TEXAS PLAYA CONSERVATION INITIATIVE

Water for Texans & Wildlife

Protecting Playa Wetlands in Flood Planning and Development Standards

Purpose

This guidance supports the implementation of the flood plan recommendation to:
"Create a regulatory plan for development standards that would help developers to maintain compensatory storage requirements and natural hydrologic function."
Playa wetlands, as natural depressional features with significant floodwater storage and groundwater recharge functions, are critical to this effort.

A healthy playa has an intact clay basin — without excavated pits or ditches — that is not buried by sediment. Water from the surrounding watershed freely enters the basin through a native vegetative buffer without being diverted from the playa by roads, terraces or other impediments.

Best Management Practices (BMPs) for Playas

Land Use Planning and Zoning

- Establish **protective, native vegetative buffers** (minimum 100 feet) around playas to maintain hydrologic inputs and reduce sediment and pollutant loads.
- Require **hydrologic assessments within the playa watershed** before approving development near playas to ensure no disruption of surface flow into or out of the basin.
- Require features at the terminus of run-off drainages that **slow down and spread water** as it enters the vegetative buffer (e.g. check dams).
- Integrate playa restoration and conservation into **stormwater management plans** as naturally functioning detention and retention basins.

Development Regulations

- Develop **Erosion and Sediment Control Plans for construction phases** that outline how to minimize erosion in the uplands and prevent sediment from reaching the playa bottom. This should include limiting the land area disturbed during development and construction.
- **Stabilize disturbed areas** immediately after use, with appropriate cover, such as mulch or vegetation. Divert water away from disturbed areas while vegetation regrows. This may include temporary check dams to reduce runoff velocity.

- **Regularly monitor waterways in playa uplands**, from drainage mouths to the playa basin, for eroding channels without vegetative cover. Check dams and spreader structures may be needed to increase vegetation within any developing waterways.
- Prohibit or strictly regulate **tailwater pits, berms, or drainage alterations** that disconnect playas from their watershed.
- Require **compensatory storage** for any development that encroaches into playa basins or impedes hydrologic connectivity.
- Enforce **low-impact development (LID)** standards—such as bioswales, pervious pavement, and vegetated filters—to reduce runoff volume and improve water quality.

Conservation Incentives

- Encourage participation in **voluntary conservation programs to restore and protect playas** (e.g., TX Playa Conservation Initiative, Wetlands Reserve Easements).
- Provide **development credits or tax abatements** for maintaining playas as open space within subdivisions or commercial developments.

Examples & Case Studies

Case Study 1

Floyd County, TX – Playa Preservation Ordinance

In response to recurring flooding and aquifer concerns, Floyd County implemented a voluntary playa protection zone ordinance. The policy encourages 150-ft native grass buffers and limits hydrologic alterations. Post-implementation monitoring showed a 20% increase in playa water retention days during rainfall events >1 inch.

Case Study 2

City of Plainview, TX – Stormwater Integration

A subdivision development was redesigned to maintain the natural playa on site. Developers incorporated the playa as a **multi-functional stormwater feature**, including walking trails and educational signage. The city permitted reduced detention basin construction in exchange for maintaining the natural playa basin, saving developers over $200,000.

Case Study 3

Eastern New Mexico – NRCS/Partners Playa Restoration

Multiple counties restored playas by filling pits and removing berms under USDA-NRCS contracts. Follow-up hydrologic monitoring showed restored playas reduced downstream flood peaks by 10–15% in storm events >2 inches and improved recharge to the Ogallala aquifer.

Scientific Support for Playas in Flood Planning

Hydrologic Function

- **Water Storage:** Playas store between 10 and 100 acre-feet of runoff depending on size and depth (Bolen et al., 1989).
- **Flood Attenuation:** Playas slow runoff, reducing downstream peak flow rates (Cariveau et al., 2011).
- **Groundwater Recharge:** Studies by Gurdak and Roe (2009) demonstrate playas are the primary recharge points for the Southern High Plains aquifer system.

Climate Resilience and Ecosystem Benefits

- **Resilience:** Playas reduce flash flood risk in localized storm events—especially critical as climate variability increases.
- **Biodiversity:** They support over 200 species of birds and provide seasonal habitat for amphibians, pollinators, and migratory waterfowl (Anderson & Smith, 2000).

Regulatory Models

- The **Nebraska Rainwater Basin Joint Venture** uses similar standards in development reviews tied to FEMA floodplain maps and has successfully preserved over 85% of historic playa functions within priority areas.

Recommendations for Local Governments

- Incorporate playas as **regulated natural features** in floodplain ordinances.
- Use GIS mapping to identify playas and include them in **municipal stormwater inventories**.
- Adopt **regional guidance or ordinances** modeled after successful counties (e.g., Floyd or Hale County) to ensure consistency and effectiveness.

Draft Ordinance Language for Playa Wetlands

This model ordinance can be adapted by counties and municipalities in the Canadian-Red River basin to restore and protect playa wetlands and integrate their natural functions into development and flood planning.

Section 1: Purpose and Intent

The purpose of this ordinance is to conserve and protect playa wetlands within the jurisdictional boundary in order to:

- Maintain natural floodwater storage and hydrologic function;
- Support groundwater recharge to regional aquifers;
- Enhance stormwater management and reduce downstream flood risk;
- Protect wildlife habitat and ecological services;
- Provide a regulatory framework that allows for sustainable development while conserving key natural infrastructure.

Section 2: Definitions

- **Playa Wetland**: A naturally occurring, shallow, ephemeral wetland formed in a closed basin, primarily recharged by precipitation and overland runoff.
- **Hydrologic Connectivity**: The unimpeded flow of surface water into and out of a playa basin.
- **Compensatory Storage**: The replacement of floodwater detention capacity lost due to land development, to be provided within the same watershed.
- **Buffer Zone**: A vegetated, undeveloped strip of land surrounding a playa wetland, designed to protect water quality and hydrologic function.

Section 3: Applicability

This ordinance applies to any development activity occurring within the watershed of a playa wetland, as identified on local, state, or federally recognized maps, or determined by field verification.

Section 4: Playa Restoration and Protection Standards

Playa Assessment

A functional assessment of the playa should be conducted early in the planning process; it should include baseline conditions for soils including sediment loads and clay thickness within the basin, hydrologic function within the watershed, and current vegetative composition. The assessment will help inform decision making around playa restoration needs and management goals. Assessment methods such as the Texas Rapid Assessment Method could be used.

Setback and Buffer Requirements

A minimum 100-foot buffer shall be maintained around all playa wetlands. Additional consideration should be given to areas of concentrated inflow and outflow.

No grading, excavation, construction, or fill shall occur within the buffer zone or playa basin unless approved through a mitigation plan.

Hydrologic Integrity

Historical inflow and outflow patterns to the playa must be maintained.

Natural playa volume should be restored. This may include removing culturally accumulated sediments or filling pits within the basin.

Tailwater pits, berms, or diversions that alter playa hydrology should be restored and are prohibited unless hydrologic equivalency can be demonstrated.

Compensatory Storage

Any encroachment or filling within the playa basin must include a hydrologic study and compensatory storage plan approved by the local floodplain administrator.

Stormwater Management Integration

Developers may use playas as stormwater retention features if natural hydrologic function is preserved and pollution and sediment prevention measures are in place.

Section 5: Conservation Incentives

Developers who voluntarily preserve playas and buffer zones may be eligible for:

- Density bonuses
- Reduced stormwater infrastructure requirements
- Expedited permitting
- Tax abatements or conservation credits