

APPENDIX A – LANDSCAPE STANDARDS

Landscape plays a number of very important roles in the Lancaster Health District. Its primary role is to help generate a network of beautiful, varied, comfortable, habitable and sustainable public and private open spaces that support a full range of activities including active play, active transportation, quiet enjoyment of the public realm, and shopping and dining in neighborhood centers. Specific priorities for the landscapes of the Lancaster Health District area:

- Spatially define the streets and open spaces, providing them with a strong human scale and pedestrian orientation;
- Provide for critical solar and wind protection functions: shading and cooling in the summer, while allowed filtered sunlight and warmth to pass through in the winter, and buffering inhabitants from strong shifting prevailing winds.
- Support a landscape rich in native and adaptive desert plant materials, using limited water resources effectively and projecting Lancaster’s unique desert town identity;
- Provide biofiltration and retention areas for stormwater management, and the potential for stormwater harvesting and reuse in the landscape irrigation system; and
- Screen and buffer views of parking, loading and service areas.

A.1 General Landscape Standards

A.1.1 Plant Materials

Plant materials within the Lancaster Health District area shall either be native to the Antelope Valley, or adaptive and from regions with similar arid climates. Characteristically, these are drought-tolerant species, though may at times (such as at planting to give root systems a head-start, or to catalyze seasonal blooms of flowering plants) require short periods of irrigation. In certain areas, the landscape shall emulate its native desert condition by organizing native plants in organic/natural patterns and distributions. At other, more significant nodes and/or frontages, native plants shall be incorporated into more intense, formalized compositions for enhanced visual effect and to communicate entry/arrival into an urban destination. Drip irrigation systems tend to be required for these more formalized applications.

A.1.2 Street Trees

Street trees within the Lancaster Health District area shall either be native to the Antelope Valley, or adaptive and from regions with similar arid climates. Characteristically, these are drought-tolerant species, though may at times (such as at planting to give root systems

a head-start, or to catalyze the seasonal blooms of flowering trees) require short periods of irrigation. Trees shall either be used to provide shade along a street or frontage, or to provide color or vertical accent at prominent spaces and frontages within the Lancaster Health District area. Deciduous trees shall be planted at open spaces and buildings with south and west orientation, providing passive solar light and heat gain in winter, while providing cooling shade through summer.

1. Typical Shade/Canopy Trees: Typical shade/canopy trees, such as California Pepper Trees, shall be used most often in pedestrian-heavy residential neighborhoods and smaller connecting streets. Within a desert context, these trees are often smaller but maintain a wide canopy, providing much needed shade on sidewalks and streets.
2. Vertical Accent Trees: Prominent boulevards, and arterials, and major public spaces shall employ vertical accent trees where appropriate. Such trees, usually palms in this context, help provide a more formal landscape for more formal and prominent streets and spaces.
3. Color Accent Trees. Trees with colorful seasonal blooms or year-round distinct foliage shall be used to help give certain streets and spaces a unique character in relation to other parts of the Plan Area. These may range greatly in size and form.



Shade canopies created by street trees should be continuous as the street transitions to a paseo or court.



Smaller trees with wide canopies can shade sidewalks.

Palms of various kinds can be used as vertical accents along streets.



Taller and more colorful native plants, such as this Agave Americana, can be used to enhance larger open spaces.

Seasonally flowering bushes, such as the Ocotillo, provide accents of color and texture along the corridor.



A Palo Verde tree can be used to provide a visual color accent in a landscape.

A.2 Street Landscape Standards

A.2.1 Specific Landscape Standards by Street and Place Type

All street landscape standards are grouped into six categories by street type: 1) Arterial Retrofits; 2) Avenues; 3) Health District Streets; 4) Paseos & Parks; 5) Access Streets & Frontage Roads; and 6) Parking Areas. These categories are based on the similarity of street conditions and the intended design of the area.

All street landscaping decisions shall compliment the intended design and use of a given street and location within the Plan. The Master Landscape Plan shall identify all trees and landscaping intended for streets, parks and other open spaces for the subject phase of development.

The following are landscape standards for specific thoroughfares in the Health District area. Deviations from these standards can be granted by the Development Services Director.

Arterial Retrofits

Arterials within the Lancaster Health District area include the existing thoroughfares of Avenue J, 20th Street West, Avenue J-8, and 15th Street West. As the primary edges to the Lancaster Health District, a continuous double-row of tall palms shall be the featured tree. Additional shade/canopy trees and complementary landscaping shall create an iconic and inviting green edge that serves as a gateway into the Lancaster Health District area and performs as a buffer for the Lancaster Health District and adjacent residents.

- a. Primary Street Tree(s). Tall Palms (i.e., California or Mexican Fan Palms)

Location: A consistent row of palms shall line the street-side edge of Avenue J, 20th Street West

- b. Median Tree(s). A mixed of large shade/canopy trees (i.e., Mexican Sycamore, California Pepper, Camphor)

Location: These trees shall be interspersed and arranged naturally along the arterials to enhance the new buffer.

- c. Median ground cover/plants: Small to large succulents, agave varieties, cacti and drought tolerant flowers and shrubs.



Young Date Palms within a median.



Mesquite varietals are a native desert plant.



Street trees can provide visual accents, like this Shoestring Acacia.

Avenues

Avenues and Entry Avenues have four lanes of traffic. These streets travel directly through the Lancaster Health District site and will collect the majority of vehicular and bicycle traffic traveling between the neighborhood center and surrounding residential neighborhoods. As such these streets are prioritized for having large shade/canopy trees along the edges with access and additional shade trees within the medians. Entry Avenues (the portions of avenues that travel from arterials to the Core) should emphasize vertical accent trees.

- a. Primary Street Tree(s). Small/Median shade/canopy trees (e.g., Camphor, Mexican Sycamores, Chinese Evergreen/Elm, etc.)

Location: New trees shall be planted closer together to reduce the distance between trees to approximately 30 feet, when possible.

- b. Median Tree(s). Various vertical and color accent trees (e.g., California and Mexican Fan Palms, Palo Brea, etc.)

Location: Located in medians and located naturally along street edge, where appropriate.

- c. Median ground cover/plants: Small to large succulents, agave varieties, cacti and drought tolerant flowers and shrubs.

Health District Streets

Health District Streets will carry most of the pedestrian, bicycle, and vehicular traffic travel to and through the Lancaster Health District Town Center. As streets cross the site, they will travel through commercial, residential, and open space areas. As such, selected tree species will have to transition in order to complement the block size, uses and intensity of the neighborhood zone.

In the District Core, vertical accent trees (i.e., California, Mexican, and Date Palms) shall be used to line the main streets. Their verticality will allow visitors to clearly see across the street and shopfronts. The Wellness Square shall also be completed with a consistent row of smaller street trees that provide shading and bolster a pedestrian-oriented environment.

Along blocks with primarily residential uses, larger canopy trees (e.g., Honey Locusts, Chinese Pistache, Chinese Evergreen/Elm, etc.) shall be used to foster privacy and a buffer between the street and residential buildings.



Trees along framework streets and in the District Core will provide shade and visibility when possible.



Palms may be employed to help shopfront visibility.



Regularly spaced street trees in planters.

Where Open Spaces occur, smaller street trees at regular intervals shall allow views into the public open space or green, and complement the larger shade canopy, vertical and color accent trees within the green.

a. Primary Street Tree(s).

District Core: California, Mexican, Date Palms

Primarily Residential: Honey Locusts, Chinese Pistache, Chinese Evergreen/Elm.

Open Space Edges: Palo Verde, Palo Brea, etc. (street trees that allow view into open space)

b. Median Tree(s). Palo Verde, Palo Brea, Chinese Tallow

Location: Smaller street trees shall occur at regular intervals, supporting larger trees in the Central and Edge zones.

c. Median ground cover/plants: Small to medium succulents, agave varieties, flowering shrubs. Sharp cacti shall not be used in this area as there are many pedestrians.

Paseos & Parks

Trees along paseos and in parks shall be planted in regular intervals to create a sense of directional flow. Trees shall prioritize shade for pedestrians and be tall enough to allow individuals to clearly see across the open space.

a. Paseo & Park Edge Tree(s). Chinese Pistache, Southern Live Oak, California Pepper, Tipu Tree/Rosewood, Chinese Evergreen/Elm

Location: Shade/canopy trees shall occur at regular intervals along the edges of greens.

b. Park Tree(s). Palo Verde, Palo Brea, Holly Oak

Location: Color accent trees may be placed sporadically to create variety and enhance the edge trees.

c. Ground cover: Small to large succulents, agave varieties, flowering shrubs. Sharp cacti shall not be used in this area as there are many pedestrians.



Palo Verde trees, when in bloom, provide colorful accents along arterial streets.



Trees, palms, succulents, and small shrubs may be planted in conjunction on certain drives.



Pepper trees, as they mature, develop into large, full street trees with plenty of shade.

Access Streets & Frontage Roads

Trees along Access Streets and Frontage Roads shall be planted in regular intervals to create a sense of directional flow. Trees shall prioritize shade for pedestrians and be tall enough to allow individuals to clearly see across the open space.

a. Primary Street Tree(s).

Primarily Residential: Honey Locusts, Chinese Pistache, Chinese Evergreen/Elm

Open Space Edges: Palo Verde, Palo Brea, etc. (Street trees that allow view into open spaces)

Parking Areas

Trees and landscape features with Parking Areas serve three primary functions:

- Provide a degree of shading for pedestrians who are using the parking lot;
- Identify and allow clear views of the parking area; and
- Extend and enhance other street tree patterns present.

Parking area trees do not necessarily have to match the street tree type on a given block, and they shall be primarily taller trees that provide some measure of shading.

1. Primary Tree(s). Southern Live Oak, California Pepper, etc.

Location: Final location will be determined by future street tree patterns and parking locations. Within parking lots, shade/canopy trees shall be planted approximately every 9 parking spaces.

2. Median ground cover. To the extent feasible, surface parking areas must be constructed of pervious paving material to achieve filtration and partial storage during storm cycles. Pervious interlocking paving, such as SF-Rima, pervious concrete and modular grass and gravel paving area acceptable. If modular grass and gravel systems are employed, they must use pervious crushed rock base rather than Class II road base to allow infiltration. Surface overflow must drain to biofiltration trenches through curb cuts.



Shade/canopy trees can provide shade to pedestrians; permeable pavers can assist water filtration and reclamation.



A paseo with flagstone and embedded planters that receive runoff.



A grid of solar panels with fabric shades over a parking lot.

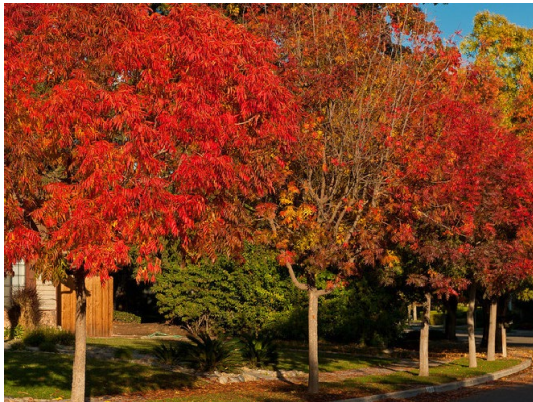
**Table A-1
Tree Types and Locations**

Tree Species	Spacing	Arterials	Avenues	Health District Streets	Access Street / Frontage Roads	Paseos	Parks	Parking Areas
Camphor (<i>Cinnamomum Camphora</i>)	40'	●	●			○	○	○
Shademaster Honey Locust (<i>Cleditsia triacanthas</i>)	40'	○				●	●	○
Sunburst Honey Locust (<i>Gleditsia triacanthos sunburst</i>)	30'	○	○	○	○	○	○	○
Southern Live Oak (<i>Quercus virginiana</i>)	40'	○	○			○	○	○
Red Push Chinese Pistache (<i>Pistacia chinensis</i>)	30'		●	●	○	○	○	○
Mexican Sycamore (<i>Plantanus mexicana</i>)	40'	○	○			○	○	○
Cork Oak (<i>Quercus suber</i>)	40'	○	○			○	○	○
CA Pepper (<i>Schinus molle</i>)	40'	●	●	○		○	○	●
Tipu Tree/Rosewood (<i>Tipuana tipu</i>)	50'	○	●			○	○	○
Chinese Evergreen Elm ¹ (<i>Ulmus parvifolia</i>)	35'			○	○	○	○	●
Edible Olive (<i>Olea europaea</i>)	30'				○	○	○	●
Edible Date Palm (<i>Phoenix dactylifera</i>)	30'		●		○	○	●	
California Fan Palm (<i>Washingtonia filifera</i>)	25'		●	●	○	○	○	
Mexican Fan Palm (<i>Washingtonia robusta</i>)	25'		●	●	○	○	●	●
Desert Museum Palo Verde (<i>Cercidium Desert Museum</i>)	25'		○	○	●	○	●	
Palo Brea (<i>Cercidium praecox</i>)	25'		○	○	●	○	●	
Honey Mesquite "ZT" (<i>CProsopis glandulosa</i>)	25'		○		○	○	○	
Holly Oak (<i>Quercus ilex</i>)	40'		○		○	○	○	○
Chinese Tallow Tree (<i>QSapium sebiferum</i>)	35'	○	●	○		○	○	○

Notes:

- Not allowed in public right-of-ways; private property only

● = Recommended; ○ = Allowed



A.3 Sustainable Landscape Strategies & Goals

A.3.1 Landscape Strategies

The following specific landscape design strategies will inform the final design of the Lancaster Health District Plan Area:

1. Utilize a mix of vertical trees (primarily palms of various varieties) to define the primary framework streets and entry points of the district, and deciduous canopy trees to provide shade along the sidewalks and within the parks, greens, and squares of the neighborhoods and centers.
2. Utilize appropriate street and park trees that tolerate stress, provide summer shade and winter sun, and provide a variety of texture and color characteristics.
3. Provide landscapes compatible with an arid environment and use a palette of native and drought tolerant plant species conducive to eco-friendly pesticides and compatible with the natural vegetation of the area.
4. Generally, reserve maintained turf for active recreation and play areas, employing more drought tolerant plant materials and hardscapes and rockscapes elsewhere.
5. Design the street and open space network as a system for sustainably managing the flows and environmental quality of previous stormwater, including opportunities to store and reuse stormwater for landscape irrigation.
6. Utilize landscaping to screen unattractive areas abutting the Lancaster Health District Plan Area.

A.3.2 Landscape Sustainability

Site planning and landscape design within the Lancaster Health District should promote conservation, preservation, and the enhancement of the natural environment that is balanced with sensitivity to long-term environmental and fiscal sustainability.

The Lancaster Health District Plan Area has also been planned and designed to integrate practices of sustainable stormwater management known as “Low Impact Development (LID)”, an approach to land development that works with nature to manage stormwater as close to its source as possible. Mandated by City policy and unlike a conventional system that would simply pipe uncleaned stormwater into drainage channels, the stormwater systems of the Lancaster Health District will instead employ a multi-layered LID system of distributed best management practice measures to collect, infiltrate, and cleanse rainwater as close to the source as feasible. This system includes:



Front yards can employ a wide range of plant sizes, colors, and forms within a drought-tolerant landscape.



Succulents and desert-friendly grasses can be distributed in creative ways in public spaces.



In a climate with strong direct sunlight, shade and canopy trees can help encourage pedestrian activity.



Desert parks and gardens help preserve the natural environment, and encourage walking, even in a hot climate.



Green environments help to cool local environs and reduce pollution.



Trees can be used to provide shade for sidewalks and screen unattractive expanses of walls or service areas.

1. Measures on individual lots, which may include flow-through planters, rain gardens, cistern, and biofiltration basins and vegetated swales;
2. Measures along the Lancaster Health District streets, alleys and parking lots such as biofiltration basins and vegetated swales, permeable alleys, parking lanes, sidewalks and parking lots; and filtration and infiltration areas in the parks and greenways.
3. In the District Central zone, storm drain filters (Filterra, Vortechs, or equivalent units) should be proposed due to design characteristics that are ideal for urban settings. They are extremely space efficient and have a minimal impact on site utilization.

A.3.3 Water Conservation

The Lancaster Health District Plan Area should utilize progressive techniques in water conservation technology and practices through careful planning and thoughtful design and engineering. The Lancaster Health District, following LID practices, should minimize stormwater flows by promoting on-site infiltration and reducing contaminants through biological filtration. The objective is to decrease runoff peak flow and volume by providing many opportunities for water retention and on-site infiltration. As a result, the rate and volume of on-site stormwater infiltration will be increased, achieving on-site water cleansing and filtration, and a significant reduction in stormwater flows.

Innovative stormwater management features and filtering systems for reducing pollutant loads should be integrated into the project, such as biologically based systems and associated bio-retention areas, bioswales and vegetated filter strips. In the District Central zone, storm drain filters, as discussed above, should be installed to remove debris and hydrocarbons prior to discharge.

A.3.4 Biofiltration & Stormwater Management

The Lancaster Health District streets are part of a visible system of the green infrastructure that encompasses pedestrian, bicycle, and auto circulation, and community open spaces that provide for various recreational needs, yet act as a functional system for stormwater treatment and management. Street design also incorporates the stormwater system into the aesthetics of the community and encourages community education and responsibility.

Parkways and Planters

1. Planters and Tree Grates. Planters are typically provided on urban and/or commercial streets, where wide sidewalk space is desirable. Planters should have a

minimum dimension of 4'x4', and may be grated to provide additional continuous sidewalk space.

2. Continuous Parkway/Planter. Typically applied to neighborhood streets, parkways are landscaped areas that buffer the sidewalk from the street, and may accommodate in addition to street trees, a variety of landscape elements. Drought-tolerant alternatives to traditional turf landscaping are encouraged in drought-sensitive climates.
3. Rain Garden with Curb-cuts. Where possible, drainage channels may be cut into street curb face to allow street runoff wastewater to flow into street-side gardens, providing biofiltration, and slowing runoff into the sewer systems.
4. Flex Planter. Parkway fronting work/live, retail or commercial uses may be hardscaped to provide additional sidewalk width for a variety of approved uses.

Medians & Swales

1. Medians. On streets with large rights-of-way, center medians may be provided to additionally enhance the landscape character of the street, accommodate left-turn pockets, and provide pedestrian refuges in crosswalks at intersection and mid-block crossings. Medians may be designed and landscaped in a variety of ways, including rain gardens, bioswales, hardscape, turf, and/or street trees. Where possible, medians should be wide enough to accommodate left-turn pockets, and should provide pedestrian refuges at intersections and mid-block crossings.
2. Rain Gardens and Bioswales. On streets with rolled-curbs, no curbs, or drainage channels cut into the street curb face, bioswales, rain gardens, and ditches may take the place of a traditional raised parkway, providing biofiltration of street water runoff.

Parking Lanes

1. Parking lane planters accommodate street trees on streets with existing sidewalks that are either directly adjacent the street curb, or are too narrow to accommodate planters or parkways. They additionally can visually narrow wide streets and calm traffic. Planters are spaced away from the street, so that drainage gutters are unimpeded, and may additionally be "open-backed", allowing street water runoff to seep into planters. In more urban settings, bulb-out planters may be grated to reduce maintenance of planter landscaping.



Cisterns can be used to store rainwater. They may either be above ground tanks or integrated into the landscape.



Storm drain filter systems help to naturally filter runoff.



Stormwater detention areas help manage runoff from rain events.



A green street with curbless planter areas.



For streets lined with a mixture of office, retail, and residential parkways may be filled in with permeable pavers to increase sidewalk space.



For streets lined with a mixture of office, retail, and residential parkways may be filled in with permeable pavers to increase the useable sidewalk space.

2. Permeable Pavements. Where possible, parking lanes should employ permeable pavements that both contrast the main street material to denote parking and allow for infiltration. Using permeable pavements in conjunction with appropriate planters allows for a wide range of infiltration opportunities. Materials for permeable areas include spaced concrete pavers and decomposed granite. The permeable pavement areas should be located adjacent to planter bioswales and infiltration areas when possible.

A.3.5 Permeable Pavements

Permeable pavements are load-bearing surfaces that have the capability of infiltrating runoff into the underlying reservoir base course (with at least 40% void space) and soil. Types of permeable pavement include:

1. Porous asphalt that is comprised almost entirely of stone aggregate and asphalt binder with very little fine aggregate;
2. Pervious concrete that has a permeability rate of 12 inches per hour and has the appearance of exposed aggregate concrete;
3. Unit pavers, bricks, or stones that provide a durable surface, spaced with a permeable joint and placed on a permeable base;
4. Crushed aggregate that provides a wide variety of aggregate types, and which must be bounded by a rigid edge;
5. Turf blocks; and
6. Cobbles which are suited for low traffic areas and require a rigid edge.

When possible, surface parking areas should be constructed of pervious paving material to achieve filtration and partial storage during storm cycles except those greater than ten-year storm events. Permeable concrete, grasscrete, and other pervious paving systems are acceptable. Surface overflow should drain to biofiltration strips through curb cuts. Properties that have podium or subterranean parking should provide a cistern to collect run-off during rain events. They may be placed on the property or integrated as part of the structure. Overflow should drain to the water quality features prior to discharge into nearby drainage channels.



A swale in a desert landscape using small stones and decomposed granite.



A bulb-out containing a swale with access to street runoff.



Drainage channels may be cut into street curbface to allow street run-off water to drain into medians.



A median with a small river stone drainage bed and drought-tolerant plants



Permeable pavers within a parking area.



Parking with permeable pavers and rainwater collecting planters.



In-street planter bulb-outs.



Corner bulb-out planter with street drainage maintained.



Permeable materials such as pavers, decomposed granite, or gravel can be applied to parking lanes in a variety of settings.

A.3.6 Street and Open Space Lighting

Streets and other public spaces throughout the Lancaster Health District must be carefully scaled and detailed for the safety and comfort of pedestrians. For the Lancaster Health District, very simple, light-scale, modern fixtures with high-efficient LED sources and down-directed “dark sky” cutoff distribution patterns. See LMC Section 12.12.050.C for public streetlight plan standards.

1. On major streets, existing cobra-head lights will remain, with new lights illustrated here located between them at approximately 60 feet on center. This is about twice the tree spacing, located at the midpoints between trees.
2. On neighborhood streets, lights should be located mid-point between every fourth tree (120 feet), staggered in such a way that there is one light every 60 linear feet of street, alternatively on one side or the other, not both.
3. Along streets fronting a park or greenway, single-head lights must be located along the built edge of the street at about 90’ on center (at about every third tree), unless specified otherwise.
4. Any lights in park areas should be integral to the park design.



Indirect LED post-top luminaires may be suitable for parks and public spaces.



Modern columnar luminaires are well suited to lighting neighborhood center plazas and paseos.

A.3.7 Street and Open Space Furnishings

Street furnishings will contribute to the comfort and human scale of the public spaces throughout the Lancaster Health District, particularly in the neighborhood centers, plazas, parks, and greens. Wherever possible, furniture that can be relocated within a seating area is recommended, to provide flexibility and a sense of ownership of the space by residents and others.

Parallel to the recommendations for simple, modern light fixtures, furnishings should be of a simple, clean, modern design. This furthers a central objective of the Lancaster Health District urban design, that it build on a character of modernity, moving forward toward a new 21st century modern, human-scale neighborhood aesthetic.



Light scale modern furniture can be secured or movable within a seating area and project a simple, clean aesthetic. Whatever style of street furniture is selected for an area, the other amenities such as trash receptacles should match.

