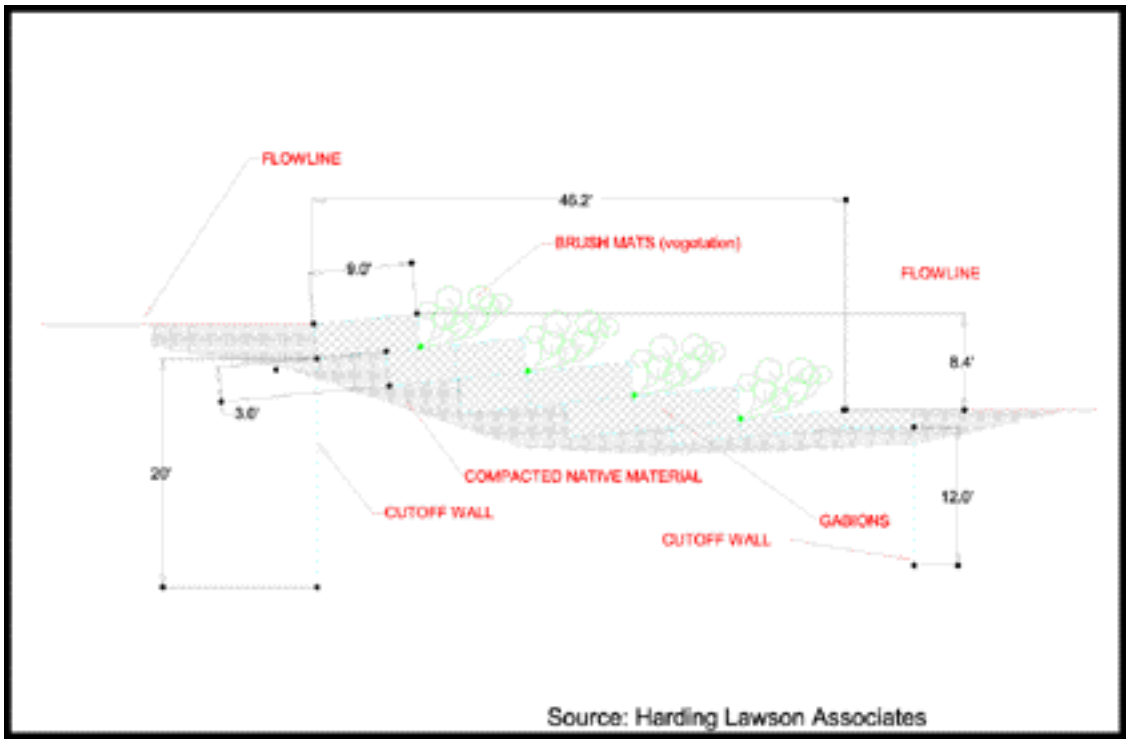


Figure F – Cross section view of Figure E.

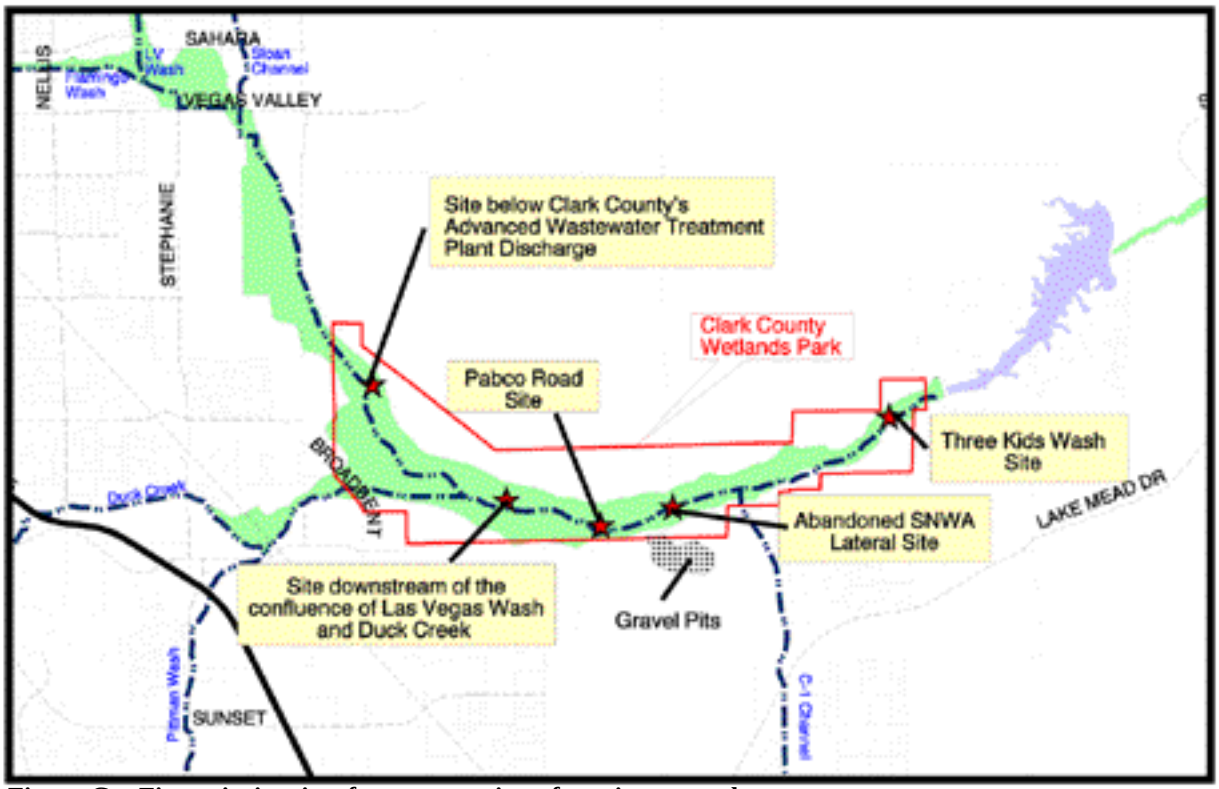


Figure G – Five priority sites for construction of erosion control structures.

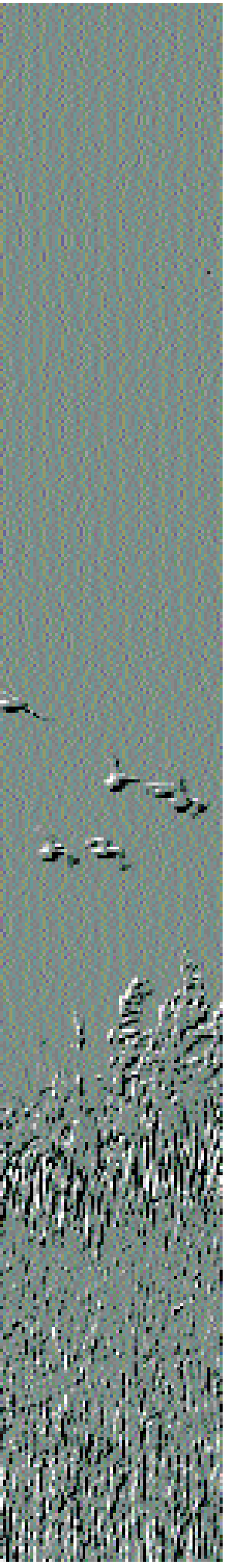
downstream from Pabco Road (6 & 7) and one location upstream from Pabco Road (8). A complete discussion of the recommendations from the Erosion & Stormwater Study Team is provided in Chapter 6.

Action: ***Identify water resources needed to maintain the Clark County Wetlands Park.***

The Wetlands Park Study Team recommended using the Las Vegas Wash Comprehensive Adaptive Management Plan as a vehicle for implementing the master plan for the Clark County Wetlands Park (Park). When developing the park, careful consideration must be given to hydrology. Although still undetermined, a minimum daily flow and specific water quality standards will be required for the maintenance of the parks' vegetation and wildlife.

Several hydrologic factors must be taken into account before extensive development of the park occurs, such as water depths, velocity, hydroperiod, salinity, nutrient levels, sedimentation rates and extensive water quality analyses. To answer these questions and guide water resource issues for the Wetlands Park, the following tasks are recommended:

- Determine minimum daily in-stream flow requirements to maintain vegetation boundaries within the Park.
- Identify average daily water quantity available from each source of water in the Las Vegas Wash.



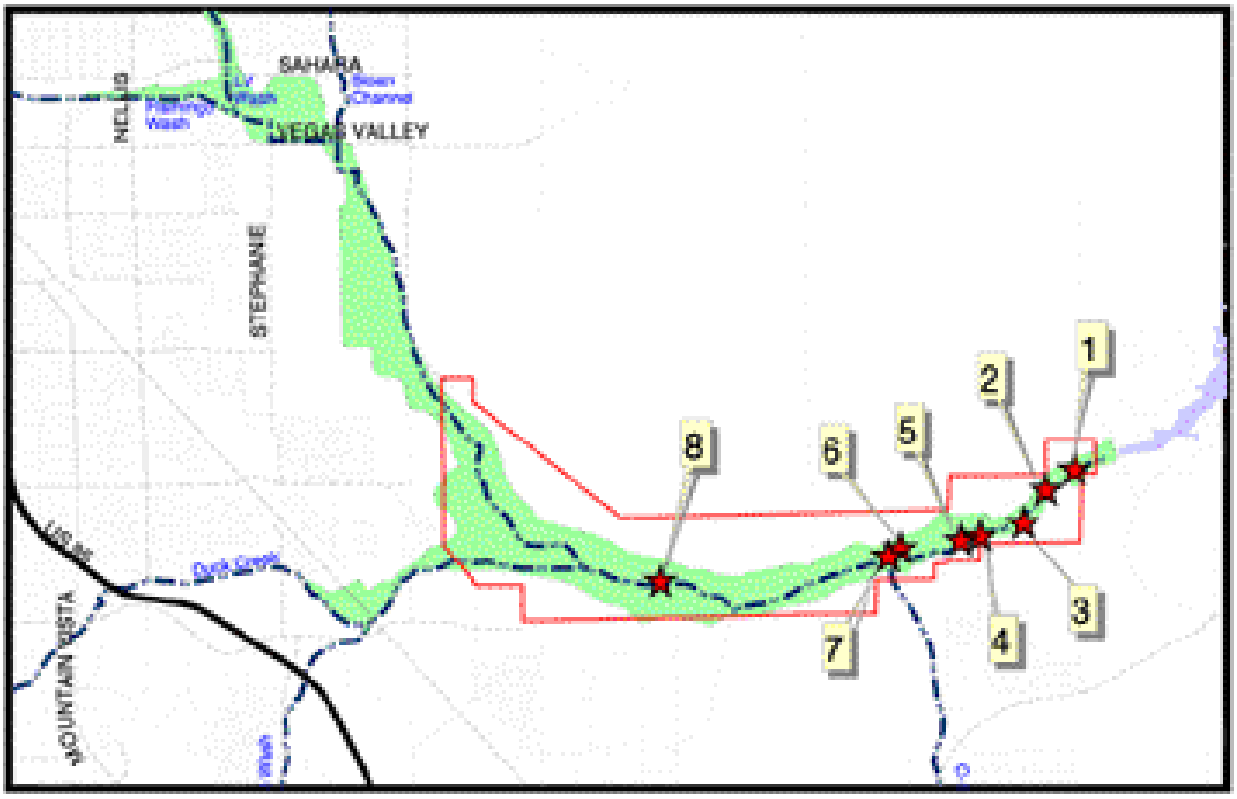


Figure H – Eight potential sites for construction of erosion control structures.

- Determine the feasibility of securing a minimum daily in-stream flow to the park.
- Examine characteristics of wetlands within the Park, such as soils, vegetation, water depth, flow over time, and other related processes, in order to predict the impacts of wastewater and stormwater, as well as the potential for water quality enhancement.
- Develop and initiate a study to monitor the impacts of wastewater and stormwater on vegetation within the Park. Use the results to adaptively manage wastewater and stormwater impacts over time.
- Identify water quality constituents and their values in each source of water in the Las Vegas Wash.
- Determine the range of water quality constituent values necessary to maintain the continued health and viability of vegetation within the park.
- Finalize and implement a sediment transport and sediment quality monitoring program.
- Develop and implement a water quality monitoring plan to monitor water quality within the Las Vegas Wash. Use the results to adaptively manage water quality impacts over time.
- Work with the Alternate Discharge Study Team to determine the amount of treated wastewater flow needed for wetland/Park activities.

Action: ***Participate in and support the implementation of the Alternate Discharge Study conducted by the municipal wastewater dischargers (City of Henderson, City of Las Vegas and Clark County Sanitation District).***

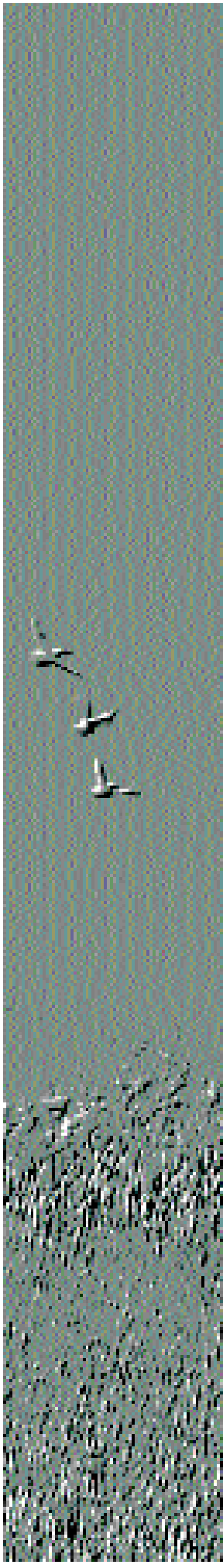
The Alternate Discharge Study Team recommended continued support of efforts by the three wastewater dischargers to develop alternate discharge options to manage current and future wastewater flows. This includes supporting the dischargers as they conduct the Scope of Services from their Alternate Discharge Study (Appendix 8.2).

The current Scope of Services focuses on project initiation, compilation and assessment of existing data, development of issues and constraints, interim alternative evaluation and an implementation plan for final consideration of options. The development of issues and constraints will lead to a workshop where the alternatives will be initially ranked and an interim list selected for further evaluation. The interim alternative evaluation will involve further ranking of the alternatives based on additional information.

The Alternate Discharge Study Team also recommended that the alternate discharge options and selection criteria developed at the study team level be considered as a starting point during the initial process of identifying potential alternative discharge options. Using this available information means the consultant can more quickly eliminate some discharge options, resulting in a time and cost-saving benefit to the dischargers. A complete discussion of the recommendations from the Alternate Discharge Study Team is provided in Chapter 8.

Action: ***Establish off-stream wetlands and evaluate storm water detention/retention basins.***

The Erosion & Stormwater Study Team recommended that the Las Vegas Wash Coordination Committee and Las Vegas Wash Management Entity continue to work with the City of Henderson, the City of Las Vegas and the Clark County Sanitation District to help define alternate discharge options and the distribution of future flows in the Wash and off-stream wetland facilities. The study team also recommended investigating the possibility of using abandoned gravel pits (Figure I) near the abandoned SNWA Lateral site for "skimming" peak stormwater flows. Potential sites for stormwater detention/retention basins further upstream of these sites should also be investigated and evaluated, as recommended by participants in the August 1999 engineering workshop. A complete discussion of the recommendations from the Erosion & Stormwater Study Team is provided in Chapter 6.



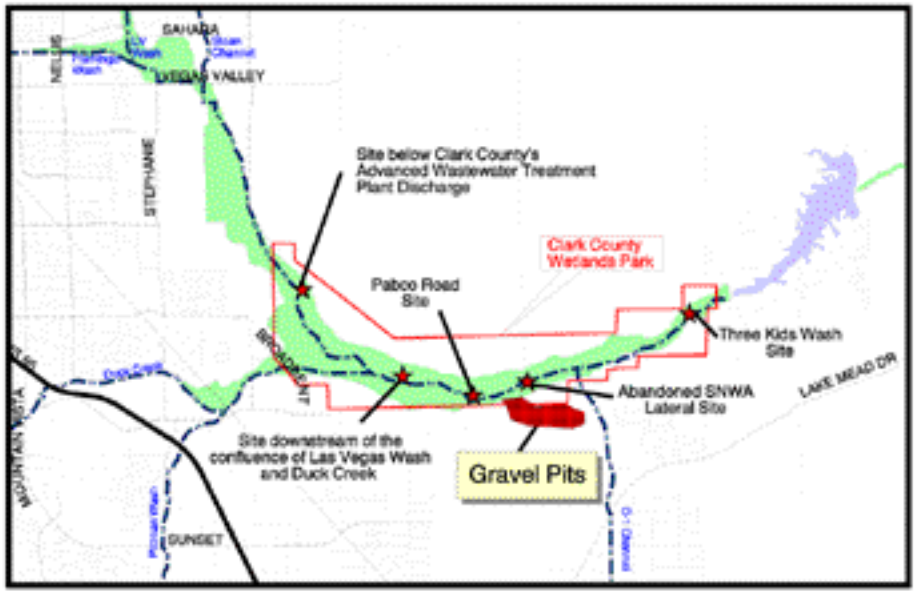


Figure I – Abandoned gravel pits that could serve as detention/retention basins.

Action: Conduct sediment transport modeling.

The Erosion & Stormwater Study Team recommended that sediment transport modeling be conducted in conjunction with storm flow analysis. The work should include a compilation of available stream hydraulics, hydrology, and geologic information on the Wash, development of preliminary stabilization techniques, development of a computer model of Wash stream hydraulics and channel scouring,modeling of stabilization measures and different techniques, and determination of the best overall stabilization approach. A complete discussion of the recommendations from the Erosion & Stormwater Study Team is provided in Chapter 6.

Action: Develop long-term monitoring programs.

Two study teams developed recommendations in the area of long-term monitoring. The Wetlands Park Study Team recommended the development of a long-term, coordinated monitoring plan to ensure Clark County mitigation requirements for monitoring within the Park are met. The Shallow Ground Water Study Team recommended implementation of a long-term, coordinated monitoring program that measures water quality, conducts aquifer testing, identifies contributions from shallow ground water inflows, identifies data gaps and identifies any need for additional monitoring wells. A complete discussion of the recommendations from the Shallow Ground Water Study Team and Wetlands Park Study Team are provided in Chapters 7 and 9, respectively.

Action: ***Develop a central database for shallow ground water information.***

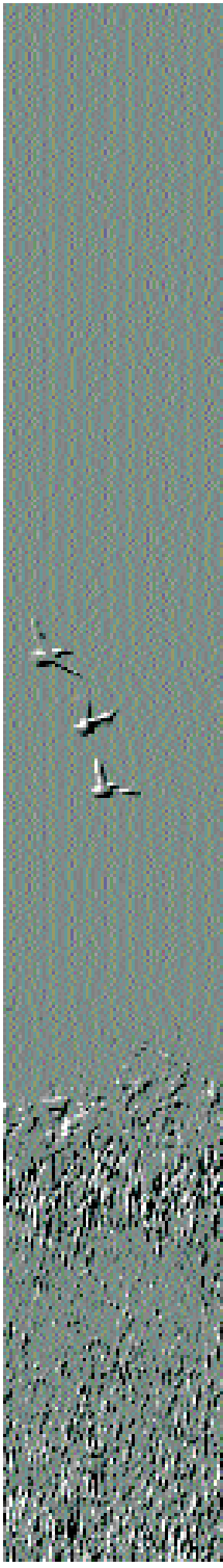
The Shallow Ground Water Study Team recommended that a central database be developed to include all known data on the shallow ground water system. The database should include, at a minimum, data on well construction, location, water level, water quality and aquifer testing. The Las Vegas Wash Project Coordination Team has already begun this effort by reviewing more than one hundred reports produced by Basic Management, Inc. (BMI) and submitted to the Nevada Division of Environmental Protection. Relevant data has been extracted from these reports and entered into a database. The database will be made available to all entities with an interest in shallow ground water. A complete discussion of the recommendations from the Shallow Ground Water Study Team is provided in Chapter 7.

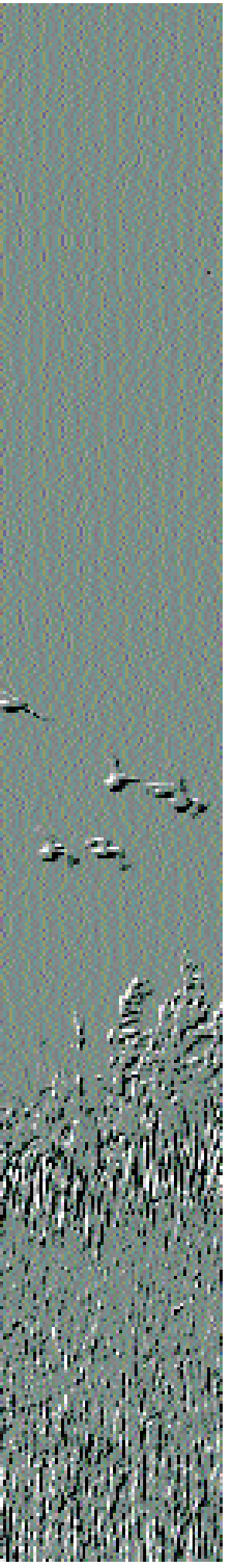
Action: ***Support the development and implementation of a standardized environmental review process among planning entities.***

The Land Use Study Team recommended the development of a common environmental review process among planning entities, not only to speed up the process for internal and external customers, but also to clarify to the party requesting a zoning change or variance exactly what is required. The environmental review should include water level data, water quality data, notice to entities that may have an interest in the plan, hydrogeologic concerns and surface and subsurface drainage. A complete discussion of the recommendations from the Land Use Study Team is provided in Chapter 11.

Action: ***Investigate potential funding sources.***

The Funding Study Team identified seven potential funding sources for management of the Las Vegas Wash. Potential sources include; (1) continue as presently done, (2) develop an impact fee assessed on new development, (3) implement an excise tax, (4) implement a sales tax, (5) issue bonds, (6) implement a property tax and (7) implement a surcharge on water or wastewater bills. There was some discussion by the study team regarding the newly enacted Public Lands Bill and the potential for proceeds of this program to be directed toward Wash activities. There was not much information available during the period of time the study team met, but the team thought the idea should be further investigated. The study team recommended that these options be assessed on an individual basis to determine their potential for funding all or a portion of the Wash efforts. In addition to these options, it is recommended that steps be taken to identify and use as many grant sources as possible.





The Funding Study Team also recommended that a budgetary analysis be completed to determine the financial needs of the Las Vegas Wash Management Entity. The analysis should include current and future costs associated with administration, capital costs and the costs of long-term monitoring. The best way to do this may be to review funding formulas for existing entities and then adapt the formulas to meet the needs of the Las Vegas Wash Management Entity. The model should reflect an equitable cost distribution and consider the impacts and benefits of the project to the identified stakeholders. A complete discussion of the recommendations from the Funding Study Team is provided in Chapter 14.

Action: Continue implementation of the Public Outreach Program.

The Public Outreach Study Team has developed a public outreach program to facilitate the sharing of information to public officials and into the community. The program serves as a framework for dialogue between the Las Vegas Wash Coordination Committee, its stakeholder members and the community. The study team recommended that, once in place, the Las Vegas Wash Management Entity take the lead in implementing the public outreach program. This includes amending the tactics as necessary to address future communication needs for the Las Vegas Wash restoration and management process. A complete discussion of the recommendations from the Public Outreach Study Team is provided in Chapter 13.

Closing Comments

The Las Vegas Wash Comprehensive Adaptive Management Plan culminates an intense period of work by dozens of entities and hundreds of individuals over the past two years. It sets forth a preliminary blueprint for tackling one of the most challenging and important resource issues in southern Nevada. The issue of restoring and managing the Las Vegas Wash is now being addressed in concrete terms.

The LVWCAMP reflects a holistic approach to managing the Las Vegas Wash. Because the Wash is a living system that is constantly evolving, restoring and managing it will require responsiveness and flexibility. The LVWCAMP is not intended to remain static over time – its recommendations are intended to adapt with changing developments in the Wash in the years to come. The plan is a guide for those entities and individuals conducting the work, and those parties interested in the process of stabilizing, enhancing, and managing this natural resource.

As the preceding list of actions indicates, restoration and management of a system as complex as the Las Vegas Wash will not be easy or inexpensive. Current activities have taken advantage of existing resources as much as possible, but the more complicated long-term activities will require sub-

stantial funding and support. An effective, long-term organizational structure must be determined and approved. In areas such as sediment transport and shallow ground water, additional data needs to be gathered. The tasks are many and challenging.

Still, as this Executive Summary indicates, there are many actions ready to be taken that will help stabilize the Wash and get us started on the road to Wash stabilization and enhancement. Prototype erosion control structures, the Clark County Wetlands Park, off-stream wetlands and alternate discharge will all play a role, as will many other activities. No single action or project can yield the desired result on its own.

Perhaps the most important issue is community and stakeholder acceptance of the Las Vegas Wash Comprehensive Adaptive Management Plan. Stakeholder acceptance of the plan has been left to the decision-making processes of the individual entities involved. Community acceptance of the plan will be developed through a series of outreach meetings, workshops and other participatory techniques. The goal of these efforts is to solicit input, comments and other feedback that can be used to improve the plan, its recommendations and its proposed activities. This outreach and acceptance is critical to promoting the goals of the plan.

The Las Vegas Wash Coordination Committee, on behalf of its many representatives and member entities, welcomes the support of the community in this great endeavor and looks forward to participating in the work outlined in this plan.