

Document Review for Water Resource Protection		
City of Lake Angelus		
July 26, 2005 (Revised per community comments)		
Criteria	Yes/ No	Comments
Storm Water Management		
I. Storm Water Management Standards		
A. Plans and Policies:		
1. Does the Master Plan call for the preservation of natural features as parkland and/or in open space developments to help alleviate problems associated with storm water runoff?	Yes	Discusses this in the Conservation Plan (part of Master Plan).
2. Does the Master Plan identify storm water management as an important community goal or policy?	Yes	Section 7.4 discusses the importance of natural feature preservation to proper management of storm drainage.
3. Does the Master Plan state both the quality and quantity of storm water are important issues to address in storm water management policies?	No	Generally just discusses water quality.
4. Does the Master Plan relate storm water management to the protection of health, safety and welfare of the community's residents? (For example, storm water management can reduce flooding, improve water quality, etc.)	Yes	
B. Development / Redevelopment Regulations:		
1. Does the Zoning Ordinance require that developers preserve natural drainage patterns to the fullest extent possible?	Yes/No	Section 1242.04, Site Plan Review, states that natural drainage and vegetation will be preserved. However, Section 1248.05 states that principal buildings shall be constructed in a manner that preserves <i>or restores</i> the existing land contours of the building site. This language would permit clearing a site of existing vegetation, and then restoring the topography.
2. Do you regulate storm water in your community?	No	
3. If yes, are your regulations coordinated with the County's storm water regulations so that your rules do not contradict the County's?	N/A	
4. If your community regulates storm water, do your regulations address the following:		
a. Are there storm water guidelines that fully detail specific storm water design criteria?	N/A	
b. Maintain or establish buffer strips (between 30 and 100 feet wide) from the top of bank of any watercourse or surface water?	N/A	
5. Does the Zoning Ordinance include flood control and water resource protection performance standards?	No	But there are criteria of Site Plan Review that apply (just not "performance standards.")
6. If yes, do they address the following to reduce the quantity of runoff and improve runoff quality:		
a. Limit land disturbance and grading?	Yes	Site Plan Review criteria states that natural drainage will be preserved, and grading will not materially change the natural character of the site.
b. Maintain vegetated buffer strips and other existing vegetation to improve infiltration of storm water?	No	
c. Minimize impervious surfaces?	No	
d. Encourage the use of infiltration devices?	No	

II. Engineered Best Management Practices (BMP's)		
A. Plan and Policies		
1. Does the Master Plan include goals / policies that encourage the use of Best Management Practices (BMP's) to minimize, collect, and treat storm water?	No	But it does have a policy to mitigate impacts of new development on natural features.
B. Development / Redevelopment Regulations:		
1. Does the Zoning Ordinance require the use of BMP's when possible?	No	
2. Does the Zoning Ordinance require the use of above ground BMP's instead of belowground storm water conveyance systems?	No	
3. Does the Zoning Ordinance prohibit direct discharge of storm water into wetlands, streams or other surface waters without pre-treatment?	No	But the Site Plan Review criteria say that runoff of fertilizers and other detrimental substances into the Lake will be prevented.
4. Does the Zoning Ordinance call for periodic monitoring of BMP's to ensure they are working properly?	No	
5. Does the Zoning Ordinance require that all storm water management systems and / or BMP's be maintained?	No	
C. Design Standards:		
1. Do the Design Standards provide minimum guidelines for BMP's that pre-treat and filter storm water, and retain storm water in a bio-retention facility?	Yes	Is coordinated with the State's construction code.
III. Infiltration		
A. Plans and Policies		
1. Does the Master Plan call for the preservation of natural features for the purpose of preserving the existing infiltration of storm water?	No	But it talks about the importance of the preservation of wetlands, woodlands, groundwater recharge areas, and vegetation along drainage corridors and the lake to water quality.
B. Development / Redevelopment Regulations:		
1. Does the Zoning Ordinance call for the use of BMP's that improve a site's infiltration potential?	No	
Impervious Surface Reduction		
I. Reducing Impervious Surfaces		
A. Plans and Policies:		
1. Does the Master Plan call for minimizing impervious surfaces in new construction and redevelopment projects to reduce the amount of runoff and improve infiltration?	No	
2. Is the Master Plan goal of reducing impervious surface tied to protecting the health, safety and welfare of residents through protection of water quality, natural features and open space?	N/A	
II. Parking Lots		
A. Development / Redevelopment Regulations:		
1. Does the community have flexibility in the parking ordinance to reduce the number of spaces constructed if warranted by the proposed development?	N/A	The City does not have any parking regulations.
2. Is some portion of a parking lot required to be planted with trees / vegetation within the parking lot paving?	N/A	
B. Design Standards:		
1. Are shared parking facilities encouraged?	N/A	
2. Are spaces having smaller dimensions for compact cars encouraged?	N/A	

3. Are developers encouraged to use parking lot islands as stormwater infiltration areas?	N/A	
III. Street and Access		
A. Development / Redevelopment Regulations:		
1. Does the community have jurisdiction over roads?	No	
2. If yes, do regulations pertaining to roads include the following standards:		
a. Are streets to be designed with the minimum required pavement width needed to support travel lanes, emergency, maintenance and service vehicles?	N/A	
b. Are right-of-way widths minimized to avoid mass clearing and grading?	N/A	
IV. Lot Setbacks / Lot Width / Lot Coverage		
A. Development / Redevelopment Regulations:		
1. Does the Zoning Ordinance allow for the relaxation of side yard setbacks and narrower frontages to reduce the total road length (and overall site imperviousness)?	No	
2. Does the Zoning Ordinance allow for the relaxation of front yard setbacks to reduce driveway lengths (and overall site imperviousness)?	No	
Land Conservation and Development Techniques		
I. Open Space / Park Acquisition		
A. Plans and Policies:		
1. Does the Master Plan and/or Recreation Master Plan call for community acquisition of open space?	No	But it does discuss a Conservation Plan. City-owned land is to be preserved in its natural state, and private properties that form a "greenbelt" around the City is mapped.
2. Does the Master Plan and/or Recreation Master Plan recognize the importance of open space preservation as a way to protect the health, safety and welfare of residents, protect vital air, land and water resource quality, to buffer air and noise pollution, preserve wildlife habitat, and preserve aesthetic values and the community's beauty?	Yes	
II. Conservation Easement and Similar Tools		
A. Plans and Policies:		
1. Does the Master Plan call for the use of conservation easements or other tools to conserve open space within the community?	No	The Conservation Plan discusses the use of "voluntary" efforts to preserve green space on private property.
III. Clustering and Open Space Developments		
A. Plans and Policies:		
1. Does the Master Plan include goals to preserve natural features and protect the quality of vital air, land, and water resources while accommodating development?	Yes	
B. Development / Redevelopment Regulations:		
1. Does the community have a Clustering and/or Open Space Ordinance?	No	
2. Are flexible site design criteria available for developers that use open space or cluster design options? (Ex. Relaxed setback widths and sidewalk requirements.)	N/A	
3. Are open spaces required to be consolidated into larger units, or required to be a minimum size or width?	N/A	

4. Does the open space have to be managed in a natural condition?	N/A	
5. Is open space required to be protected through a conservation easement or other similar mechanism?	N/A	
IV. Urbanized Communities		
A. Plans and Policies:		
1. Are infill developments encouraged in areas that already have significant development?	No	
B. Design Standards:		
1. Are infill and redevelopment projects encouraged to promote conservation and natural resource preservation?	N/A	
2. Are re-development projects required to coordinate improvements with existing facilities and infrastructure?	Yes	The community has "big foot" provisions, stating that any new structure have the same footprint as the previous structure.
V. Rural Communities		
A. Plans and Policies:		
1. Is agriculture described in the Master Plan as an economically viable profession in the community?	No	
2. Have prime and unique agricultural lands been identified and mapped in the Master Plan?	N/A	
B. Development / Redevelopment Regulations:		
1. Has the community designated an Agricultural Zoning District?	N/A	
2. Does the Agricultural Zoning District also consider the preservation and protection of natural features, such as wetlands or groundwater?	N/A	

Erosion and Sedimentation Control

I. Erosion and Sedimentation Control (ESC):		
A. Plans and Policies:		
1. Is erosion and sedimentation control identified in the Master Plan as an important mechanism to protect the health, safety and welfare of residents through protection of water and soil resources?	Yes	A specific section on soil erosion control is not included in the Master Plan, but many sections (such as wetlands, drainage systems, and others) discuss the importance of minimizing grading to protect water quality.
B. Development / Redevelopment Regulations:		
1. Does the Zoning Ordinance address erosion and sedimentation controls?	Yes	Section 1470 states that the City appoints an Earth Change Official, and Deputy Official as the enforcing agents. The Standards and Specifications of Oakland County Soil Conservation District are used to control soil erosion within the City.
2. If yes, is the program coordinated with the County's program?	N/A	They use the County's standards.
3. If yes, does the community's program include the following standards?		
a. Require that soil erosion control measures be in place before granting a building permit?	N/A	
b. Protect waterways and stabilize drainageways by requiring mechanisms, such as silt fencing, at the edge of the waterway buffer and special crossing and diversion techniques at waterway crossings?	N/A	
c. Require that all erosion and sedimentation controls be maintained?	N/A	
d. Require that all erosion and sedimentation controls be monitored on a periodic basis?	N/A	
e. Methods to respond to public complaints regarding construction site erosion control?	N/A	

4. Is your community the enforcing agent for erosion and soil sedimentation protection?	Yes	
5. If no, does the community staff report erosion problems to the County enforcing agency?	N/A	
6. If yes, has your community implemented the following administrative procedures?		
a. Have the changes to the State's law (effective 2000) been incorporated into your ESC regulations?	N/A	

Sanitary Sewer Planning and Infrastructure

I. Sanitary Sewer Planning and Infrastructure		
A. Plans and Policies:		
1. Does the Master Plan address sanitary sewer planning?	No	The entire City is served by OSDS. They have discussed hooking up to a sanitary system, but to date have considered it too costly.
2. If yes, does the Master Plan tie sanitary sewer planning to protection of the health, safety and welfare of residents?	N/A	
3. If yes, does the Master Plan address the following:		
a. Has the community delineated a Sewer Service Area?	N/A	
b. Has the Sewer Service Area been mapped, including all the facilities in the system (such as manholes, pipes, etc.)?	N/A	
c. Is the map to be used in zoning decisions?	N/A	
II. Septic Systems		
A. Plans and Policies:		
1. Does the Master Plan identify areas that are suitable and unsuitable for septic systems?	No	The entire City is served by OSDS. The Master Plan talks about evaluating septic fields to protect the environment.
2. Does the Master Plan state that community involvement in placement and maintenance of septic systems is critical to the health, safety and welfare of residents?	No	
B. Development / Redevelopment Regulations:		
1. Are regulations that pertain to septic systems coordinated with the County's regulations?	Yes	Section 1242.04, Site Plan Review, states that waste water treatment systems will be located to minimize any potential degradation of surface or groundwater quality and meet City, County, and State standards.
2. Does the Zoning Ordinance require that a septic system location be at least 100 feet from a lake, wetland, stream, or other water feature?	Yes	
3. Does the Zoning Ordinance specify a minimum isolation distance from residential and community wells?	No	
III. Minimizing Inflow		
A. Development / Redevelopment Regulations:		
1. Does the community prohibit connecting downspouts to the storm water system?	No	
2. Does the community have a program to identify and disconnect footing drains from sanitary sewer lines?	N/A	The City has no sanitary sewer lines.
IV. Illicit Discharge Elimination		
A. Plans and Policies:		
1. Has the community identified and/or mapped the community's drainage system, including all points of discharge and locations of illicit discharges to the drainage system?	Yes	The City has submitted an Illicit Discharge Elimination Plan to the MDEQ which will identify locations of illicit discharges.

2. Does the community have a program for identifying illicit discharges, and eliminating them?	Yes	
3. Does the community have a program to identify sanitary sewer or septic systems that are seeping into the storm water system, surface waters or groundwaters?	Yes	Starting this summer, the community is conducting a voluntary program to have septic fields tested.

Groundwater

I. Mapping		
A. Plans and Policies:		
1. Do Master Plan goals call for the identification and mapping of groundwater recharge areas?	No	
II. Groundwater Protection		
A. Plans and Policies:		
1. Does the Master Plan recognize the importance of the groundwater to the health, safety and welfare of its residents?	Yes	The plan specifically talks about the importance of groundwater to the City's residents.
2. Does the Master Plan identify groundwater as an important natural resource, and call for its protection?	Yes	
B. Development / Redevelopment Regulations:		
1. Is ground water considered in the zoning designations of parcels?	No	
2. Are there additional requirements for site plan submittals in groundwater recharge areas?	No	However, the Site Plan Review criteria state that wastewater treatment systems will be located to minimize any potential degradation of surface or groundwater quality.
III. Wellhead Protection		
A. Plans and Policies:		
1. Does this community have municipal well fields?	No	
2. If yes, has the community done the following:		
a. Identified the area that contributes to the community's water supply?	N/A	
b. Identified sources of contamination within this area?	N/A	
c. Developed methods to cooperatively manage the area and minimize any threats to the public water supply?	N/A	

Greenways

I. Greenway Plan		
A. Plans and Policies:		
1. Does the community have a greenway plan or support greenways through its Master Plan or Recreation Master Plan?	Yes	The Conservation Plan calls for a "greenbelt" surrounding the City. The purpose of this greenbelt is to maintain a ring of open space around the City to preserve its natural character.
2. If yes, does this plan do the following:		
a. Identify greenways as important natural transportation corridors for wildlife, and for the protection of other natural features?	Yes/No	The plan talks about including protected resources, such as wildlife habitat areas, within the greenbelt, but doesn't specifically talk about natural transportation corridors.
b. Connect many natural areas within the community?	Yes	

c. Connect the community's greenway plan with adjacent communities', County's or regional greenway plans?	No	

Habitat Preservation

I. Natural Area Preservation / Restoration

A. Plans and Policies:		
1. Does the Master Plan call for preservation of natural areas for wildlife habitat protection?	Yes	The Conservation Plan talks about including "wildlife areas" within the preserved lands.
2. Does the Master Plan link habitat preservation to protection of the health, safety and welfare of residents through natural resource preservation?	Yes	The Plan discusses the Staff-Wildlife Sanctuary as a place for recreation opportunities, as well as wildlife preservation. In addition, preservation of wetlands, woodlands, groundwater, etc. talk about the benefits to health, safety and welfare of residents.
3. Has the community identified high quality natural areas to be preserved?	Yes	
4. Does the community have a plan to protect the high priority areas?	Yes	The Conservation Plan.

II. Native Plant Species

A. Plans and Policies:		
1. Does the Master Plan recognize the importance of native vegetation in the protection of vital air, land and water resource quality, to buffer air and noise pollution, preserve wildlife habitat, and preserve aesthetic values and the community's beauty?	Yes/No	The Woodlands preservation policy talks about preserving woodlands, and mentions native trees, but is not specific about the benefits of "native" vegetation. It may be assumed that "woodlands" are made up of all native species.
B. Design Standards:		
1. Do the Design Standards specify the use of native plant species in the storm water system to help reduce storm water velocities, filter runoff and provide additional opportunities for wildlife habitat?	No	

Wetland Preservation

I. Inventory

A. Plans and Policies:		
1. Has the community compiled and mapped a wetland inventory?	Yes	
2. Are identified wetlands categorized by whether or not they are suitable for storm water storage?	No	

II. Wetlands Protection

A. Plans and Policies:		
1. Does the Master Plan recognize the importance of wetlands, and the functions they play in protecting residents' health, safety and welfare from problems such as flooding and poor water quality?	Yes	
2. Does the Master Plan call for the protection of wetlands within an ecosystem context (protecting adjacent uplands, waterways, and vegetated buffers as well)?	No	
B. Development / Redevelopment Regulations:		
1. Has the community adopted a local wetlands ordinance that protects wetlands less than five acres in size?	Yes	Part 77 of the Ordinance book, page 527...Wetlands Ordinance #48.
2. Is this ordinance coordinated with the State's wetlands regulations?	Yes	

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Woodlands Preservation		
I. Inventory		
A. Plans and Policies:		
1. Has the community conducted a woodlands inventory and mapped this information?	Yes	
II. Woodlands Protection		
A. Plans and Policies:		
1. Does the Master Plan recognize the importance of woodlands to protect any of the following: water, air and soil quality, to buffer air and noise pollution, to moderate local climate and storm hazards, to preserve wildlife habitat, and to preserve aesthetic values and community beauty?	Yes	
2. Does the Master Plan recognize the importance of woodlands for storm water infiltration, thus reducing flooding and minimizing water pollution?	Yes	The Plan says that woodlands protect water quality, but it doesn't mention "infiltration."
3. Does the Master Plan identify woodlands as an important landscape feature that protects the health, safety and welfare of residents?	Yes	Doesn't say "health, safety and welfare" specifically, but talks about water, soil and air quality, mitigate noise pollution, moderate local climate and storm hazards, etc.
B. Development / Redevelopment Regulations:		
1. Has the community adopted a local woodlands or tree protection ordinance?	No	
2. Are woodlands defined in a broad manner so that existing trees and remnant woodlands are also protected?	N/A	
3. Does the ordinance require replacement of trees that are removed?	N/A	
Stream Corridors and Flood Plains		
I. Stream Corridors		
A. Plans and Policies:		
1. Does the Master Plan indicate the importance of any of the following: riparian buffers to assist in flood control, protect the streambank from erosion, remove pollutants from storm water runoff, provide food and habitat for wildlife, prevent sediment from settling in the water course, provides tree canopy to shade streams, and promote desirable aquatic organisms, scenic value and recreational opportunities?	Yes/No	The Plan talks about the importance of natural vegetation along drainage corridors to reduce runoff, sedimentation, and water quality degradation. Note that the only inflow into the Lake is through the wetland on the north side of the Lake.
2. Does the Master Plan state that protection of stream corridors is important in promoting the health, safety and welfare of residents through flood control, and water quality and riparian corridor preservation?	Yes	
B. Development / Redevelopment Regulations:		
1. Are regulations coordinated with regulations protecting County drains?	N/A	The City does not have specific development standards protecting stream corridors. However, the Site Plan Review criteria states that natural drainage shall be preserved.
2. Does the community require naturally-vegetated buffers along drainageway corridors?	No	
3. Does the community restrict development adjacent to stream corridors to those which do any of the following: offer no danger of topographical disturbance to the corridor, degradation to water quality, increased runoff, sedimentation, stream channel alterations, or degradation of dependent, non-hydrologic resources (i.e. flora and fauna)?	No	

II. Flood Control		
A. Plans and Policies:		
1. Does the Master Plan identify floodplain protection as important for any of the following to promote the health, safety and welfare of residents: flood control, stream bank protection, pollutant filter, wildlife habitat, reduce sedimentation, shade watercourse and provide scenic value and recreational opportunities?	No	However, the plan mentions in the policy regarding the Conservation Plan that flood hazard areas should be incorporated into the open space system.
2. Does the community call for coordination of their efforts to protect the floodplain with adjoining communities and the County?	No	
B. Development / Redevelopment Regulations:		
1. Does the community participate in the National Flood Insurance Program?	Yes	
2. If yes, does the community have an overlay zone or other ordinance language that protects floodplains from undesirable development?	N/A	FEMA program requirements are used.
3. Do the community's floodplain regulations address the following:		
a. Provide for assessing the impacts of flood management projects on water quality?	N/A	
b. Provide for adding BMP's to existing projects?	N/A	

Capital Improvement Plan

I. Capital Improvement Plan		
A. Plans and Policies:		
1. Does the community have a Capital Improvement Plan?	No	
2. If yes, does the Master Plan link the Capital Improvement Plan with the protection of the health, safety and welfare of residents?	N/A	
3. If a Capital Improvement Plan is in place, does the plan:		
a. Include policies related to natural resource protection?	N/A	
b. Include standards as the basis for design of storm water and sanitary systems?	N/A	
c. Include capital improvement for installation, maintenance and replacement of storm water utilities?	N/A	
d. Include capital improvement for installation, maintenance and replacement of sanitary sewer utilities?	N/A	
e. Call for the use, maintenance and replacement of storm water BMP's?	N/A	

Watershed Issues

I. Watershed Activities		
A. Plans and Policies:		
1. Does the Master Plan identify the watershed(s) in which the community is located?	No	
2. Does the Master Plan call for protection of watershed resources in order to protect the health, safety and welfare of residents?	No	

Public Education		
I. Public Education (Including Phase II Requirements NOT mentioned previously)		
A. Plans and Policies:		
1. Does the community have a system in place to distribute environmental education information?	Yes	They have submitted a Public Education Plan to MDEQ.
2. Has the community encouraged residents to report illicit discharges or improper disposal of materials into storm drains or natural water bodies?	Yes/No	This activity is part of the IDEP, and will be implemented by the Oakland County Drain Commissioner's Office.
3. Has the community educated commercial, industrial and institutional owners and tenants on how to reduce significant storm water impacts?	Yes/No	The community is planning on doing this when the PEP is implemented. Note that the City has no industrial or commercial land uses. However, it has made an effort to educate homeowners who use lawn care companies to notify them of the City's fertilizer/pesticide ordinance, which limits use of these chemicals to a certain distance from the Lake.
Pollution Prevention and Housekeeping Practices		
I. Storm Water System Maintenance		
A. Plans and Policies:		
1. Does the community have a program in place to regularly clean out, maintain and/or inspect structural controls (such as catch basins, vegetated swales, infiltration basins, sedimentation basins, etc.)?	Yes	
2. Does the community have a program that labels outfall structures that discharge runoff to natural systems?	N/A	City doesn't have any outfall structures.
II. Roadways		
A. Plans and Policies:		
1. Does the community have jurisdiction over streets?	No	
2. If yes,		
a. Does the community sweep the streets monthly or more often in high construction areas?	N/A	
b. Does the community evaluate the amount of salt and/or sand that is applied to its roads in the winter?	N/A	
c. Does the community provide leaf collection in the fall?	N/A	
III. Public Facilities Maintenance		
A. Plans and Policies:		
1. Does your community have a maintenance building?	No	
2. If yes, does the following occur:		
a. Confirm that floor drains are connected to a sanitary sewer, or sealed?	N/A	
3. Does the community maintain its own vehicles?	Yes	City maintains Police vehicles, but maintenance is done in a commercial auto business.
4. If yes, is a regular schedule of maintenance followed?	Yes	
5. Are vehicles or other equipment maintained and cleaned where fluids and/or cleaning water will not flow into the street, gutter, storm drain or water body?	N/A	
IV. Landscaping Practices		

A. Plans and Policies:		
1. Does the community have a schedule of landscape maintenance practices for municipal property?	No	
2. Are employees trained on the proper application of chemical pesticides, herbicides and fertilizers?	N/A	City resident mows lawn at City Hall. (Only municipally-owned lawn).
3. Are soils tested on municipal property before fertilizers are applied?	N/A	
4. Does the community use native vegetation in landscaping their properties?	N/A	
5. Does the community encourage landscaping with native plant species throughout the community?	Yes	Encouraging residents to use native plant species.

The Development Review Process

I. Site Plan Review		
A. Development / Redevelopment Regulations:		
1. Is the review process coordinated with the receipt of applicable County and State permits?	Yes	Requires a soil erosion permit application before the Planning Commission receives the plans.
2. Does the Zoning Ordinance require that developers preserve natural features, such as lakes, ponds, streams, floodplains and floodways, wetlands, woodlands, steep slopes, and natural drainage patterns to the fullest extent possible?	Yes	
3. Are BMP's required to be labeled and shown, in detail, on the site plan so that they can be reviewed for effectiveness during the site plan review process?	No	
4. Is a Soil Erosion and Sedimentation Control Plan required as part of the site plan review process?	Yes	
5. Are developers required to show all natural features on site plans, such as lakes, ponds, streams, rivers, floodplains and floodways, wetlands, woodlands, steep slopes, and natural drainage patterns?	Yes	However, it does not ask for floodplains/ floodways, steep slopes, or natural drainage patterns.
II. Pre-Construction Meetings		
A. Development / Redevelopment Regulations:		
1. Is the construction sequence required to start with a pre-construction meeting?	No	
III. Construction		
A. Plans and Policies:		
1. Does the community chart the progress of all construction projects to ensure that they are in compliance with the approved site plan?	Yes	Have contracts with a building inspector and engineering firm to perform regular inspections on new construction.
B. Development / Redevelopment Regulations:		
1. Is a Pre-winter meeting required to assess whether the existing soil cover will provide adequate soil erosion and sedimentation control during winter months?	No	