

LAND USE

THE UNDER-UTILIZED WATER MANAGEMENT STRATEGY One Water One Watershed

***Linking Land Use and Water Workshop
Land Use Pillar Susan Lien Longville
October 18, 2007***



SAWPA's One Water One Watershed Plan is the 1st Integrated Regional Water Management Plan to incorporate 10 Water Management Strategies



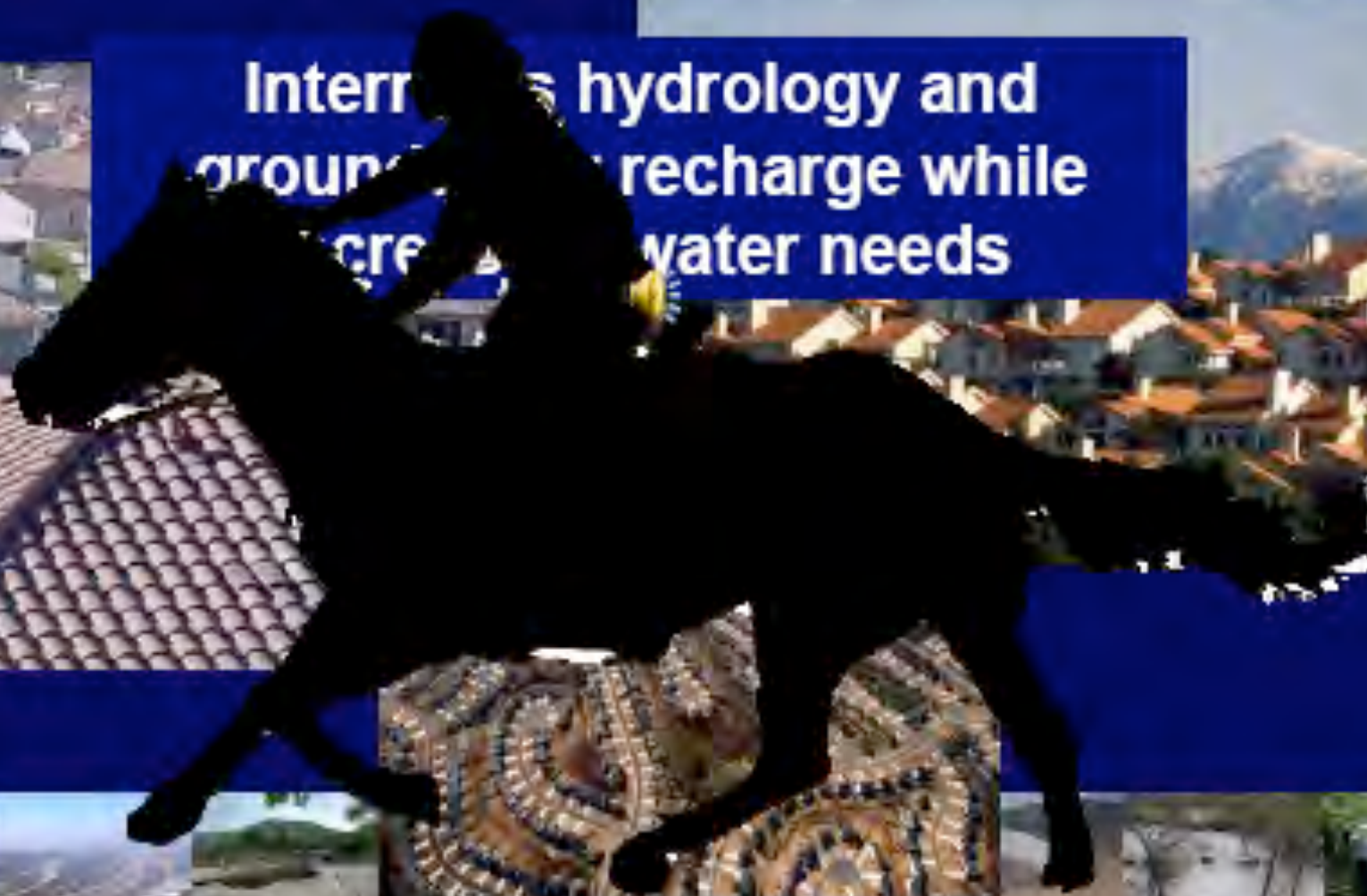
Four Horsemen of the Apocalypse



Explosive Land Development and Population Increase



Interrupts hydrology and
groundwater recharge while
increasing water needs



Understanding of LAND USE



1st: How does LAND USE impact Water Management?

Water Quality?



Land Use → Water Quality

- **Polluted runoff is the leading cause of water quality impairments in California**
- **Streams, rivers and coastal zones in urban areas have chronic water quality problems exacerbated by impervious surfaces**
- **LAND USE projects designed for infiltration and groundwater recharge combining engineered infiltration techniques like grassy swales, bio-retention cells and porous pavement with low impact development (LID) site design techniques offer an unparalleled opportunity to reduce polluted runoff**

Flood Control and Stormwater Runoff?



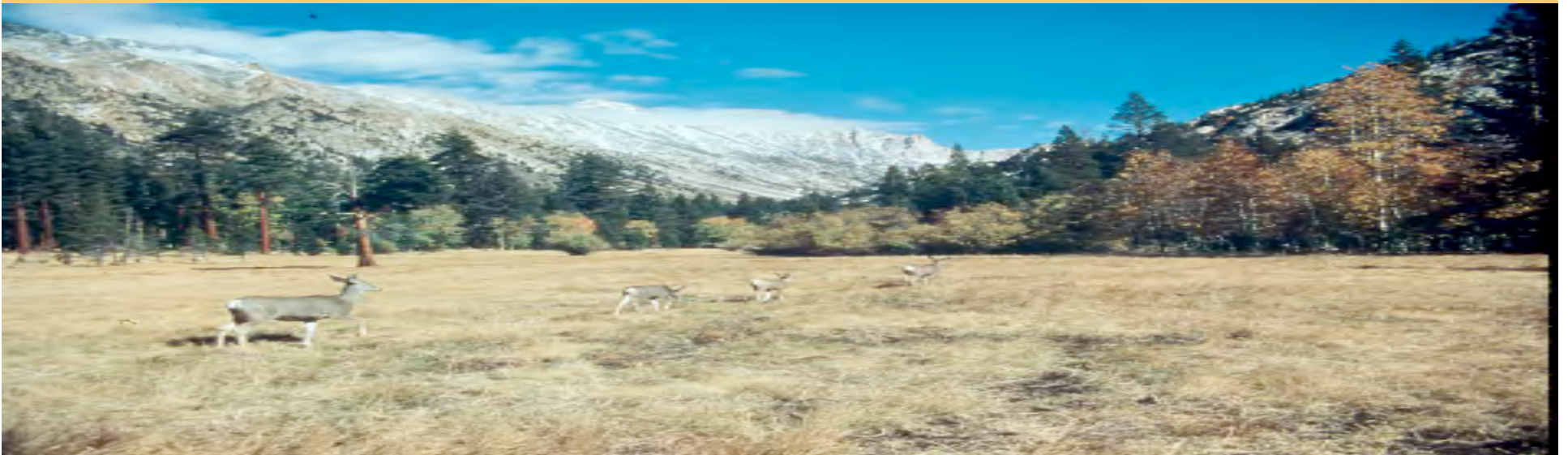
Land Use → Flood Control and Stormwater Runoff

- Runoff is channeled to traditional stormwater and flood management systems designed to remove water from developed areas quickly
- Gutters, stormwater drains and pipes, concrete lined box culverts and flood channels direct the water to detention ponds that regulate the discharge of peak flows to receiving waters
- Traditional stormwater/flood management on alluvial floodplains stop sediment



“A one-acre parking lot produces about 16 times the volume of runoff that comes from a one-acre meadow.”

-Center for Watershed Protection



Environment and Habitat?



Land Use →

Environment & Habitat

- **Traditional development leaves more than 10% of the watershed covered in roads, roofs, parking lots and other impervious surfaces**
- **When more than 10% of the watershed is impervious, the watershed becomes degraded**
- **The ecosystem health of a degraded watershed is less diverse, less stable and less productive**
- **More streams, creeks, marshes, estuaries and rivers in degraded watersheds are impaired triggering regulatory actions**

Water Conservation?



Land Use → Water Conservation

- The largest, least expensive and most environmentally sound source of water for meeting future needs is water conservation**
- Outdoor water use in existing landscapes can be reduced up to 75% with water-efficient plant materials and irrigation systems**
- Landscape Ordinances requiring new development to comply with drought tolerant plant materials and irrigation systems will become mandatory by 2010 (AB 1881)**

Recycling?



Land Use → Recycling

- Recycled water is the only growing supply
- Recycled water is resilient to climate change
- Recycled water can offset the loss of imported water supplies today and tomorrow
- The installation of “purple piping” in new LAND USE projects is a wise investment pending the availability of recycled water
- The reuse of domestic graywater from showers, sinks and laundry is a simple, affordable practice practiced by individual families or entire communities permitted by state law in some cities and counties

Parks and Open Space?



Land Use → Parks & Open Space

- Multiple benefit projects that preserve valuable open spaces as recharge, water quality and flood management areas are eligible for IRWMP funding
- Experts warn that the opportunity to preserve open spaces, particularly those near urban centers, are diminishing as land is developed
- Identifying undeveloped watersheds with recharge, water quality and flood management value may prevent short-sighted development

Environmental Justice?



Land Use → Environmental Justice

- **Environmental Justice in Water Management means an inclusive, community-based dialogue between low-income communities and communities of color**
- **EJ in LAND USE begins at the local level when new projects are discussed**
- **Many low-income communities and communities of color lack access to parks and open space where opportunities for recharge, water quality/flood management areas may exist for watershed protection**

Climate Change?



Land Use → Climate Change

- **New studies predict that climate change will reduce precipitation in the Santa Ana watershed by 10% to 15%**
- **Climate change will increase the fire risk**
- **Scientists also predict climate change will increase the frequency and magnitude of large storms triggering post-fire flooding**
- **Green Building techniques such as LEED reduce the emissions causing global warming**
- **Tree planting in urban centers can reduce the “heat island effect” predicted to increase with climate change**

Water Supply?



Land Use → Water Supply

- The water supply that permits new LAND USE is dependent on managing the water we have water in an efficient, responsible manner
- LAND USE is also dependent on a reliable water supply to sustain environmental assets
- Local water supplies are the most reliable resource to support new LAND USE projects
- Water supply reliability is increased when new LAND USE projects are resource efficient
- Water suppliers need partner with developers and local governments on resource efficient LAND USE projects or they will not occur

Understanding of LAND USE



2nd: What strategies reduce the impact of LAND USE (new, redevelopment and capital improvement) and create opportunities for fundable Water Management Projects?

Water Management Tools Increase With Multiple Objective Projects

- **Suppose Water Managers, Developers and Local Governments develop a MULTI-OBJECTIVE water management project to create water holding areas that capture stormwater in new development, routine capital improvements and redevelopment (curb cuts on streets, recessed athletic fields and bioswales in parks, cisterns)**

THIS WATER MANAGEMENT PROJECT IS

WATER QUALITY/STORMWATER

CLIMATE CHANGE/PARKS

Water Management Tools Increase With Multiple Objective Projects

- **Suppose Water Managers, Developers and Local Governments develop a MULTI-OBJECTIVE water management project that preserves wider floodway corridors on alluvial fans to permit the movement of sediment, enhance flood protection from foreseeable post-fire debris flows and preserve open space**

***THIS WATER MANAGEMENT PROJECT IS
LAND USE/FLOOD MANAGEMENT
HABITAT AND ENVIROMENT/OPEN SPACE***

Water Management Tools Increase With Multiple Objective Projects

- **Suppose Water Managers, Developers and Local Governments develop a MULTI-OBJECTIVE water management project to create parks in underserved low-income communities and communities of color for capturing stormwater and reducing polluted runoff**

***THIS WATER MANAGEMENT PROJECT IS
PARKS AND OPEN SPACE
STORMWATER/WATER QUALITY***

Water Management Tools Increase With Multiple Objective Projects

- **Suppose Water Managers, Developers and Local Governments develop a MULTI-OBJECTIVE water management project that expands the use of recycled water with installation of new supply lines to the developments with “purple piping” waiting**

***THIS WATER MANAGEMENT PROJECT IS
RECYCLED WATER/WATER SUPPLY
LAND USE/CLIMATE CHANGE***

Water Management Tools Increase With Multiple Objective Projects

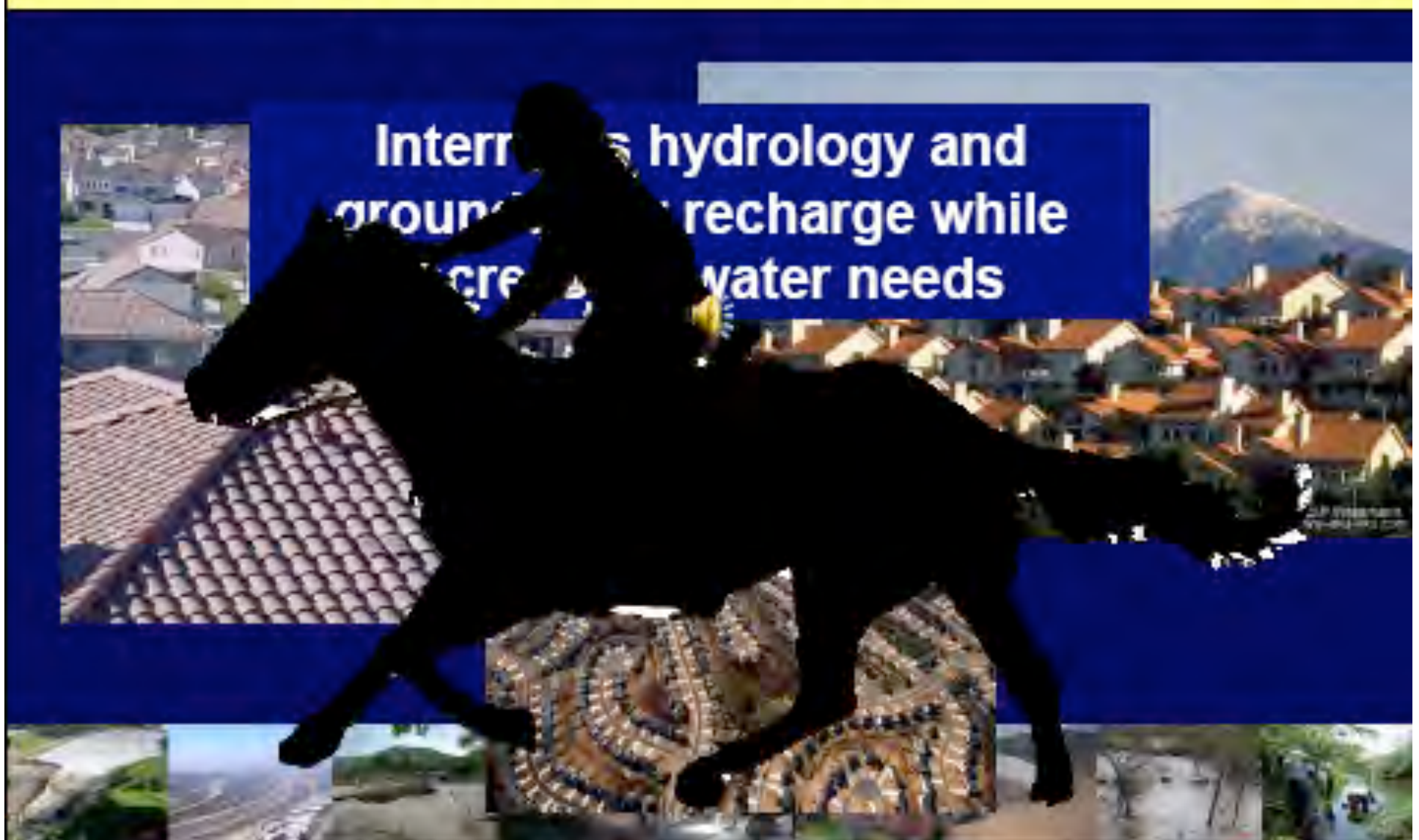
- **Water Managers, Developers and Local Governments can develop MULTI-OBJECTIVE water management projects designed for infiltration and groundwater recharge with engineered infiltration techniques (grassy swales, porous pavement) combined with low impact development (LID) design features**

THIS WATER MANAGEMENT PROJECT IS

LAND USE/WATER QUALITY

WATER SUPPLY/STORMWATER

Suppose the LAND USE Horseman of the Apocalypse is halted?





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