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Vision

Palo Alto will meet today's needs without compromising the needs of future generations. Palo Alto will respect and manage natural resources in a way that sustains the natural environment and protects our foothills, baylands, creeks, parks, wildlife and open space legacy. A substantial portion of the City will remain as open space. Even in built-up areas, a network of parks will provide access to nature and an urban forest will provide ecological benefits and a source of beauty for residents. Palo Alto will strive for cleaner air and cleaner water. Its policies and programs will foster energy and water conservation, maintain a sustainable water supply for the future, and facilitate the implementation of climate change adaptation strategies. .

Introduction

The Natural Environment Element addresses the management of open land and natural resources in Palo Alto and the protection of life and property from natural hazards. It is one of the broadest elements of the Comprehensive Plan, encompassing four of the seven elements mandated by the State. The Element satisfies the State requirement for an Open Space Element by including policies describing the use of open space for the preservation of natural resources, the managed production of natural resources, outdoor recreation, and public health and safety. It satisfies the State requirement for a Conservation Element by including policies pertaining to creeks and riparian areas, wetlands, the urban forest, water resources, wildlife, air quality, hazardous materials, solid waste disposal, and energy. It satisfies the State requirement for a Safety Element through policies describing how exposure to natural hazards like earthquakes and fires will be reduced. Finally, it satisfies the Noise Element requirement through policies that reduce exposure to undesirable levels of noise in the community.

The remainder of the Element consists of goals, policies, and programs. The text is organized into ten topics, each with a corresponding goal. Background information on each topic is included following the goal statements. It should be noted that the Natural Environment Element does not include policies relating to mineral resources because Palo Alto does not contain any mineral deposits of regional significance.

5. AIR QUALITY

GOAL N-5. Clean, Healthful Air for Palo Alto and the San Francisco Bay Area.

POLICY N5.1 Support regional, state, and federal programs that improve air quality in the Bay Area because of its critical importance to a healthy Palo Alto [Previous Policy N-26] [N1]

Program N5.1.1 Provide City input on significant proposals for air quality legislation and state implementation plans. [Previous Program N-38] [N2]

Program N5.1.2 Strongly support the Bay Area Air Quality Management District (BAAQMD) in its efforts to achieve compliance with existing air quality regulations by continuing to require development applicants to comply with current BAAQMD construction emissions control measures, or incorporate appropriate mitigation [NEW PROGRAM] [N3]

Program N5.1.3 Explore adopting new standards that target the reduction of very fine particulate matter (PM_{2.5}), which is associated with increased impacts on respiratory health. [NEW PROGRAM] [N4]

POLICY N5.2 Reduce single-occupant vehicle trips, idling, and other behaviors to reduce emissions from automobiles. [NEW POLICY] [N5]

Program N5.2.1 Recommend revisions to proposed projects as needed to reduce air quality impacts [Previous Program N-45] [N6]

Program N5.2.2 Educate residents and auto-dependent businesses on the impacts of extended idling on air quality, and on misconceptions concerning the impact of engine restarting on automobile function. [NEW PROGRAM] [N7]

Program N5.2.3 Implement BAAQMD recommended standards for the design of buildings near heavily traveled roads, in order to minimize exposure to auto-related emissions and related health impacts. [NEW PROGRAM] [N8]

POLICY N5.3 Reduce emissions of particulates from manufacturing, dry cleaning, construction activity, grading, wood burning stoves, and other sources through education and regulation, to the extent allowed by law. [Previous Policy N-27] [N9]

Program N5.3.1 Cooperatively work with Santa Clara County and the Bay Area Air Quality Management District to ensure that mining and industrial operations mitigate environmental and health impacts. [NEW PROGRAM][N10]

Program N5.3.2 Promote understanding of the health impacts of particulate emissions and provide information to residents and businesses about steps they can take to reduce particulate emissions, such as reducing or eliminating wood burning.[NEW PROGRAM] [N11]

Program N5.3.3 Provide homeowners with information outlining low emission alternatives to wood-burning stoves and fireplaces. [Previous Program N-43] [N12]

Program N5.3.4 Identify opportunities to reduce concrete and asphalt use by the City, in parks and other public projects [NEW PROGRAM] [N13]

POLICY N5.4 All potential sources of odor and/or toxic air contaminants should be adequately buffered, or mechanically or otherwise mitigated to avoid odor and toxic impacts that violate relevant human health standards. [Previous Policy N-29] [N14]

POLICY N5.5 Reduce air pollution and airborne dust by maintaining tree canopy size targets for parking lots and streets. [PTC] [NEW POLICY] [N15]

6. NOISE

GOAL N-6. An Environment That Minimizes the Adverse Impacts of Noise.

6.1 INTERIOR AND EXTERIOR NOISE

POLICY N6.1 Encourage the location of land uses in areas with compatible noise environments. Use the guidelines in Table “N-XX” to evaluate the compatibility

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of proposed land uses with existing noise environments when preparing, revising, or reviewing development proposals. Acceptable exterior, interior and ways to discern noise exposure include:

- For exterior noise, the guideline for “normally acceptable” noise levels in residential areas is an Ldn of 60 dB. This level is a guideline for the design and location of future development and a goal for the reduction of noise in existing development. However, 60 Ldn is a guideline which cannot necessarily be reached in all residential areas within the constraints of economic or aesthetic feasibility. This guideline will be primarily applied where outdoor use is a major consideration (e.g., backyards in single family housing developments, and recreational areas in multiple family housing projects). Where the City determines that providing an Ldn of 60 dB or lower outdoors is not feasible, the noise level in outdoor areas intended for recreational use should be reduced to as close to the standard as feasible through project design.
- Interior noise, per the requirements of the State of California Building Standards Code (Title 24) and Noise Insulation Standards (Title 25), must not exceed an Ldn of 45 dB in all habitable rooms of all new dwelling units.
- Noise exposure(s) can be determined from (a) the noise contour map included in this plan, (b) more detailed noise exposure studies, or (c) on area-specific or project-specific noise measurements, as appropriate. [Previous Policy N-39] [N16]

POLICY N6.2 Encourage the application of site planning and architectural design techniques that reduce overall noise pollution and reduce noise impacts on proposed and existing projects within Palo Alto and surrounding communities. [Previous Policy N-40] [N17]

POLICY N6.3 When a proposed project is subject to CEQA, the noise impact of the project on existing residential land uses and natural open spaces should be evaluated in terms of the increase in existing noise levels and potential for adverse community impact, regardless of existing background noise levels. If an area is below the applicable maximum noise guideline, an increase in noise up to the maximum should not necessarily be allowed. [Previous Policy N-41] [N18]

Program N6.3.1 Update noise impact review procedures to address appropriate requirements for analysis and thresholds for impacts on residential land uses. [NEW PROGRAM][N13]

POLICY N6.4 The City may require measures to reduce noise impacts of new development on adjacent properties through appropriate means including, but not limited to, the following:

- Orient buildings to shield noise sensitive outdoor spaces from sources of noise.
- Construct noise walls when other methods to reduce noise are not practical.
- Screen and control noise sources such as parking lots, outdoor activities and mechanical equipment.
- Increase landscaped setbacks to serve as a buffer between noise sources and adjacent dwellings.
- Whenever possible, retain fences, walls or landscaping that serve as noise buffers while balancing these measures related to design, safety and other impacts.
- Use soundproofing materials, noise reduction construction techniques, and/or acoustically rated windows/doors.
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts. [Previous Policy N-42] [N19]

Program N6.4.1 Protect the overall community and especially sensitive noise receptors, including schools, hospitals, convalescent homes, senior care facilities, and publicly owned conservation land from unacceptable noise levels from both existing and future noise sources. [Previous Policy N-43] [N20]Continue working to reduce noise impacts created by events and activities taking place in communities adjoining Palo Alto. [Previous Program N-58] [N21]

Program N6.4.2 Evaluate the feasibility of adopting noise criteria in the purchase of new City vehicles and equipment. [Previous Program N-59] [N22]

Program N6.4.3 Evaluate and update the Noise Ordinance, as needed, to provide for clear interpretation of the regulations, to review the appropriateness of existing standards, and to ensure that regulations address contemporary issues [N23]

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Program N6.4.4 Evaluate changes to the Noise Ordinance to reduce the impact of leaf blower noise. [Previous Program N-60] [N24]

6.2 TRANSPORTATION NOISE—ROADWAYS

POLICY N6.5 Minimize roadway noise through prudent street, flow, and right-of-way design. [PTC] [NEW POLICY] [N25]

6.3 TRANSPORTATION NOISE—AIRPORTS

POLICY N6.6 Ensure compliance with the airport related land use compatibility standards for community noise environments, shown in Table N-XX, by prohibiting incompatible land use development within the 60 dBA CNEL noise contours of the Palo Alto airport. [NEW POLICY] [N26]

Program N6.6.1 Continue working to reduce noise associated with operations of the Palo Alto Airport. Ensure compliance with the land use compatibility standards for community noise environments, shown in Table N-XX, by prohibiting incompatible land use development within the 60 dBA CNEL noise contours of the airport. [PTC] [NEW PROGRAM] [N27]

Program N6.6.2 Participate in appropriate public forums to ensure that future activities at large commercial airports in the region do not negatively affect noise levels in Palo Alto. [Previous Program N-56] [N28]

6.4 TRANSPORTATION NOISE—RAILWAY

POLICY N6.7 Minimize noise spillover from rail related activities into adjacent residential or noise-sensitive areas. [NEW POLICY] [N29]

Program N6.7.1 Encourage the Peninsula Corridors Joint Powers Board to pursue technologies and grade separations that would reduce or eliminate the need for train horns/whistles in communities served by rail service. [Previous Program N-57] [N30]

Program N6.7.2 Evaluate changing at-grade rail crossings so that they qualify as Quiet Zones based on Federal Railroad

Administration (FRA) rules and guidelines in order to mitigate the effects of train horn noise without adversely affecting safety at railroad crossings. [PTC] [Previous Program N-57] [N31]

Program N6.7.3 Participate in future environmental review of the California High-Speed Rail (HSR) Project, planned to utilize existing Caltrain track through Palo Alto, to ensure that it adheres to noise and vibration mitigation measures. [NEW PROGRAM] [N32]

POLICY N6.8 Reduce impacts from noise and ground borne vibrations associated with rail operations by requiring that future habitable buildings use necessary design elements such as setbacks, landscaped berms and soundwalls to keep interior noise levels below 45 dBA Ldn and ground-borne vibration levels below 72 VdB. [NEW POLICY] [N33]

6.5 CONSTRUCTION NOISE

POLICY N6.9 Continue to prioritize construction noise limits around sensitive receptors. [PTC] [NEW POLICY] [N34]

Program N6.9.1 Require noise monitoring for all projects subject to CEQA for which construction noise impacts have been identified, and that are located within 100 feet of any noise sensitive land uses. The monitoring plan should identify hours of operation and could include information on the monitoring locations, durations and regularity, the instrumentation to be used, and appropriate noise control measures to ensure compliance with the noise ordinance. [NEW POLICY] [N35]

Program N6.9.2 For larger development projects that demand intensive construction periods, such as the Stanford University Medical Center, require formal, ongoing monitoring and reporting of noise levels throughout the entire construction process. [NEW PROGRAM] [N36]

7. ENERGY

GOAL N-7. A Clean, Efficient, Competitively-priced Energy Supply That Makes Use of Cost-effective Renewable Resources.

POLICY N7.1 While transitioning to a City that relies entirely on carbon neutral energy, maintain Palo Alto's carbon free electricity supply. [Previous Policy N-44] [N37]

Program N7.1.1 Meet customer electricity needs with least total cost resources, for which the environmental cost and benefits have been assessed. [NEW PROGRAM] [N38]

Program N7.1.2 Phase out the use of carbon offsets during the transition to carbon free electricity, recognizing that they are an interim step on the path to a sustainable energy program. [NEW PROGRAM] [N39]

POLICY N7.2 Transition to renewable energy and natural gas where economically feasible, toward the goal of maximum energy conservation. [NEW POLICY derived from Previous Policy N-44] [N31]

POLICY N7.3 Encourage public infrastructure and private development projects to use life cycle analysis to minimize the consumption of energy and the production of greenhouse gasses over the life of the project. [PTC] [NEW POLICY] [N40]

Program N7.3.1 Continue use of the greenhouse gas neutral electrical supply through long-term supply contracts for renewable energy. [PTC] [NEW PROGRAM] [N41]

POLICY N7.4 Advance the development of a "smart" energy grid, a diverse energy resource portfolio, and technologically advanced public utilities as a key part of a smart and connected city. (S/CAP Strategy) [NEW POLICY] [N42]

Program N7.4.1 Implement incentives for the adoption of cost-effective, alternative energy technologies from multiple fuel sources, to all customers. [PTC] [NEW PROGRAM] [N43]

Program N7.4.2 Monitor other utilities that successfully use alternative energy sources and seek funding for similar projects that would be appropriate in Palo Alto. [Previous Program N-68] [N44]

- POLICY N7.5 Periodically evaluate and revise forecasts for electric power demand. Pursue adequate, carbon-free least total cost supplies to meet this demand. [Previous Policy N-45] [N45]
- POLICY N7.6 Prioritize the identification of cost-effective, reliable and feasible energy efficiency and demand reduction opportunities. [Previous Policy N 46] [N46]
- POLICY N7.7 Maximize the conservation and efficient use of energy in new and existing residences, businesses, and industries in Palo Alto. [(Previous Policy N-47) (PTC Edits))] [N47]
- Program N7.7.1 Continue to provide public education programs addressing energy conservation and efficiency. [Previous Program N-64] [N48]*
 - Program N7.7.2 Incorporate cost-effective energy conservation measures into construction, maintenance, and City operation and procurement practices.[Previous Program N-65] [N49]*
 - Program N7.7.3 Continue timely incorporation of State and federal energy efficiency standards and policies in relevant City codes, regulations, and procedures. [(Previous Program N-66) (PTC Edits)] [N50]*
- POLICY N7.8 Implement cost effective energy efficiency programs for all customers, including low income customers. [N51]
- POLICY N7.9 Encourage energy efficient lighting that reduces levels of light and radiation and does not interfere with natural night sky conditions, while insuring public safety. [NEW POLICY] [N52]Actively support the maximum economic use of solar electric (photovoltaic) and solar thermal energy, both as renewable supply resources for the Electric Utility Portfolio and as alternative forms of local power generation. [PTC] [NEW POLICY] [N53]
- Program N7.9.1 Explore changes to building and zoning codes to incorporate solar energy and other energy efficiency measures into major development projects, including City owned projects. [PTC] [NEW PROGRAM] [N54]*
 - Program N7.9.2 Promote use of the top floors of new and existing structured automobile garages for installation of photovoltaic panels and green roofs. [PTC] [NEW PROGRAM] [N55]*

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POLICY N7.10 Continue the City’s commitment to a 100% carbon neutral electricity obtained from renewable resources. [PTC] [NEW POLICY] [N56]

Program N7.10.1 Evaluate the potential for a cost-effective plan for transitioning to a completely carbon-neutral natural gas supply. [NEW PROGRAM][PTC] [N57]

Program N7.10.2 Promote renewable energy efforts through the Palo Alto Green renewable energy option program, and revise as needed. [PTC] [NEW PROGRAM] [N58]

POLICY N7.11 Reduce natural gas usage by encouraging all-electric new buildings and the transition of existing buildings from gas to electric infrastructure. (S/CAP Strategy NG-GAS-1) [NEW POLICY] [N59]

Program N7.11.1 Explore incentives for homeowners to replace natural gas powered appliances with electric appliances. [PTC] [NEW PROGRAM]. [N60]

POLICY N7.12 Support and develop Palo Alto’s current efforts to recover biogas-derived energy from organic materials such as food scraps, yard trimmings and residual solids from sewage treatment. [PTC] [NEW POLICY] [N61]

Program N7.12.1 Evaluate energy efficient approaches for the treatment and reuse of biosolids that maximize resource recovery and reduce greenhouse gas generation at the Regional Water Quality Control Plant located in Palo Alto and the Palo Alto Landfill. [PTC] [NEW PROGRAM] [N62]

8. CLIMATE CHANGE AND CLIMATE ADAPTATION

GOAL N-8. ACTIVELY SUPPORT REGIONAL EFFORTS TO REDUCE OUR CONTRIBUTION TO CLIMATE CHANGE WHILE ADAPTING TO THE EFFECTS OF CLIMATE CHANGE ON LAND USES AND CITY SERVICES.

POLICY N8.1 Take action to achieve target reductions in greenhouse gas emission levels from City operations and the community activity of 80% below 1990 levels by 2030. [NEW POLICY] [N63]

POLICY N8.2 Participate in cooperative planning with regional and local public agencies, including on the Sustainable Communities Strategy, on issues related to climate change, such as greenhouse gas reduction, water supply reliability, sea level rise, fire protection services, emergency medical services, and emergency response planning. [NEW POLICY] [N64]

POLICY N8.3 Pursue the goal of achieving zero net carbon buildings by 2025, while monitoring and mitigating their potential impacts on the urban forest. [PTC] [NEW POLICY] [N65]

POLICY N8.4 With guidance from the City's Sustainability and Climate Action Plan (S/CAP) and its subsequent updates and other future planning efforts, seek to reduce greenhouse gas emissions from City operations and from the community. [PTC] [NEW POLICY] [N66]

Program N8.4.1 Periodically update the Sustainability and Climate Action Plan (S/CAP); this update shall include an updated greenhouse gas inventory and updated short, medium, and long-term emissions reduction goals. [PTC] [NEW PROGRAM] [N67]

POLICY N8.5 Prioritize infrastructure improvements that address adaptation of critical facilities to climate change in the Capital Improvement Program (CIP) five-year plan. [PTC] [NEW POLICY] [N68]

POLICY N8.6 Protect the Municipal Services Center, Utility Control Center and Utility Control Center from the impacts of sea level rise. (S/CAP Strategy) [NEW POLICY] [N69]

POLICY N8.7 Continue to work with regional partners to build resiliency policy into City planning and capital projects, especially near the San Francisco Bay shoreline. (S/CAP Strategy) [NEW POLICY] [N70]

Program N8.7.1 Prepare response strategies that address sea level rise, increased flooding, landslides, soil erosion, storm events and other events related to climate change. Include strategies to respond to the impacts of sea level rise on Palo Alto's levee system. [NEW PROGRAM] [N71]

Program N8.7.2 Wherever feasible, apply sea level rise adaptation approaches as recommended in the San Francisco Bay Plan adopted by San Francisco Bay Conservation and Development Commission as it is amended. [PTC] [NEW PROGRAM] [N72]