Vegetated planters along streets absorb rainwater.

age in both new and existing streets, where feasible. For example in Portland, OR, the SW 12th Avenue Green Street streetscape-enhancement project, utilizes a series of landscaped stormwater planters designed to capture and infiltrate runoff from approximately 8,000 square feet of street. With the new stormwater facilities now in place, nearly all of SW 12th Avenue's annual street runoff, estimated at 180,000 gallons, is managed by its landscape system.[26] More information on potential natural drainage pilot projects for Shreveport are contained in Chapter 9.

C. Promote the use of best management practices in oil and gas operations.

Promote and require, to the degree local regulations have jurisdiction, best practices by natural gas operators and property owners, and advocate for state action to require and enforce best practices. Ensure that government land used for oil and gas operations adheres to best practices. Local jurisdictions like the City and Parish can enact regulations about how wells are drilled and operated and to mitigate impacts. (See Chapter 12.)

Actions

1. **Ensure the integrity of private property rights for surface owners and surface users.** Operators and landowners must negotiate upfront a surface-use agreement with landowners and surface users (i.e., permitees and lessees) detailing the placement of pipelines, compressor stations, roads, well sites, and related facilities, and detailing the use of drilling products and chemicals as well as baseline testing of available water resources for quality and quantity.

2. **Strengthen and enforce existing laws.**
   Water, Soil and Surface Protection
   - > Water quality in drilling areas must be protected by the use of closed-loop drilling systems (i.e. pitless drilling).
   - > Oil and gas operators must use available technologies such as directional drilling, horizontal drilling, multiple wells per drilling pad, and smaller well pads to reduce surface impacts. Concentrating wells reduces heavy truck traffic in neighborhoods and fragmentation of farmland and wildlife habitat.
   - > Substitutions for toxic oil and gas field materials (e.g., proppants, solvents, friction reducers, acid neutralizers, paints, etc.) must be used when non-polluting options are available.

[26] *http://www.portlandonline.com/bes/index.cfm?c=29323&a=123776*

- Eliminate on-site disposal of waste to reduce incidents of water, soil and vegetation contamination.
- Cementing, casing and monitoring of active wells and injection wells are critical to protecting our water quality. Operators must be required to meet the highest cement and pipe standards, take financial responsibility for their integrity in perpetuity, comply with surface casing and mechanical integrity requirements, including the performance and filing of cement bond logs and location of perforations.
- Proper management and disposal of produced and flow-back water must require that any wastewater re-injected into the ground be re-injected into a formation and through an injection well approved by the Office of Conservation.
- Oil and gas operators should only use surface water or Red River Alluvial Aquifer water as sources for hydraulic fracturing operations.

Air Quality Protection and Noise Standards

- Electric motors should be used to drive gas compressors and other stationary oil and gas-field infrastructure.
- Condensate tanks should be equipped with vapor-recovery units and monitored for the control of VOC emissions.
- No-bleed pneumatic valves and fittings should be used on pipeline networks.
- In concern for regional air quality, all immobile oilfield equipment that emits nitrogen oxides (NOx), volatile organic compounds (VOCs) or other Hazardous Air Pollutants (HAPs), owned and/or operated by an individual operator, should be regulated as a single source and for its cumulative effect.
- Waste gas and flaring must be defined and managed as an "air emission" and meet a state emissions standard.
- Excessive sound is a serious hazard to public health and welfare, safety, and quality of life; oil and gas operators must therefore meet local noise-ordinance standards.
- Noise standards should apply to all exploration, development, work-over, transportation and refinement equipment, particularly in proximity to residences, businesses, schools, hospitals, nursing homes and churches. Low-frequency noise complaints must be documented and mitigated.
- No person or entity should cause, allow, or permit the operation of any source of sound that creates a sound level that exceeds the ambient sound level by more than a specific dB level established by the local noise ordinance.
- The local authority having jurisdiction may require continuous monitoring to ensure compliance with the noise limits when the Significant Noise-Generating (SNG) source is in within 1,000 feet of a residential property or noise-sensitive area.
- Noise-mitigation equipment, structures, products, and materials or other alternate methods as approved by the authority having jurisdiction may be used to ensure compliance.

Human Safety and Quality-of-Life Protections

- To ensure safety and quality-of-life for residents, oil and gas wells must be set back at least 500 feet from a house or other domestic structure.
- Drilling and production should be located away from residences, businesses, schools, hospitals, nursing homes, and churches. Specific local regulations should be in place to ensure safety and emergency preparedness.
- Increase local, state and federal regulations to ensure the safety of human health and the environment as a result of oil and gas development.
- All drilling, completion and production operations shall be conducted in such a manner as to minimize, so far as practicable,

dust, vibration and noxious odors, and shall be conducted in accordance with generally accepted practices incident to such operations in urban areas. All equipment used in such operations shall be operated in such a manner as to minimize dust, vibration and noxious odors so far as practicable. Proven technological improvements in industry standards of drilling, completion and production in urban areas shall be adopted as they become available if capable of significantly reducing factors of dust, vibration and odor.

Wildlife, Wetland and Habitat Protection

> Remote monitoring and control devices must be installed to limit access by persons other than essential gas field personnel in and near wildlife habitat, wetlands, and other environmentally sensitive areas.
> Drilling activity must carefully comply with lease and permit stipulations and limit or exclude public access on oil and gas field roads.
> Whenever practical, bury utilities, particularly in and critical habitat for sensitive species. Minimize the disturbance footprint by burying utilities along roads rather than cross-country.
> Any aerial power lines should be spaced to prevent or minimize wildlife deaths.
> Existing power poles should be modified to prevent perching.
> Any pits or tanks now in use should be fenced and covered to prevent entry by birds and other wildlife, including amphibians.

Goal 3

A greenway plan and program using floodplains, drainage basins, and unbuilt land connects neighborhoods with parks, schools, community destinations and downtown.

Policies:

- ***Expand and build upon existing green space network plans.***
- ***Promote and facilitate partnerships with public and private land owners to provide public access to greenways and waterfront areas.***
- ***Require safe pedestrian links to greenway networks in new development.***

STRATEGIES

A. Create an area-wide greenway plan integrated with a network of on-street bicycle and pedestrian routes.

The abundance of vacant land in the City of Shreveport is a problem from one perspective, but it also offers an opportunity to create a signature greenspace network, including an integrated greenway system. (See Chapter 8 for more information on bike lanes and bike/pedestrian paths.)

Actions

1. **Develop a greenway plan that promotes the long-term vision of area-wide greenway circuits, while also providing criteria for incremental connections.**
   A greenway plan that lays out a compelling vision for greenway connections throughout the Master Plan Area and into neighboring parishes can become a powerful symbol. For example, the 200-mile Bay Circuit Trail, conceived in 1929 as an "outer emerald necklace" of parks linking 50 cities and towns around Boston, is today almost complete. At the same time, a greenway plan must include criteria for making choices about incremental linkages and guidance on where and how to do it. Where separated rights-of-way are not possible, the greenway network should be well-linked with on-street bicycle and pedestrian routes.

Principles for New Zoning

- Allow for land banking of parking facilities—where a portion of a parking area is kept in green space until the paving of additional parking areas is proved necessary because of sufficient parking demand—to reduce impervious surfaces.
- Allow urban agriculture in appropriate locations, including small scale beekeeping, poultry and similar activities, where appropriate. In addition, community gardens can be permitted as well as required for certain types of new construction, such as large multifamily developments.
- Permit temporary farmers markets in certain districts, subject to regulations, so that locally-grown produce can be sold within the community.
- Allow small-scale food processing in certain commercial districts.
- Permit solar collectors as an accessory use but with the proper zoning standards in place to minimize negative aesthetic impact.
- Create building siting guidelines for larger developments to allow for passive solar systems.
- Allow small-scale wind energy systems, subject to standards that regulate noise levels at the property line.
- Require bicycle parking facilities for certain types of new development, as well as bicycle storage facilities in larger residential development.
- Establish standards that address the number of bicycles to be accommodated for various land use categories.
- Require setback maximums or build-to standards to establish the desired scale of development within areas where a pedestrian-orientation is desired.
- Require pedestrian cross-access connections between sites and to adjacent developments, to create a larger, walkable environment, shared parking, and fewer curb cuts.
- Regulate the spacing of curb cuts to preserve sidewalk continuity for pedestrians and preserve on-street parking spaces.

Oil and Gas Regulations

Although the state governs where oil and gas wells can be drilled and how surface water is used in drilling activity, local jurisdictions can enact regulations about how wells are drilled and operated, and to mitigate impacts. The State Office of Conservation adopted Order U-HS for the Haynesville Zone in 2009, but several areas of concern remain that local jurisdictions may address.

- Require a noise management plan before operations begin detailing how the equipment used in the drilling, completion, transportation or production of a well complies with maximum noise levels allowed under local law. (Caddo and Bossier Parishes have contracted consultants to recommend maximum noise levels and expect to adopt regulations in Fall 2010.)
- Require well operators to immediate contact local governments when specific well incidents that need to be reported, such as spills.
- Limit heavy truck traffic to roadways designed for commercial loads and issue permits with approved routes.
- Regulate pipelines in public rights-of-way and across public property so that pipeline operators do not interfere with or damage existing utilities; provide local governments with a plat identifying pipeline locations, with a detailed cross section and GIS data.
- Require fencing and landscape maintenance near drill sites to prevent fire hazards.