

8.0 EFFECTS ON THE USE AND CONSERVATION OF ENERGY RESOURCES

Both short-term and long-term energy consumption effects are associated with all residential construction projects. Short-term energy consumption impacts will occur during construction of the Lost Lake Resort development, primarily due to the consumption of fossil fuels through the operation of construction vehicles and power equipment. Energy will be used for the long term operation and maintenance of the project, as well as for ongoing house construction as individual lot owners develop their house lots.

8.1 Energy Sources

Construction Energy Sources

As provided in the project description, the Lost Lake Resort is expected to be developed over a period of decades, with certain infrastructure and resident amenities constructed in phases. The primary energy use during construction will be diesel fuel for construction equipment. Trucks, graders, excavators and similar equipment will be required for the grading, site work, construction of roads and installation of utilities and infrastructure. The actual construction of homes will require less heavy equipment, but will require the use of electricity for tools and fuel for the delivery of materials to and around the site. Lesser energy usage will include electricity for office space for construction and project management at the development site, throughout the construction period. The sources for this energy will be manufactured (diesel fuel) or generated (electricity) outside of the project site and generally outside of the Hudson Valley region.

Operational Energy Sources

The potential development of 2,557 single family residences, guest room lodging and amenities will place long-term demands on various energy sources. Once construction is completed, energy from several possible sources will be required for building heating, air conditioning, water heating, refrigerators and lighting as well as other appliances and incidental domestic electrical uses. Indoor climate control systems will demand the largest quantities of energy consumed over the lifetime of the project.

Energy sources for residential heating and cooling will include fuel oil, propane, electricity and potentially geothermal energy sources. Electricity will provide energy for lighting, heating water, appliances and other electrical uses. It is anticipated that some homes will incorporate solar panels or other alternative energy sources, although the proportion of such sources is expected to be small.

8.2 Green Building Design

The U.S. Green Building Council (USGBC) manages the Leadership in Energy and Environmental Design (LEED™) program, a voluntary, consensus-based, market-driven building rating system based on current technologies. Although energy efficiency is an important component of the program, LEED goes beyond energy to evaluate environmental performance from a whole-building perspective over the life of the building. USGBC provides a national certification for several levels of green buildings.

The LEED program is based on accepted energy saving and environmental principles and attempts to find a balance between known effective practices and emerging concepts. LEED is a self-certifying system designed for rating new and existing commercial, institutional, and residential buildings, based upon a system of environmental criteria and credits. Different levels of green building certifications are awarded, based on the credits earned.

The LEED Project Checklists include the following categories:

- Innovation and Design Process
- Location and Linkages
- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Awareness and Education, and
- Energy and Atmosphere.

The National Association of Home Builders has developed a similar green building rating system called “National Green Building Standard “ (NGBS). This rating system was accepted in January, 2009, by the American National Standards Institute (ANSI). The ANSI is a professional organization which develops standards for a range of products and guidelines for government and business and is the official U.S. representative to the International Organization for Standardization (ISO).

The National Green Building Standard, similar to the LEED system, provides a rigorous, independently verified method of building for environmental and efficiency standards. Like the LEED system, the NGBS requires an evaluation of performance across a range of categories, including: low impact development, resource conservation and durability, energy efficiency, water efficiency, enhanced indoor air quality, waste management, owner maintenance, and green education. The NGBS rating system has certain advantages, given that the system has been adopted by ANSI and was developed for the mainstream building community, according to the National Association of Home Builders.¹

The applicant has committed to meeting the “Certified” category with either LEED or the NGBS green building rating systems for all amenity buildings at Lost Lake Resort and will require in its Covenants and Restrictions and *Design Guidelines* that all future single family homes meet either LEED or NGBS “Certified” standards. Since LEED and NGBS certifications include both site design and individual construction details, any certification will require a joint effort between the project sponsor and individual building designers and owners.

According to the *Design Guidelines for Single Family Homes in Lost Lake Resort* (see Appendix E2):

"We require the design of residences within Lost Lake to be environmentally sensitive and meet current green building design and construction guidelines, and take advantage of new trends and technologies that implement these guidelines. All residences will be required to conform to the requirements

¹ Green Home Building Rating Systems - A Sample Comparison, National Association of Home Builders, March, 2008

necessary to attain a minimum level of certification through either the Leadership in Energy and Environmental Design (LEED) Guidelines for Homes, currently available from the United States Green Building Council (USGBC), or the NAHB National Green Building Program Specifications as set forth by the National Association of Home Builders. These guidelines evaluate environmental performance from a whole building perspective, and provide a definitive standard for what constitutes a green building."

In keeping with the desire to be an attractive, environmentally sensitive development, the applicant will require new homes to meet green building design and construction standards, and to seek either LEED or NGBS certification. With regard to the amenities, green building designs and sustainable development practices will be demonstrated in all phases of the project to achieve either LEED or NGBS certification.

8.3 Assessment of Energy Use and Greenhouse Gas Emissions

According to the Scoping Document approved by the Lead Agency, this DEIS will provide an assessment of energy use and those greenhouse gas emissions that are related to energy use. In response to NYSDEC initiatives, the DEIS shall qualitatively evaluate the potential greenhouse gas (GHG) emissions related to project energy use. This section will summarize both direct and indirect, and stationary and non-stationary emissions, as outlined in the NYSDEC *Guide for Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements (July 2009)*. This section provides mitigation measures or methods to reduce and minimize energy use and greenhouse gas emissions.

Energy conservation in New York is regulated at the state level for new residential and commercial construction. The Lost Lake Resort development will be constructed in accordance with the New York State Energy Code. In effect since 2002, the code specifies basic requirements that are mandatory for newly constructed buildings. Requirements apply to heating and cooling systems, hot water systems, electrical systems, construction materials, equipment specifications and building sealing and insulation. Additionally, the New York State Energy Research and Development Authority and the Public Service Commission promote compliance with Energy Star® and New York Energy SmartSM programs by construction firms, building management firms and homeowners that encourage the use of energy conserving appliances, materials, technologies and building techniques. Compliance with provisions of these energy conservation programs will reduce the overall long-term energy consumption of the project.

Greenhouse gas (GHG) emissions for the Lost Lake Report project are directly related to energy use and primarily related to fuel combustion. According to NYSDEC *Guide for Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements (July 2009)*, emissions of CO₂ account for and estimated 88% of total annual GHG emissions in New York. The great majority of these emissions (88.3 %) result from fuel combustion. The remaining proportion of GHG emissions come from electricity distribution, refrigerant substitutes, the management of municipal waste, municipal wastewater, and agriculture, as well as natural gas leakage.

The following is a discussion of potential energy use for both project construction and for project operation, following construction.

8.3.1 Construction Activity Energy Use

On-site Construction Energy Use

The project will require the on-going use of energy during the entire period of construction, from the initial Phase 1 construction of the Resort, roads and utility infrastructure, through the eventual Phase VII build-out of the residential development. Energy will be required for all aspects of construction, including: tree removal, site grading, transporting material and equipment around the property, and actual construction of the resort, roads, infrastructure and residences.

Off-site Construction Energy Use

Energy will be required for the manufacturing and transport of building materials for the project. Certain building materials will be manufactured locally or in the Hudson Valley, such as stone, rock for pavers and walls, cement and asphalt. The manufacture of these materials will require energy use in the Town of Fallsburgh and in the region. The energy required to transport these local materials will be less than for those manufactured outside of the local area.

Certain construction materials such as wood products, windows, flooring, carpet, hardware and plumbing and paint will be manufactured in other states outside of the United States. Energy use and associated greenhouse gas emissions will result in areas outside of New York and the Hudson Valley. The energy required to transport these materials to the Lost Lake Report site will be directly related to the distance required for transport.

The design of residences and common buildings and the selection of construction materials has an overall impact on the cumulative project energy use and generation of GHG emissions. Typically, modern construction material products and techniques are designed to reduce energy costs and therefore GHG emissions. Nevertheless, individual products can vary in energy efficiency, sustainability, and energy costs to manufacture. The National Institute of Standards and Technology (NIST) has developed software to compare different building products and their overall energy costs and efficiencies, including their manufacture and lifecycle. This software is named Building for Environmental and Economic Stability (BEES) and can be found at <http://wwwbfrl.nist.gov/oea/software/bees>. Another resource for the comparison of building materials and energy efficiency is the Buildings Energy Data Book prepared by the U.S. Department of Energy (<http://buildingsdatabook.eren.doe.gov>). The selection of energy efficient building material for the Lost Lake project is further discussed in Section 8.4 Energy Use Mitigation Measures and Alternatives.

8.3.2 Operational Project Energy Use

The Lost Lake Resort development will require the use of energy for a variety of specific needs and uses, including heating and cooling, transportation, maintenance, utilities and incidental electrical needs.

Heating and Cooling

The heating and cooling of residential space will result in the greatest energy demand and usage. Individual homes will utilize heating oil, propane, and to a lesser degree electricity to heat homes during the fall, winter and spring months. Wood and wood pellet stoves will be used

by some homeowners to supplement heating, but wood is not expected to be a major energy source in new construction. Electricity will be the primary source of cooling energy for air conditioners and fans. The Lost Lake Resort common areas, including the clubhouse and lodge, condominiums and residential cottages will also require energy for heating and cooling.

A small percentage of new residences will likely incorporate geothermal or geoexchange heating and cooling systems to supplement conventional systems. Geoexchange systems pump either water or other liquid solution into the ground and back into the home in order to cool the home in the summer and to supplement heat in the winter. Since the ground and groundwater maintain a constant temperature, this natural heat exchange can greatly improve the efficiency of heating and cooling systems. As the installation cost and efficiency of these systems becomes more attractive to homeowners, a greater percentage of new homes will include the systems.

Transportation

The project will result in petroleum energy use by resident's vehicles traveling to and from the development for work, shopping and other trips. The transportation study completed for the project estimates that the project will result in approximately 454 trips during the peak hour (Sunday) through Phase III and up to a total 1,067 trips during the peak hour (Sunday) (see Section 3.9 Transportation). Additional trips to and from the project site will be required for deliveries of supplies for the Resort, mail and packages, and daily bus trips for school children during the school year.

As further described in the mitigation measures, below, residential vehicle trips for the development are anticipated to be less than for a conventional subdivision since many of the residences will be second homes. Based upon current ownership at the Eagle Rock Development in Pennsylvania, 57 percent of completed homes are owned as part-time or seasonal residences. Therefore, only a portion of the total residential population will make daily commutes to and from a workplace. A certain number of trips will be day trips for golf, the use of the spa or special events. These trips will be mostly related to property owners, and not by guests or the general public. Based upon the nature of the development as a resort, the overall transportation energy use is expected to be substantially less than for a conventional subdivision.

Maintenance

Maintenance of the golf course, common areas, and winter plowing by the Lost Lake Resort management will require the use of petroleum fuel, throughout the operation of the development. Maintenance will require the use of tractors, trucks, mowers, and small equipment.

Individual homeowners will also use energy, both petroleum and electricity, for yard maintenance. As further described below, such yard maintenance will be less than in a conventional subdivision since the sizes of yards and landscaped areas will be strictly limited in the Lost Lake Resort.

Utilities

As described in Section 3.10 Community Services, the project will include a private wastewater treatment plant and a water supply storage and distribution system. These utilities will require the continual use of electricity for equipment, pumps, gauges and monitoring. Primarily electricity will be provided by off-site electrical utility sources. Emergency electrical generators will be required as back-up in the event of power outages. These will be diesel fuel generators. Typically, emergency generators are seldom used, and will represent a small portion of the overall operational energy use of the development.

Additional Energy Use

Electricity will be utilized for appliances, lighting and incidental uses in all future residences, as well as Lost Lake Resort common facilities, such as the Clubhouse and Lodge. The vast majority of electricity utilized at the Lost Lake Resort development will be generated off-site and delivered to the site through the public utility transmission system.

Direct Emissions from Stationary Sources

Combustion of heating oil, and propane, for heating, hot water heaters and for cooking will result in the direct emissions of greenhouse gases such as CO₂ from the project site. Wood stoves, which utilize either cut wood or wood pellets will also be direct stationary sources of CO₂.

Fixed emergency generators, utilizing diesel fuel will also be direct stationary sources of CO₂ and other greenhouse gases.

The operation of the proposed wastewater treatment plant will result in the generation of methane gas over the life cycle of the treatment plant. Wastewater treatment plants typically generate methane, CO₂, hydrogen and ammonia with methane being the most harmful in terms of a greenhouse gas. The wastewater treatment plant will be constructed to current, efficient treatment standards and therefore, the generation of methane gases will be minimized. In many current wastewater treatment designs, a portion or majority of methane is captured and utilized for plant operations including heating and the generation of electricity. Once the wastewater treatment plant is designed, the management, capture, and reuse of methane gas will be better defined.

Refrigeration and air conditioning equipment used at the Lost Lake Resort will likely contain hydrofluorocarbons and perfluorocarbons. These compounds are typically used as refrigerants and are powerful, persistent greenhouse gases, since they are more reactive than the more common CO₂. They can be released into the environment during the manufacturing, servicing and disposal of air conditioning and refrigeration equipment. Methods to reduce the release of hydrofluorocarbons (HFC's) and perfluorocarbons (PFC's) are described in Section 8.4 Energy Use Mitigation Measures and Alternatives.

Direct Emissions from Non-Stationary Sources

The Lost Lake Resort will result in on-site emissions of greenhouse gases and CO₂ from non-stationary sources. The use of golf carts, and golf course maintenance equipment such as tractors, mowers, trimmers and other landscaping equipment will result in the emission of

greenhouse gases and CO₂. Certain golf carts and landscaping maintenance equipment will be battery powered and utilize electricity and therefore will not result in on-site emissions.

Indirect Emissions from Stationary Sources

The electricity energy used at Lost Lake Resort will primarily be generated off-site and delivered to the site through the public utility transmission system. The generation of electricity at off-site power plants will result in the emission of greenhouse gases, including CO₂. The amounts of gases generated will depend upon the type of electrical generation plant, with traditional coal fired plants resulting in higher emissions than hydroelectric or nuclear plants.

Indirect Emissions from Non-Stationary Sources

As described above, the project will result in vehicle trips to and from the site, and therefore the indirect (off-site) emissions of GHG including CO₂. Vehicle emissions will result from: vehicle trips from homeowners, employees, visitors and customers of Resort, deliveries of supplies and materials to the Resort, packages and mail delivery, school bus trips during the school year, and the transportation of waste from the site. As described above, residential trips to and from the site are expected to be lower for the Lost Lake Resort than for a conventional subdivision since the community is designed and marketed to be primarily either second homes or retirement homes. Therefore, the daily commuting trips for work, and the related GHG emissions are expected to be substantially less than for a conventional residential community.

Emissions from Waste Generation

Emissions from waste generation for the Lost Lake Resort will be minimal, since solid waste will be transported from the site by private waste contractors. Landscaping materials such as grass clippings, leaves and branches collected from golf course or Resort common areas maintenance will be composted on-site. This composted material will result in CO₂ emissions, but the volume of this material, and the resulting GHG generated is expected to be small.

Measures to Minimize Emissions

Measures taken to minimize greenhouse gas emissions related to the project are further described below. Mitigation measures include measures to reduced emissions both on-site as well as off-site, through energy conservation, construction and operational measures.

8.4 Energy Use Mitigation Measures and Alternatives

This section provides a discussion of both general and specific mitigation measures to reduce the use of energy through energy conservation, project design as well as project construction and materials. The project designed, constructed and operated with these proposed energy conservation measures will result in lower energy use and less greenhouse gas emissions (GHG) than a project without these measures.

According to the *Design Guidelines for Single Family Homes in Lost Lake Resort* (see Appendix Appendix E2), "We require the design of residences within Lost Lake to be environmentally sensitive and meet current green building design and construction guidelines, and take advantage of new trends and technologies that implement these guidelines. All residences will be required to conform to the requirements necessary to attain a minimum level of certification

through either the Leadership in Energy and Environmental Design (LEED) Guidelines for Homes, currently available from the United States Green Building Council (USGBC), or the NAHB National Green Building Program Specifications as set forth by the National Association of Home Builders. These guidelines evaluate environmental performance from a whole building perspective, and provide a definitive standard for what constitutes a green building."

The *Design Guidelines* provide detailed specific recommendations and requirements for new home construction and measures to reduce energy use and GHG emissions. These include both architectural guidelines and site planning guidelines.

The building plans for each home in the Lost Lake Resort will be subject to review and approval by the Resort Design Review Board. The procedures and requirements of residential building plan review are provided in the *Design Guidelines*. This individual review process will ensure that all homes constructed at the Lost Lake Resort meet minimum design standards, including minimum green building design standards, and establish guidelines for home designers and builders to address issues specific to lot design and layout, building materials, aesthetics, preservation of existing vegetation and landscaping.

The following are recommendations and requirements provided in the *Design Guidelines* to reduced energy use, reduce the emission of greenhouse gases, and preserve existing vegetation.

Site Design

According to the *Design Guidelines* "The design of each home must respond to the unique characteristics of its site, the trees and vegetation, topography, natural drainage patterns, views and sun orientation". The *Design Guidelines* recommend that homes are sited to take advantage of solar orientation prevailing breezes. Such orientation allows for solar heating in the winter months and natural ventilation and cooling in the summer months, reducing heating and cooling energy use.

The *Guidelines* suggest siting new homes to minimize site grading and earthwork. This reduces both construction time, cost and energy required for construction.

The *Design Guidelines* have specific requirements for grading and landscaping around new homes. By reducing the building "footprint" of each home, existing trees and vegetation will be retained on individual lots and throughout the development. The preservation of trees and vegetation will assist in carbon sequestration.

The area of construction disturbance shall be limited to the immediate area around the building excavation, with reasonable allowances made for the practicality of construction and for safety. The area of disturbance shall be shown on the Site Plans submitted to the Design Review Board, and that board may, at its discretion, require that the Area of Disturbance be reduced to lessen the impacts on existing vegetation, particularly large trees.

The *Design Guidelines* specify the treatments for three landscaping zones for future residential lots: the Immediate Landscape, the Transition Zone and the Preserve Zone. The Immediate Landscape includes lawn, plantings and hardscape elements such as walkways and patios. This Immediate Landscape is limited to 10 feet from the building for front yards, five feet for side yards and 20 feet from the building for rear yards. Such a requirement will strictly limit the

allowable clearing and landscaping on each lot and will result in the preservation of existing trees and vegetation. The Transition Zone is comprised of areas that have been disturbed during construction. This zone is to be restored to a naturalized state through the succession of the native plant community. Limited and naturally spaced native trees, brush and native grasses may be planted in this zone to encourage the natural succession. The Preserve Zone consists of areas of undisturbed forest and vegetation. Seeding for erosion control and fire fuel reductions are the only activities allowed in this zone.

Building Design

The *Design Guidelines* provide numerous green building design recommendations and requirements, including the selection of building materials, appliances and for landscaping. Individually and collectively, these features will reduce energy consumption in each residence and will reduce the overall project energy demand and the future total emissions of GHG.

Green building design recommendations include:

- Appliances The use of Energy Star Certified appliances, will significantly reduce the use of electricity and water, as compared to conventional appliances. These appliances may include refrigerators, dishwashers, clothes washer and dryers, furnaces, hot water heaters and air conditioners. The *Design Guidelines* require the use of Energy Star Certified appliances and also recommend the use of LP gas (propane) appliances, instead of electrical appliances as an alternative to reduce the demand for electricity and related off-site combustion of fossil fuels. Gas appliances are typically more energy efficient and cost less to operate than comparable electrical appliances.
- Exterior Finishes and Flooring Reclaimed or recycled wood should be used when possible, as this reduces the number of trees needed to build the home. The *Design Guidelines* provides a list of salvaged lumber suppliers. When new wood is required, the lumber should be certified by the Forest Stewardship Council (FSC), which provides a credible guarantee that the lumber comes from a well managed forest. Recycled content tiles or natural local stone tiles are recommended to reduce manufacturing and energy use.
- Windows and Doors Energy Star certified doors and windows greatly reduce heating and cooling energy demand and therefore, related GHG emissions. These doors and windows are designed to reduce heat loss in the winter and solar gain in the summer, reducing the energy use in the home. Energy Star doors and windows are twice as efficient as the average window produced 10 years ago. The *Design Guidelines* require doors and windows to comply with the requirements set forth to attain credit through either the US Green Building Council's LEED rating system or the National Association of Home Builder's National Green Building Program.
- Insulation Properly designed and installed insulation can reduce the need for heating and cooling, reducing home energy use. Preference should be given to loose and spray cellulose material, made from recycled newspaper. Recycled cotton batt insulation is also recommended. Joints, and cracks between building materials need to be properly sealed with appropriate sealant and caulking to ensure insulation and energy efficiency.
- Lighting The *Design Guidelines* recommend natural lighting and architectural details and elements to draw natural light into the home. Natural light reduces the need for electrical

lighting and energy use. Compact fluorescent bulbs are recommended for electrical lighting needs.

The energy reducing and green building design features listed above will be reviewed, considered, and incorporated as appropriate, during the design of the Lost Lake resort facilities including the golf club and common facilities.

As indicated above (Section 8.3.1), the selection of a range of common building materials, appliances and fixtures can make a large difference in the overall energy demands of a home or building. The environmental and energy costs for the manufacture, transport and sustainability of materials can also vary considerably. Life Cycle Assessment analysis will be used for the selection of Lost Lake resort facilities including the golf club and common facilities. A Life Cycle Assessment analysis measures and compares the overall environmental and economic impacts of a range of building materials using variety of criteria to develop a performance score for a building product.

The Building for Environmental and Economic Sustainability (BEES) software has been developed by the Building and Fire Research Laboratory, National Institute of Standards and Technology (NIST).² The BEES software allows building designers and contractors to compare, for example, a flooring or roofing product to determine which has a higher greenhouse gas emissions on a per square foot basis. All stages in the life of a product are analyzed and compared to arrive at an overall product environmental impact score. Factors that are evaluated include raw material acquisition, manufacture, transport, installation, energy efficiency, and recycling ability. In using Life Cycle Assessment analysis for the building materials used for Lost Lake Resort facilities, the overall energy efficiency of the project construction can be maximized.

Refrigerants

As described above, chemical compounds typically used as refrigerants, such as hydrofluorocarbons (HFC's) and perfluorocarbons will be contained in air conditioning and refrigeration equipment at the Lost Lake Resort development. These compounds can act as greenhouse gases when released to the environment during the manufacture, service and disposal of cooling equipment.

According to a study for German greenhouse gas emission reduction³, the greatest reduction of fluorinated greenhouse gases comes as a result of routine maintenance of refrigeration equipment. This alone can reduce the emission of HFC and PFC gases by 13 percent. The proper disposal of such equipment can also reduce the release of these gases. The Lost Lake Resort will maintain air conditioning and refrigeration equipment according to all manufacturers recommendations and requirements. All used and unserviceable equipment will be properly disposed of at appropriate disposal facilities.

² The software can be downloaded at <http://www.bfrl.nist.gov/oae/software/bees>.

³ Emissions and Reduction Potentials of Hydrofluorocarbons, Perfluorocarbons and Sulphur Hexafluoride in Germany, Oko-Recherche , GmbH , October, 1999

<http://www.oekorecherche.de/english/berichte/zusammenfassungen/e2984125.html>

Transportation

The Lost Lake Resort is designed as a resort and second home community. It is expected that the development will not generate the commuting traffic trips associated with the conventional residential subdivisions. Based upon current ownership at the Eagle Rock Development in Pennsylvania, 57 percent of completed homes are owned as part-time or seasonal residences. Therefore, only a portion of the total residential population will make daily commutes to and from a workplace. A certain number of trips will be day trips for golf, the use of the spa or special events. These trips will be mostly related to property owners, and not by guest or the general public. Weekend visitors to the resort are likely to utilize the on-site amenities, such as the clubhouse, spa, restaurant and recreational facilities, reducing the need for off-site trips and related energy use. Based upon the nature of the development as a resort, the overall transportation energy use is expected to be substantially less than for a conventional subdivision. The greenhouse gas emissions, related to the project generated traffic will be proportionately less than for a conventional residential development.

Where possible, the project will utilize electric golf carts, and electric or energy efficient landscaping maintenance equipment.

Evaluation of Alternatives and Energy Use

The Scoping Document for this DEIS required the review of specific project alternatives, which are evaluated in Section 4.0 Alternatives. The alternatives considered include:

- No Build Alternative
- Conventional Subdivision Alternative
- Cluster Residential Subdivision without the amenities Alternative
- Hotel Expansion Alternative under PDD regulation
- PDD subdivision layout of 735 units, includes zero bonus units
- PDD subdivision layout of 1,235 units, includes 500 bonus units

No Build Alternative

This alternative would result in the project site remaining undeveloped, largely forested land. The alternative would require no energy use and would not result in any emissions of greenhouse gases.

Conventional Subdivision Alternative

The conventional subdivision alternative envisions 491 single-family residences on traditional lots. This alternative site plan considers and avoids environmental site constraints such as wetland areas. Total site disturbance would be approximately 249 acres, compared to the 601 acres for the proposed Site Plan. Dedicated open space would be approximately 295 acres compared to the approximately 1,045 acres for the proposed plan. More dedicated open space would result from the proposed plan since less land would be protected on individual lots in this alternative.

In general, this alternative would result in less overall demand for energy and fossil fuels as compared to the proposed plan, since the total number of homes and residents would be substantially less than for the proposed plan.

Cluster Residential Subdivision without the amenities Alternative

This alternative examines the potential impacts associated with the project designed in a clustered concept, including 491 single-family detached dwellings.

The proposed layout would allow a contiguous area of open space to be retained adjoining the NYSDEC wetland complex. Sidewalks would be provided along village-style streets, rather than providing trails. A sidewalk along the main public road would connect the various sections of the clustered neighborhood.

The cluster residential subdivision alternative would result in substantially less number of homes, residents, and overall site disturbance, than the proposed plan. Therefore, this alternative would result in less energy use and greenhouse gas emissions, as compared to the proposed plan. An added benefit of this alternative plan would be the preservation of 1,845 acres of the site and the potential GHG sequestering that the preserved forest land may provide.

Hotel Expansion Alternative under PDD Regulation

This alternative evaluates the possibility of an expanded hotel facility from the size currently proposed by the Applicant. There are no provisions in the PDD regulations that specifically pertain to the size of a hotel or other types of lodging. It is noted that the small size hotel proposed (32 rooms) is similar in relative size to the Applicant's Eagle Rock Resort development, which is 46 rooms in a 5200-acre resort. It is the Applicant's experience that the modest size of hotel proposed could be supported by the overall size of development proposed.

Expansion of the facility proposed would be limited by the physical area available on the property, and possibly by how such a facility would "fit" into the mix of uses proposed in the PDD.

This alternative would have similar, or slightly higher energy use and GHG emissions as compared to the proposed plan. An expanded hotel with more rooms would result in greater energy use (electricity, laundry services, food preparation) and related traffic trips to and from the hotel (fossil fuel consumption). The increased energy use from an expanded hotel would be proportionately small compared to the overall Lost Lake Resort project, since the majority of energy use (heating, cooling, electricity) will come from the single family residential development.

PDD subdivision layout of 735 units, includes zero bonus units

The Scoping document requests an alternative evaluating a development scenario of 735 dwelling units (the base density calculated in the Lost Lake Resort PDD application) without consideration of any bonus units allowed in the PDD regulation. As a PDD this scenario requires a mix of land uses within the development and the alternative layout includes the same variety of resort amenities as the project proposal. Cottages and condominiums in this case would strictly be rental units operated as part of the commercial resort operations. This alternative examines the potential impacts associated with the project designed in a clustered concept.

This layout would allow a contiguous area of open space to be retained surrounding the central NYSDEC wetland complex and all land to the southwest of it.

As described in the alternatives section, this alternative would not support the Applicant's resort development model that is supported by the investment of lot purchasers who gain, membership rights to use the on-site recreational amenities at very low or no cost.

Given that this alternative would have substantially less residential units (735 units) as compared to the proposed plan, this alternative would result in less overall demand for energy and fossil fuels. In addition, the alternative would result in more preserved open space than the proposed plan (1,734 acres compared to 1,045 acres), and a greater area of preserved trees.

PDD subdivision layout of 1,235 units, includes 500 bonus units

The Scoping Document requests an alternative showing a project layout using the predetermined base density of 735 dwelling units plus 500 bonus units. This alternative is laid out in accordance with the PDD regulation incorporating a mix of land uses within the development. The alternative layout includes the same variety of resort amenities as the project proposal, with cottages and condominiums in this case being strictly rental units operated as part of the commercial resort operations. This alternative examines the potential impacts associated with the project designed in a clustered concept.

This layout would allow a contiguous area of open space to be retained adjoining the NYSDEC wetland complex and to the southwest of it.

Similar to the PDD Base Density alternative, as described above, this alternative would also result in fewer homes and residents than the proposed plan. Therefore, this alternative would result in less overall demand for energy and fossil fuels, as well as the preservation of more open space and existing vegetation, as compared to the proposed plan.