

## Chapter 9 - ENVIRONMENTAL CONSIDERATIONS

The following discussion of the environmental considerations relevant to transportation infrastructure within the City of Mountlake Terrace includes excerpts from the Environment Element of the MLT Comprehensive Plan.

The overall purpose of the Environment Element is to provide policy guidance for the long-term preservation of environmentally sensitive areas and how the built environment (including transportation improvements) should co-exist with the natural environment.

The Growth Management Act, which guides the development of local comprehensive plans and regulations, requires local governments not only to have adequate supporting transportation infrastructure either already in-place or is built concurrent with development, but also obligates that these improvements be planned to support a healthy environment. A relevant goal in the Act is as follows:

- Protect the environment and enhance the State’s high quality of life, including air and water quality, and the availability of water.

Environmental regulations have increased attention on the impacts development has on natural systems. The environmental information contained in the Environment Element is designed to present an overview of the existing environmental conditions and features within the City and the Puget Sound region. This information provides the basis for identifying key environmental issues that can be addressed through goals and policies that reflect the regulatory requirements and community values.

### **BACKGROUND**

Environmental quality within the City of Mountlake Terrace is similar to elsewhere in the Puget Sound region. As in many other communities, the concern regarding environmental quality has moved beyond preservation of natural functions to restoration and management of these important functions that may be affected as the region grows into a more metropolitan urban environment. The City also recognizes that the quality of the natural environment is an important factor in determining the overall quality of life for Mountlake Terrace residents and businesses.

Together with the federal and state governments, local government is a trustee of its natural environment. As such, the City develops plans, adopts and enforces specific environmental regulations, and educates residents with respect to protecting and restoring sensitive environmental processes.

Examples of the City’s actions relevant to transportation include:

- Updating storm drainage regulations for consistency with the State Department of Ecology Storm Drainage Manual;
- Updating road maintenance practices; and
- Compliance with NPDES II (regulation of pollutants into natural water resources) Requirements.

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## COMPONENTS OF THE ENVIRONMENT ELEMENT OF THE MLT COMPREHENSIVE PLAN

The Existing Conditions and Needs section of this Element provides a detailed narrative of the status of key biological and geological environmental issues. These include air quality, critical areas, water and hydrology and trees and vegetation.

### AIR QUALITY

Air quality within the Puget Sound air shed is regulated at both the national level and the regional level through the Clean Air Act. Air quality is generally assessed in terms of whether concentrations of air pollutants are higher or lower than ambient air quality standards set to protect human health and welfare. Air pollution has a disproportionate effect on sensitive groups such as children, the elderly, and people with heart and lung diseases. Air pollution is also a quality of life issue.

The primary source of air pollution in the Puget Sound region are vehicular traffic. Motor vehicles contribute approximately 55% (2018) of the air pollution in the state of Washington.

### CRITICAL AREAS

Environmentally critical areas perform a variety of valuable and beneficial biological and physical functions. Some types of critical areas may also pose a threat to human safety or to public and private property if improperly developed. Designation and protection of critical areas is required by the Growth Management Act. Critical areas include: wetlands, fish and wildlife habitat, frequently flooded areas, aquifer recharge areas, and geologically hazardous areas

There are primarily two elements to consider when implementing transportation improvements in critical areas of the City; they include:

- 1] When a transportation improvement project encroaches on critical areas what actions must be taken to ensure the critical area is protected, and
- 2] What measures can be utilized during the design phase of the transportation improvement project can lessen the environmental impact of an existing critical area.

### WATER AND HYDROLOGY

Water temperature and the level of pollutants determine the quality of freshwater. Water temperature can vary naturally from year to year depending on weather conditions. Urban storm water runoff from sun-warmed paved surfaces is a major source of temperature variations in urban streams within the Puget Sound basin. Pollutants to freshwater arrive via surface runoff. Developments adjacent to freshwater sources without proper storm water management controls contribute to pollutant loading of freshwater bodies through storm water discharge to the freshwater bodies.

Storm water is precipitation that runs off surfaces such as rooftops, paved streets, highways, and parking lots. It can also come from hard, grassy surfaces like lawns, play fields, and from graveled roads and parking lots. This water drains to storm drains, streams, lakes and, eventually, to Puget Sound.

Storm water, if not properly managed, can pose both water quality and water quantity problems. Storm water typically contains heavy metals, oil and grease, organic toxins, bacteria, nutrients, and sediments. The sources of these pollutants include motor vehicles, industrial activities, construction activities, fertilizers, and erosion. These pollutants degrade water quality, harm or kill fish and other aquatic life, contaminate sediments, and can threaten drinking water supplies. Large volumes of storm water can degrade stream channels, alter or destroy fish and wildlife habitat, and cause flooding.

The EPA regulates discharge of storm water through the National Pollutant Discharge Elimination System (NPDES II). The Washington State Department of Ecology (DOE) is given the responsibility to administer this system. NPDES permits are issued for both construction and operation to Phase I jurisdictions (Snohomish, King, Thurston and Clark counties, the Cities of Seattle and Tacoma and the Port of Seattle). All other jurisdictions in Washington State with storm water outfalls for discharge of storm water to surface waters (including the City of Mountlake Terrace) operate their storm water management program under the Phase II portion of the permit. DOE published a guidance document, *Storm water Management Manual for Western Washington* in August 2001 to guide local governments to better management of storm water. This guidance document was most recently updated in 2019. The NPDES program administered by DOE requires local governments to adopt the DOE storm water manual or an equivalent manual. The City of Mountlake Terrace uses the current DOE manual, but may adapt specific items to fit requirements and needs of Mountlake Terrace. The DOE manual and any revisions have been regularly adopted into the City's development regulations.

## TREES AND VEGETATION

Trees and vegetation perform many important functions, including the ability to:

- 1] Reduce Energy Costs - Trees have been called the “low tech” solution to energy conservation. Shade from trees reduces the need for air conditioning in summer. In winter, trees break the force of winter winds, lowering heating costs.
- 2] Clean the Air - Trees produce oxygen that we breathe. In addition, trees remove air pollution by lowering air temperature, by releasing water into the atmosphere, and by retaining particulates. By reducing the need for heating and cooling systems, trees also reduce emissions that contribute to atmospheric carbon dioxide and the greenhouse effect.
- 3] Clean the Water - Many plants take up nutrients that would otherwise be carried down through the soil into the ground water supply. Wetlands and wetland buffer areas are in particular effective at removing contaminants from urban runoff resulting in clean water to feed creeks and streams.
- 4] Produce Economic Benefits - Trees add value to retail areas by making them more attractive places for shopping. Trees along streets and on private property increase property values.
- 5] Screen Noise and Undesirable Views - Strips of densely planted trees and shrubs will not completely remove the annoyance of city noise, but they can significantly reduce it. Urban forestry researchers have shown that even narrow belts of trees can reduce noise by three to five decibels. In addition, trees can provide privacy or screen out undesirable views.

- 6] Increase Walkability and Health - Trees and vegetation along streets, especially in planter areas between the curb and sidewalk, make walking more pleasant and make it feel safer, thus increasing the number of pedestrians.
- 7] Attract Wildlife - Trees can provide habitat for songbirds and other desirable wildlife, adding natural sounds and beauty in the urban environment.
- 8] Slow Runoff and Prevent Erosion - The leaves of trees break the force of rain, reducing flooding by helping water percolate into the soil instead of quickly running off. Tree roots also help hold the soil in place on steeper hillsides, preventing erosion and improving water quality.
- 9] Reduce Stress - Medical studies have established that the presence of, especially trees, and other vegetation, can improve emotional and psychological health, reduce blood pressure, stress, and cortisol levels. Trees and other vegetation put people at ease, providing a pleasing visual aesthetic experience.
- 10] Increase Safety - Use of trees and other plant material reduces stress, enhances people's sense of wellbeing, encourages walking leading to more neighborly contact and interaction and even reduce crime (more eyes on the street).
- 11] Restore Habitat and Biodiversity - Trees provide food and shelter for birds and small mammals.

Trees and vegetation increase the quality of life at all levels and are especially valuable in an urban environment. Proper stewardship of trees and other vegetation in the community will help to maintain and/or improve the economic, social, built, and natural environments.

## SUSTAINABILITY STRATEGY

Broad public discussion of environmental issues and the need for critical area regulations in 2004 led to a city decision to develop a conservation or sustainability strategy. ("Sustainability" is a term often used to mean a way of ensuring quality for the environment, economy, and community livability *all together* over the long term.) The strategy is focused on proactive ways that the city can foster improving the natural environment, as well as the economic climate and community quality of life, in Mountlake Terrace. In 2008, the Sustainability Strategy was completed and adopted. It incorporated key recommendations for conserving natural resources and the natural environment, while at the same time providing for healthy economic conditions and community livability. The Strategy identified a variety of approaches and performance measures to help implement the sustainability goals and policies, and sustainable practices.

## LOW IMPACT DEVELOPMENT APPLICATIONS

Low Impact Development (LID) are storm water and land-use management strategies that successfully mimic natural hydrologic field conditions by emphasizing the following techniques:

- 1] Conservation
- 2] Use of on-site natural features
- 3] Site planning
- 4] Distributed storm water best management practices (BMPs) integrated into a project design

Many communities are incorporating low impact development design elements in all types of construction projects, including transportation improvement projects. These techniques emphasize environmental protection by reducing storm water through groundwater absorption techniques or filtering storm water before it enters the storm water system.

The overall objectives for low impact development in transportation design include:

- 5] Reduce the total impervious area by reducing the overall road network coverage area.
- 6] Minimize or eliminate effective impervious area and concentrated surface flows on impervious surfaces by reducing or eliminating hardened storm water conveyance structures and utilizing permeable pavements.
- 7] Infiltrate and slowly convey storm flows in roadside bio-retention cells and swales, and through permeable paving and aggregated storage systems under the pavement.
- 8] Design the road network to minimize site disturbance, avoid sensitive areas, and reduce fragmentation of the landscape.
- 9] Create connected street patterns and utilize open space areas to promote walking, biking and access to transit and services.
- 10] Provide efficient fire and safety vehicle access.

In February of 2018, the City adopted Ordinance No. 2729, which identified Mountlake Terrace's details for low impact development. These requirements are part of a directive from the Department of Ecology that requires all Western Washington cities to review, revise and make effective local development-related codes, rules standards or other enforceable documents to incorporate and require low impact development (LID) principles and LID Best Management Practices (BMPs) to be in compliance with an NPDES permit.

The process for developing this planning document resulted in a series of four evaluation matrixes that sequentially formed the framework and the resulting policies identified in the ordinance. They included:

- Code review for low impact developments
- A decision matrix that examined the current status, issues, decision point and resulting parameters needed to support low impact development.
- Initial code revisions that to form solutions to these issues, and
- The resulting code revisions used in the Ordinance.

These tables and illustrations of LID facilities are provided in **Appendix E**.

Table 9-2 lists low impact development facilities that are recognized by the City for use with street and parking lot improvements and City-adopted storm water requirements.

TABLE 9-1 – LOW IMPACT DEVELOPMENT TECHNIQUES

<b>LID Facility</b>	<b>Comments</b>
Bioretention cells / rain gardens	Requires granular soils or under drain pipe, groundwater table to be at least 6 feet below surface
Bioretention swales	Requires granular soils or pipe under drain pipe
Sloped bioretention	For slopes greater than 10%
Permeable pavers in parking areas	Groundwater table needs to be at least 6 feet down
Permeable concrete in sidewalks	Groundwater table needs to be at least 6 feet down
Permeable asphalt in parking areas	Groundwater table needs to be at least 6 feet down
Permeable gravel pavement systems	Residential and some commercial property applications.
Reverse sidewalk slopes with filter strips	Limited use due to impacts to private property
Tree box filters	Well suited for urban environment with high removal efficiencies for many pollutants.

Another added benefit of utilizing low impact development facilities is the ability to incorporate them in traffic calming improvements in local neighborhoods. In these circumstances, low impact developments, which often use a substantial portion of the right-of-way are placed in wider planting strips and bulb-outs which are often used in the City's traffic calming program.