Streetscape Design Manual

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City of Stamford

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INTRODUCTION

Streets are used for many activities such as driving, parking, walking and bicycling. Most are designed to balance the demands of different users and to create an atmosphere that is safe, accessible, economically viable and lively.

Each street has many functions. For example, curbs define the edge of the roadway, improve safety by separating pedestrians from vehicles, and channel excess water to storm drains.

Streetlights increase our ability to see and be seen after dark. Signs orient us to locations, warn us about upcoming obstacles or changing conditions and regulate vehicle, pedestrian or bicycle movements.

Right-of-way
The street right-of-way (ROW) is the publicly owned area adjacent to private property. The ROW is normally divided between the vehicular zone and the sidewalk zone.

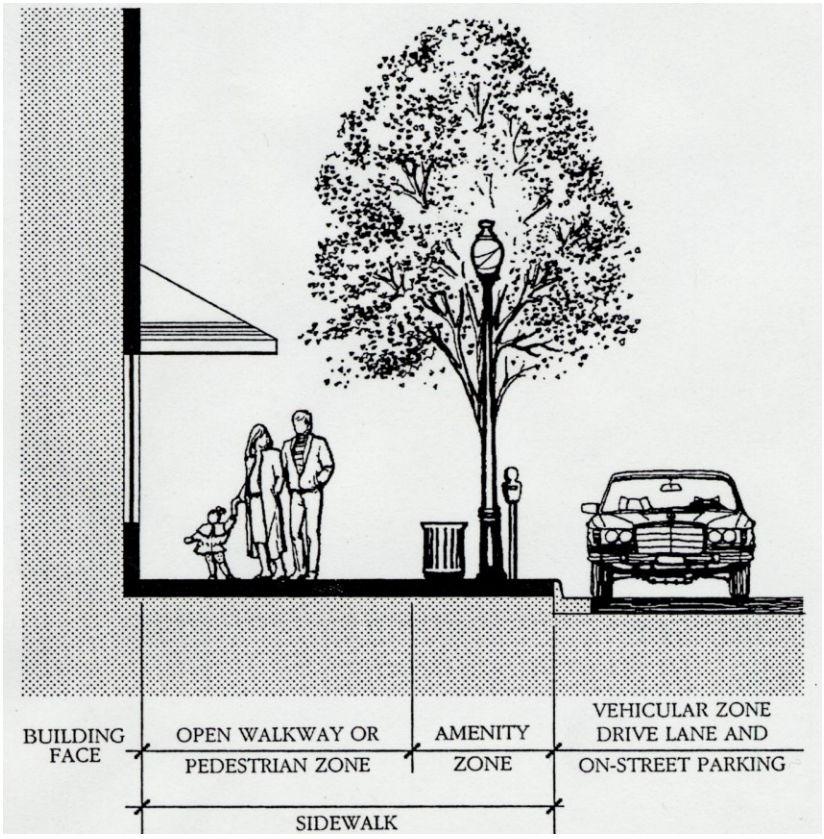
Vehicular Zone
The vehicular zone normally includes vehicle travel lanes, paved shoulder, parking and bicycle lanes.

Sidewalk Area
The sidewalk area consists of the pedestrian zone (walkway area) and the amenity zone.

Pedestrian Zone
The pedestrian zone is normally paved and the pedestrian domain. The walkway area must be clear of obstructions. It is important to retain as much effective walkway width as possible so that pedestrians could move freely and others have room to navigate.

Amenity Zone
The amenity zone is the area between the curb and the walkway area and is reserved for street furniture, utility poles, planting areas for landscaping and trees, and signs. All street furniture or landscaping should be arranged in the amenity zone so that pedestrians have adequate space to maneuver.

Enhancing the safety, comfort and convenience of our streetscape will create a pedestrian-friendly environment, and an efficient transportation network.



P U R P O S E

The purpose of the streetscape manual is to make the city's guidelines for the design of streets clear. If this purpose is fulfilled, Stamford will become a more desirable, livable city for residents, business people, shoppers, and visitors.

WHO SHOULD USE THIS MANUAL

Property owners, developers, business people, merchants, designers, and city staff are charged with applying this manual to all design and construction efforts in the public right-of-way. Every new improvement should comply with or respond to these guidelines appropriately. Not covered here are roadway design standards and projects that are covered under separate guidelines or plans approved by the City of Stamford.

The guidelines apply to all activities in the City of Stamford. Unified application of the guidelines will insure consistent streetscape design of future projects located within the public right-of-way.

HOW TO USE THIS MANUAL

This manual is a tool for expanding the legacy of beautiful streets in Stamford. It is not a plan for expanding the parkway system, but it is important that each new project or design effort consider the role of the street in the overall system: What is the function and operation of the Street? Is it a through street, which connects neighborhoods, districts, destinations, or parks? Does the street have any unusual characteristics, such as diagonal alignment? Are their existing streetscape elements, which should be continued? Does the street have a residential, commercial, industrial or retail character? If the answer to any of these questions is yes, the design effort should be extended to define the best solution for the entire length of the street in the district. In such cases it is important to work closely with the Stamford Department of Operations prior to commencing design.

This manual gives owners guidelines in the design and maintenance of streetscape improvements within the public right-of-way. Its jurisdiction does not encompass improvements within private property; however, on commercial streets the manual shall influence landscaping elements such as plants, street furniture, screens, and walls outside the edge of the right-of-way.

It is important to determine if other planning has been performed in the area prior to beginning new design. Neighborhood, commercial, or historic district plans may be in place, or goals and objectives may have already been established. Generally speaking, projects within the Downtown and special districts require review, based upon established guidelines. These plans may provide more detailed or specific information about local improvements, but the spirit of beauty and quality of the urban design identified here should be applied everywhere. This document is a foundation for all streetscape projects, whether or not they are within special districts. Its design and technical principles underlie streetscape design throughout the city. Each project should examine local conditions and apply the guidelines within that context. Improvements to commercial streets should occur in a coordinated fashion, involving all the owners on a block or within the commercial district to create the most unified image possible.

GUIDELINES VS. STANDARDS

As a guideline document, this handbook is not all-inclusive and is not intended to preclude the designer's

creativity. Nor may it be possible to meet every condition in the manual. However, it is possible to find design solutions, which meet its intent. And while every condition is not addressed, design concepts and materials are defined. The majority of the guidelines in the manual are strongly recommended and should be followed whenever possible. When specific conditions are not covered here, contact the Department of Operations.

RELATED DOCUMENTS

Other guidelines may affect the design of any specific project. Contact the Land Use Bureau prior to the starting of your design for a list of other related documents.

Vision

Committed to controlled growth, looking beyond problems to causes, and developing precise solutions for the development of a successful city.

DESIGN GUIDELINES

I. Street Network

A. Roadway Classification

The roadway classification defines the function of each street and the standard to which it should be designed and used. Many factors determine a roadway's classification, including travel demand, street right-of-way width, and access to adjacent properties, neighborhood character, adjacent land uses, and connection to the regional transportation system. The City of Stamford has five different roadway classifications, Regional Freeways, Major Arterials, Minor Arterials, Collectors, and Local Streets.

1. Regional Freeways
A freeway varies in width from four to eight or more lanes. Its purpose is to carry through traffic, and is fully access controlled by grade separations and ramp connections. The regional freeways are maintained by the State and are constructed to State design standards. Interstate 95 is a major north-south freeway with six travel lanes. I-95 carries primarily through traffic, with heavy AM/PM peak hour traffic to and from the New York Metro Center. I-95 carries approximately 140,000 vehicles per day through the Stamford region. The Merritt Parkway (Route 15) has four lanes, two in each direction. The Merritt Parkway has guidelines for general maintenance. Transportation improvement projects are reviewed by the Merritt Parkway Advisory Committee and subject to local review.

2. Major Arterials
Major arterials vary from two to six lanes in width and are designed to carry large volumes of traffic. Their purpose is to carry through traffic and to provide a network connecting to the state highway system, with limited access from abutting properties. Major arterials in Stamford include High Ridge Road/Washington Boulevard, Long Ridge Road, Hope Street, Grove Street/Strawberry Hill Avenue/Newfield Avenue, Courtland Avenue/Hoyt, and Route 1. Route 1 (Post Road) is the historical north/south route that ran the length of the eastern seaboard, connecting the New England Colonies with New York and the south. Today this roadway is used primarily as a local arterial that provides connections to I-95 and access to adjacent properties.

3. Collectors
A collector street is two or four lanes in width, depending on traffic volumes. Its purpose is to provide for local traffic movement and access to abutting properties, and also for movement between local and business streets and streets of higher classification. A collector street often "collects" traffic from local streets and carries it to minor and major arterials.

4. Local Streets
A local street is usually a two-lane facility. Its purpose is to provide for local traffic movement and direct access to abutting residential properties. It may be a two-lane cul-de-sac, or a one-lane alley.

B. Transit Routes

CTTransit operates local bus routes, commuter service routes and express bus routes in the Stamford region. All Stamford buses are equipped with bicycle racks.

Greyhound operates interstate and intrastate bus route to and from Stamford. The Stamford Transportation Center is the transfer point for all routes. Contact CTTransit for bus route information.

C. Bicycle Routes

The City of Stamford has two categories of bicycle facilities. The categories are shared use paths and on-street networks.

Shared Use Path
Shared use paths are facilities that are physically separate from motorized vehicular traffic within an independent right-of-way. The minimum recommended width is eight feet for bicycle only facilities, if shared with pedestrians ten feet, and twelve feet at major recreation facilities.

On-street facilities consist of bicycle lanes or bicycle routes.

Bicycle Lanes
Bicycle lanes have a portion of the roadway that has been designated by striping, signing and pavement markings for exclusive or preferential use by bicycles. The minimum recommended with is five feet.

Bicycle Routes
Bicycle routes are roadways that are designated for bicycle use through the installation of directional and informational signage. Bicycle routes may incorporate wide outside lanes, shoulders and shared lanes.

Bicycle Design Standards
Any roadway designated for bicycle use shall meet the minimum design standards called for in the American Association of Highway and Transportation Officials, Guide to the Development of Bicycle Facilities. All bicycle related pavement markings and signage shall conform to the Federal Highway Manual on Uniform Traffic Control Devices. Contact the Land Use Bureau for a map of proposed bicycle facilities.

D. Traffic Calming

The Traffic Calming program is an integrated program of education, enforcement and engineering measures to affect the speed and volume of traffic on residential streets.

Typical traffic calming measures include: speed humps; curb extensions; raised crosswalks; traffic circles; rumble strips and edge markings. Contact the Land Use Bureau for program requirements and guidelines.

E. Snow Emergency Routes

The City of Stamford has designated snow emergency routes. A snow emergency situation occurs when actual or expected snowfall/icing conditions require all vehicles to be removed from main roads to allow for effective plowing, sanding and salting.

Signs displaying a snowflake on a red background are posted on snow emergency routes. Notice of a snow emergency is made three hours before the emergency becomes effective. The emergency remains in effect until the Mayor cancels it.

II. Street Operations

A. Travel Lanes

The width of the street section will determine the number of lanes, if parking can or will be installed or if bicycle lanes are appropriate. Travel lanes require a minimum of ten feet travel lanes.

The Stamford Fire and Rescue Departments require fourteen feet of clear area on streets in order to deploy emergency apparatus equipment.

In order to install parking on both sides of a one way street, the width must be twenty-nine feet, fourteen feet of clear space and fifteen feet (seven feet six inches on each side) for parking.

B. On-street Parking

On-street parallel parking spaces should be a minimum of twenty feet in length by seven feet six inches in width. Handicapped spaces shall be a minimum of twenty-two feet by seven feet six inches and must be designated by pavement markings and above grade signage.

On street ninety degree parking stalls shall be a minimum of eight feet six inches in width by eighteen feet in length. On street angle parking stalls shall be a minimum of eight feet six inches in width by eighteen feet in length.

C. Signage

All regulatory and parking signage shall be .080-gauge aluminum with sheeting applied that meets the MUTCD guidelines, including color and size. All signage shall be attached to utility poles or to sign posts.

D. Street Name Signs

Street name signs shall be .080-gauge aluminum, nine inches high by various lengths and shall have 3-M micro prismatic lens sheeting applied (3990VIP). Applied to the sheeting shall be 3-M electro Cut Film, 1177 green. The font shall be Highway Gothic C, with upper and lower case characters. The Upper case shall be six inches in height. The extensions, (Ave., St., Rd.) shall be in upper and lower case, with the upper case character three inches in height.

Street names signs in the Central Business District shall be twelve inches in height and shall be covered with 3-M electro cut film, 1175 blue. The Upper case character shall be eight inches in height and the extensions shall have an upper case height of four inches. The street name signs in the CBD shall be mounted overhead when possible (on mast arms or span wire).

III. Sidewalk and Paving System

There are many factors to consider in laying out a sidewalk zone. Existing elements such as curb cuts, trees, storefronts, and signage significantly influence the final layout. Uniform street lighting is critical on a commercial or arterial street; the uniform spacing of lights may be the determining factor for where all the elements are placed. The best layout should be a balance of existing constraints and the uniform placement of new elements.

A. Paving

Paving is an important unifying element in streetscape design. Paving can guide movement, define spaces, and provide variety. When designing a pedestrian zone paving patterns, colors, and textures should be complementary to surrounding elements. Well-designed paving creates order, scale, and identity on the street. Once established, the paving pattern should become the organizing framework for furnishings, trees, plantings, and lighting.

B. Sidewalks Design

Sidewalks give pedestrians access along streets. Sidewalks in areas outside of Downtown Stamford have traditionally been detached from the curb. This provides for a amenity zone that is primarily a tree lawn area with room for street trees close to the curb. Where a sidewalk is required by zoning, a detached sidewalk is strongly preferred. Sidewalk areas enhance the beauty, safety, and shared common space in the neighborhood.

Concrete is the preferred paving material, although interlocking concrete unit paving, brick paving, and bituminous concrete, may be acceptable in neighborhoods where these materials are prevalent. Special paving in tree lawn areas is recommended in residential streets only where pedestrian use is heavy and tree lawns cannot support turf or ground covers.

C. Sidewalk Guidelines

Paving is the best way to unify the street. Over-designed patterns may become chaotic or dated. Pattern and color should be subdued and avoid sharp contrasts with surrounding paving. Pattern should relate to the size and shape of the space and should create a sense of order in the placement of other street furnishings and plant materials.

1. Maintain a clear unobstructed walkway path. In downtown Stamford, 10 feet width is required where possible. In other areas, 10 feet width is desired but as little as 5 feet may be allowed in constrained locations. A 5 feet width is the minimum for residential areas. When walkways are adjacent to travel lanes they should be at least six feet wide.

2. Detached sidewalks should include a tree lawn area of 5 feet minimum, planted with trees and groundcover or sod. Where groundcover or sod is not practical, as in retail streets, tree grates (around trees), and a hard surface of pavers or concrete are appropriate.

D. Sidewalk Pavements

1. Concrete, including plain grey, integral colored concrete and special finishes is acceptable (excluding stamped concrete, seeded concrete, or epoxy concrete). Concrete walkways shall have a square score pattern to compliment the surrounding neighborhood. Concrete should be a minimum of 5 inches thick, meeting industry standards for concrete mix, finishing, curing, and sealing, with a 2% slope to roadside. Once installed, all pedestrian walks must be safe for pedestrians with no gaps or joints larger than ¼ inch.

2. Care should be taken when using integral pigmented colored concrete. Select subdued and earth tone colors, which will complement natural materials. Rich or bright colors will draw more attention than desired and must be approved by Stamford City officials before their use.

3. Use only paving bricks specifically designed for sidewalk use according to industry standards. Brick pavers must be set on a concrete slab with sand joints and on a 1½ inch sand base.

4. Interlocking concrete pavers are a durable choice. Set on a sand base with tight sand joints according to manufacturer's recommendations.

5. Precast concrete pavers may be installed using finish and color guidelines as discussed under concrete pavement above. These pavers may be installed on a sand base or on a concrete slab mortar joints.

6. Flagstone pavers are only recommended in historic areas, where they originally existed. Installation may be on a sand base with sand joints or on a concrete base with mortar joints as approved by the Department of Operations.

E. Sidewalk Curb Design

1. Concrete Curb

Concrete curbing materials and construction methods shall conform to the provisions of Connecticut Department of Transportation Specifications, Form 814A, 1995, Articles 8.11.02 and 8.11.03 for concrete curbing and M03.01, for class "C" concrete.

Crushed stone base material and method of construction shall conform to applicable Conn-Dot Specifications, Form 814A, 1995 and M01.01. Maximum size of stone shall be one and one-quarter inch (1 ¼").

Concrete curbing methods shall conform to Conn-Dot form 814A, Section 4.01.03, subarticle 13 for Curing and Protection.

Note:
No poured in place concrete, i.e., curbing, sidewalks, slabs, foundations, etc., will be constructed between December 15 and March 15, without prior written approval of the City Engineer.

2. Granite Curb

Granite curb shall be hard and durable granite of light color and uniform texture neither stratified nor laminated. It shall be free from seams and evidence of weakening or disintegration and shall be of a good, smooth splitting appearance. A sample of the type of curb proposed to use and also the name of the quarry from which it originates, shall be approved for the project.

The finish and surface dimensions shall conform to the Detail Drawing for Granite Curbing. Contact the Engineering Department for a copy of the Granite Curb Detail. The top surface shall be pointed, hammered, or sawed. The face shall be smooth quarry split, free from drill holes in the exposed face. The ends of all stones shall be square with the planes of the top and face, and so finished that, when stones are placed end to end as closely as possible, no space more than one half inch (1/2") shall show in the joint for the full width of the top or down on the face for eight inches (8"). If sawed, the curbstones shall be thoroughly cleaned of any iron rust or iron particles. For straight curbing, the stone shall be furnished in lengths not less than six feet (6'), except where necessary for closeness, when no piece shall be less than four feet (4') in length. Holes shall, unless otherwise shown on the plans, be provided through curbs for existing drains. Radius for radius curb shall be as shown on the plan.

Place a concrete base, Class "C", 3000 PSI, under the Granite curbing. The mortar for granite curbing shall be mixed at one part cement to two parts sand.

F. Curb Ramp and Curb Cut Guidelines

The construction and reconstruction of all sidewalks in the city should include curb ramps at all intersection corners to enable the safe and convenient movement of all pedestrians. Curb ramps should align with curb ramp locations across the street. Ramps shall be constructed to current ADA specifications and City standards. Curb ramps are required anywhere the sidewalk crosses a curb. Any deviation from the City standards must be approved by the Department of

Operations prior to construction. See City Engineering Standards and consult with Engineering Department.

G. Crosswalk Pavements

Crosswalks are generally painted at signalized intersections in most areas of the City. In commercial areas, the crosswalk materials and pattern can be an important unifying feature of the district.

Guidelines

Within a neighborhood, it is important to treat each street intersection the same in terms of size of curb radius, location and type of curb ramps, signage location, and paving within crosswalks. Crosswalk pavement should contrast with the adjacent street pavement through color or texture. Drivers need to know where to stop or look for pedestrians and pedestrians need to know where they can rely on crossing the street safely.

Even if the crosswalk is distinguished in terms of color and texture, it is still necessary to install "stop bars" using paint or vinyl street marking material as determined by the Traffic Maintenance Department.

Recommended Crosswalk Paving

Contact the Highway/Traffic Maintenance Department for additional information on crosswalk paving and striping.

1. Painted lines on the street are the most inexpensive solution and are the most visible marking.

2. Concrete paving can be used as a contrasting material in asphalt streets, but it must be augmented by painted or vinyl stop bars. Stamped concrete is prohibited.

3. Unit pavers and brick pavers can be used with cautions. They are expensive, the contrast between paver and asphalt may not be sufficient and painted stop bars are a necessary minimum.

H. Entry Walks

Entry walks are those walks that extend out from the home and/or detached sidewalk and lead to the curb. They are appropriate in the tree lawn, where there is a functional need for them. Three feet is the recommended width for entry walks, with a maximum of 5 feet allowed. They may be used in conjunction with step-out strips as a way of giving access from parked/stopped vehicles to the sidewalk. Concrete is the preferred material, although interlocking concrete unit paving and brick paving are acceptable in neighborhoods where these materials are prevalent.

I. Paving Not Recommended

1. Stamped concrete is not permitted on walkways or elsewhere in public rights-of-way because of appearance, difficulty of snow removal, poor durability, and future repair difficulties.

2. Seeded concrete and epoxy concrete are not acceptable because of appearance, poor

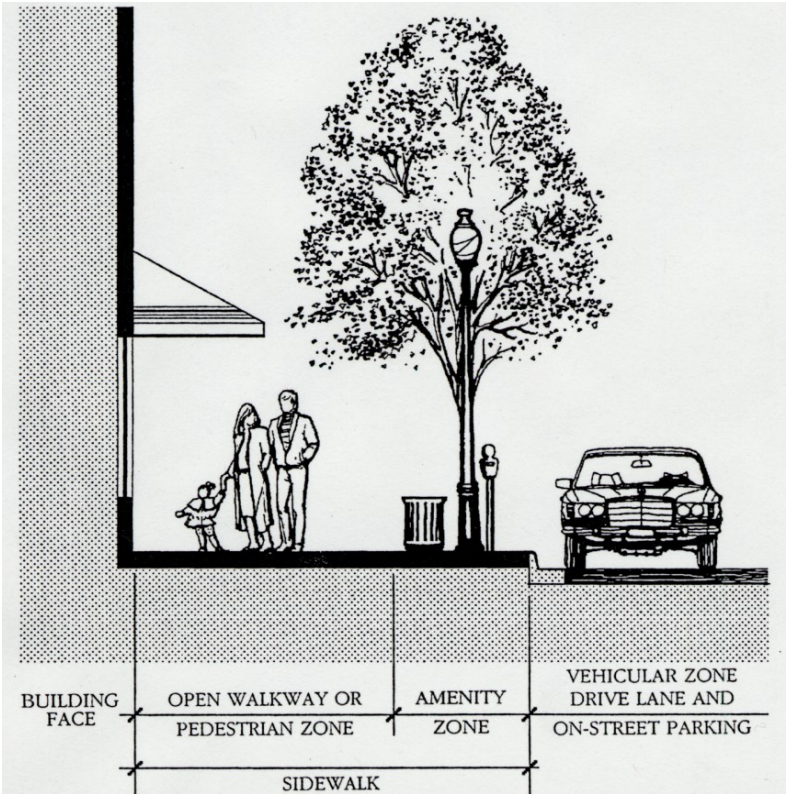
durability, and future maintenance problems.

3. Any glazed product or smooth, slippery surface product should not be used in pedestrian traffic areas for pedestrian safety.

4. Any thin set material should not be used because of future maintenance problems.

5. Any clay brick product, other than paving brick, should not be used because it may be difficult to maintain and the product's resistance to freeze-thaw damage may not be adequate.

6. Any material that is so textured or patterned that it may cause a tripping hazard should not be used.



J. The Amenity Zone

The amenity zone is usually a brick paved area between the curb and the walkway area in a commercial or retail area downtown. The amenity zone is the area where trees, plantings, furnishings, and lighting should be organized. In the Downtown District and in other retail areas around the City, paving in the amenity zone will vary depending on the width of the amenity zone and the location. It may vary significantly in range. Ample clear space must be provided between furnishings in the amenity zone for pedestrian circulation.

SIDEWALK AREA				
Total Width	Pedestrian Zone		Amenity Zone	
Available	Residential	Retail/Com	Residential	Retail/Com
5'	5'	5'	NA	NA
6'	6'	6'	NA	NA
7'	5'	5'	2' Grass	2' Bricks, Lights
8'	5'	5'	3' Grass, Trees	3' Bricks, Lights, Trees
9'	5'	5	4' Grass, Trees	4' Bricks, Lights, Trees
10'	5'	6	5' Grass, Trees	4' Bricks, Lights, Trees
11'	5'	7	6' Grass, Trees	4' Bricks, Lights, Trees
12'	5'	8	7' Grass, Trees	4' Bricks, Lights, Trees
13'	5'	9	8' Grass, Trees	4' Bricks, Lights, Trees
14'	5'	10	9' Grass, Trees	4' Bricks, Lights, Trees
15'	5'	11	10' Grass, Trees	4' Bricks, Lights, Trees
Notes:				
Grass may be used in place of brick, where there is no on-street parking.				
Granite curb must be used in the Downtown Special Service District				

IV. Furnishings

Street Furnishings such as seating, newspaper racks, bicycle racks, bollards, and trash receptacles are important functional elements and amenities, especially in the Downtown streetscape. Furnishings should be designed to be attractive and unified within any given district. Maintenance, safety, and comfort are primary considerations in the design and placement of street furnishings. All furnishings placed in the right-of-way should be high quality, designed for outdoor use, and require minimum maintenance.

In general, street furnishings should be located at least 2 ½ feet from the curb face where on-street parking occurs, and 3 ½ feet where travel lanes adjoin the curb. All furnishings should be located in the amenity zone.

A. Neighborhood Entry Monuments & Signs

Distinct, identifiable neighborhoods may desire to have monuments places at key points of entry or at the center of the neighborhood.

Entry monuments can be a source of pride for residents and give identity to the neighborhood.

Guidelines

Entry monuments or signs should only occur where a distinguishable entry along a street already occurs. In some neighborhoods, clear points of entry are difficult to find, yet identity monuments or signs at key locations may be appropriate to help create a sense of place and to reinforce the neighborhood identity.

Monuments or signs should reinforce the character appropriate to the neighborhood.

1. Entry monuments or signs should be integrated into a total design of typical elements such as trees, ornamental lighting, paving patterns, median planting, walks, and buildings.

2. The scale, character, shape, materials, and location of entry monuments or signs must be planned and consistent for an entire neighborhood. This does not mean that all entries should have monuments or signs. If too many are placed or if they occur in inappropriate locations, the strength of the entry will be diminished. Ad-hoc placement and design of entry monuments or signs is not acceptable. Contact the Land Use Bureau for more information.

3. Provisions must be made for the maintenance of entry monuments and signs. The most effective way to address their maintenance is to have a neighborhood association committed to their upkeep. Their design should be durable and as maintenance–free as possible. All monuments and signs must be approved by the Department of Operations prior to construction.

4. Appropriate scale and proportion are critical to the sense of arrival and entry. Monuments and signs must be effective at the pedestrian and vehicular scale. A range of scales will also create a sense of movement at the point of entry. Monuments and signs must be located a certain distance away from a street intersection and should not create any sight visibility restrictions. Contact the City Traffic Engineer for more information.

5. Monument and sign design should embody elements of form and detail, which represent and identify the neighborhood. The monument or sign should make a reference to the character of the shared vision of the district it serves.

6. All entry monuments or signs should fit comfortably into the family of existing gateway monuments in Stamford.

B. Commercial District Gateway Markers

Gateway markers may be used to define a commercial district. They are recommended only where a coordinated district plan includes markers as an important element to be unified with the overall district design.

Guidelines

The site and surrounding elements of markers are important. Lighting, planting, and signs related to the markers should be carefully designed to reinforce the gateway. The design of the markers should be coordinated with the materials and details of other elements in the district and should embody the characteristics that identify the area.

1. Scale and proportion are critical to the design of the gateway. The scale of the markers should relate to street width and the size of the buildings nearby and must be effective at the pedestrian and vehicular scale, meaning they must be attractive and interesting from the street and sidewalk.

2. Entry markers must not interfere with driver sight lines at corners. Contact the City Traffic Engineer for detailed requirements.

3. Some districts may have a primary gateway and secondary points of entry. A hierarchy of gateways should be developed if secondary entries are to receive markers.

C. Walls and Screens

Walls and screens may be included in a streetscape to direct or screen a view or to provide changes of grade. The height and material selected should relate to building architecture and the character of the district. Walls and screens can be important in creating a continuous sidewalk edge that unifies the street space. Call the Zoning Enforcement Office and the Land Use Bureau for information regarding walls and screens.

D. Seating

Seating may be provided when space allows for a clear pedestrian walking zone and separate seating areas. Seating expands opportunities for people to use the street, especially in commercial streetscapes. Seating may be provided by benches, planter walls, edges, steps, or moveable chairs.

Guidelines

1. Seating surfaces should be 16 to 18 inches high and should have a minimum depth of 16 inches for seats without backs, 14 inches for seats with backs.

2. Walls, ledges, and steps that are available for seating should be between 12 and 20 inches high and 16 inches wide wherever possible. Walls

used for seating on both sides should be a minimum of 30 inches wide.

3. Seating should be durable and comfortable. Avoid sharp edges and poorly designed fabricated furniture. Metal and wood are the preferred materials.

4. Seating design should complement the style of the surrounding architecture and other furnishings.

5. Except for moveable chairs, seating should be secured permanently to paved surfaces for safety and to avoid vandalism.

6. Seating should not interfere with plant materials or pedestrian circulation and should be placed for psychological comfort.

7. Comfortable seating should provide a sense of having protection from behind and something interesting to look at, such as shop fronts or other pedestrians.

E. Tree Grates

Tree grates are an attractive way to protect trees planted in paved areas. Other options such as modular blocks, brick pavers, flagstone, and ground covers may be used upon approval of the Land Use Bureau.

Guidelines

Tree grates are the recommended method for tree planting in paved areas. Contact the Land Use Bureau for approval of Tree Grates.

1. Open tree grates should be designed to meet the planting area. Minimum tree planting areas should conform to architectural design standards. Gate openings should be no more that ¼ inch in width. The size and shape of tree grates should relate to the paving pattern. They should be designed to allow for tree trunk growth, constructed of ductile iron, and unpainted or painted a dark color with a durable, factory applied finish.

2. Irrigation systems within grates are preferred, but dry wells may be allowed with a written maintenance agreements from the owners. The irrigation system should be on a zone separate from all other landscape zones and should be reviewed with the Tree Warden.

3. If string lights are anticipated in the trees, electrical outlets should be provided in the tree grate area. If up lighting is desired, then the designer must select a tree grate to support the light.

F. Fencing & Railings

Fencing within a commercial streetscape can be provided to enhance a neighborhood characteristic, while in residential districts it helps create a definition of the front

yard. Railings may be necessary as a safety feature or as a functional support rail

(leaning rail) for people to lean against. Railings and fences can help define the street space.

Guidelines

Fences and railings should have an ornamental character as well as utilitarian function. Where railings or fences in a particular neighborhood or district contribute to the overall image of the area, try to use the same or similar design details to reinforce that character.

1. Fences and railings must not interfere with pedestrian safety by blocking access from the street to the sidewalk.

2. In certain situations a railing is required to protect the public against potentially hazardous grade changes. Pedestrian safety railings at grade changes shall meet AASHTO standards. For more information contact the City Engineer.

3. Fences and railings should be between 32 inches and 48 inches tall, except railings on bike routes, which must be 54 inches tall to meet AASHTO standards.

G. Trash Receptacles

Trash receptacles should be easily accessible for pedestrians and trash collection. Their design should relate to other site furnishings as well as building architecture. They must be carefully placed to be unobtrusive yet effective.

Guidelines

Trash receptacles should be designed to fit anticipated use and frequency of maintenance. They should be firmly attached to paving when necessary to avoid vandalism. Covered tops and sealed bottoms should be included to keep the contents dry at all times.

Trash receptacles should be designed in two pieces. The inner container should ensure easy trash pickup and removal and an outer shell should blend aesthetically with the other streetscape elements. They should be conveniently placed near benches, bus stops and other activity nodes, and arranged with other streetscape elements into functional compositions. They should not be placed directly adjacent to benches.

H. Bollards

Bollards are generally used to create a low barrier that separates auto and pedestrian traffic, highlight, protect a special feature, emphasize the historical character of the area or direct circulation patterns.

Guidelines

Select a bollard design that is architecturally and aesthetically appropriate to the area and other streetscape elements. Bollards can be used to provide low-level lighting to pedestrian paths.

1. Bollards should be between 28 and 42 inches high.

2. Bollards should be set 2½ feet minimum clearance from curb face.

3. Clearance between bollards or between bollard and any other structure or pole must be at least 36 inches. Clearance must be at least 60 inches where there is clearly one primary path.

4. Bollards may be chained or cabled together if provided with attachments as an integral part of the design.

5. Standard pipe filled with concrete is not acceptable in pedestrian locations.

6. Utilize removable bollards where service vehicles need periodic access.

I. Planting Pots and Planters

Planting pots provide an added dimension and color to streetscape planting. They also direct pedestrian traffic, create focal points, and provide pedestrian resting areas. Large pots are preferred instead of fixed planter boxes because of potential conflicts with vehicles and maintenance.

Guidelines

1. Planting pots should be planted with annual flowers or with ground covers. Pots should occupy a surface area of at least four square feet and should not block other elements such as streets, signs, meters, or streetlights.

2. If planter boxes are used, trees or any woody shrubs should not be planted in them. Their survival rate is generally very low because the roots often freeze in the winter. Only annual flowers or groundcovers should be planted in boxes.

Planters that are to be used for seating should be between 12 and 20 inches in height, with a rim of at least 8 inches in width, wider if seating is intended on the edge. Plants materials should not interfere with the seating. Provisions must be made for ensuring adequate watering and drainage. Staining of paving from planter drains should be considered in planter location.

J. Newspaper Racks

Appropriately designed newspaper racks should serve the public without compromising pedestrian circulation and the appearance of the street.

Guidelines

1. Cluster newspaper racks together wherever possible. Screening should also be considered to minimize views of the racks with other elements to create an organized streetscape. Newspaper racks must be bolted in place.
2. Racks should be painted a neutral background color so that they do not stand out.

3. Racks should be placed at least 2 ½ feet from the curb face, making sure that there is adequate width on the sidewalk between racks and adjacent buildings. If possible, place racks against the building wall and leave the rest of the sidewalk clear for pedestrians.

4. Racks should be placed as close as possible to pedestrian activity nodes. They shall not be located where they will obstruct the view of drivers at intersections or block views of business displays or signs. Racks shall not be chained to poles or placed in areas that obstruct pedestrian circulation. At intersections, no racks shall be placed within the curb returns.

K. Bicycle Racks & Lockers

There are two types of parking facilities for bicycles. These are bicycle racks and bicycle lockers. Bicycle racks should be provided within commercial streetscapes to encourage bicycle use. Bicycle lockers should be provided at major generators such as transportation centers, retail centers and commercial buildings.

Guidelines

1. Avoid placing bicycle racks or lockers in areas where they

may endanger the safety of pedestrians or cyclists.

2. Select racks and lockers that are permanently mounted structures, designed in a simple style, and easy to use. The rack must allow the frame and both wheels to be locked. These racks are typically inverted "U" type construction. Racks that allow for the locking of only one wheel are not acceptable. Contact the Land Use Bureau for recommended bicycle racks and lockers.

3. Place bicycle racks where they are near entrances or gathering places. Avoid placement that creates a tripping hazard. If possible, place the racks where the parked bicycles will be visible from inside the adjacent building. Ideally, bicycle parking should be more convenient than automobile parking.

4. Bicycle lockers are intended for long-term storage. Bicycle lockers provide protection for the bike from theft, the elements and security for the bicycle components such as the lights, pump and other bicycle gear.

L. Kiosks

Kiosks are intended to serve as information points, to direct pedestrian traffic and to organize outdoor spaces. They should be used sparingly and only when needed to impart community information.

Guidelines

Kiosks should be carefully positioned in conjunction with other elements of street furniture such as benches, lighting, and landscaping. They should be focal points in open areas, and may be combined with other elements like business directories, telephones, mailboxes, and newspaper racks. The design should be compatible with and complementary to the surrounding architecture and other furnishings.

1. Kiosks should facilitate the posting of notices and their removal and cleaning.

2. Kiosks should be easily accessible from all sides and adequately illuminated.

3. Kiosk designs require review by the Stamford Land Use Bureau, and if Downtown, also by the DSSD.

4. Kiosks should be designed so that they are easy to maintain.

M. Fountains

A fountain provides moving water that masks noise, cools and humidifies the air, increasing comfort and beauty in a space. Fountains can also be used to define space or provide an interesting focal point.

2. Fountain design should respond to wind direction, building location, pedestrian circulation, potential ice build-up in winter and the appearance of the fountain and its basin when not operating.

3. Fountains should include a recirculating pump for conservation purposes.

Guidelines

1. The rim around the fountain or pool should be between 12 and 20 inches in height and 16 inches in width, if used for seating.

4. Maintenance is crucial to the success of all fountains. The owner should be committed to maintenance prior to beginning design.

N. Parking Meters

The location of parking stalls and meters should be coordinated to minimize clutter. Meters should be aligned with other furnishings where possible. They should be placed adjacent to the pavement marking for the parking stall guide lines.

Parking meters should be located 18 inches behind the curb, 22 feet on center or as approved, and one per stall. Parking meters shall be placed as to create a minimum number of pipes installed. Place two-meter heads on one pole where practical. Parking meters shall be P.O.M. iron housing and vaults, with electronic APM-E type mechanism. Mechanisms shall have card slots for future use with smart cards. Parking meter supports shall be two inch galvanized steel pipe and shall have escutcheons at the base. Decorative sleeves and

bases need approval from the Director of Operations. Contact the Traffic Maintenance Section for coordination with sidewalk improvement projects.

O. Utilities

Coordinate the location of all proposed utility boxes and meters, including irrigation controls, with the proposed locations of site furnishings, trees, signs and lighting. Boxes and meters should be located 2 ½ feet from the curb face and should not be interfering with pedestrian movement.

There are several kinds of utility cabinets that may need to be accommodated, including cabinets for electric meters, water meters, water/irrigation controllers, backflow preventers, traffic signal switching equipment, and Public Service Company switching gear and transformers.

Guidelines

1. Utilities should not be located under walkways or where they might interfere with or preclude street trees.

2. Traffic signal switching gear cabinets are of a standard design. They must be located near the signals they control, with care not to block pedestrian access at the street corner or in walkway zones.

3. Electric meters, water meters, and irrigation controllers can be handled individually or consolidated into one cabinet. Public Service Company transformer vaults and switch cabinets are larger and should be located as inconspicuously as possible.

4. Any cabinet must be accessible, with room to swing the doors open and space to get the necessary equipment in position for service. Check with the appropriate utility for specific access requirements.

5. Before finalizing the design of any streetscape or utility project, existing overhead and underground utilities must be located and sized with the assistance of the various city departments and utility agencies. Contact and sign-off from all utility companies is required prior to final design.

P. Bus Stops

Standard bus shelters are placed by The Transit District at stops where there is a clear need. If a different type of shelter is desired, it must be approved by The Transit District. Any additional costs and maintenance become the responsibility of the adjacent property owner, maintenance district or business improvement district.

Benches are not placed by The Transit District. Neither the City nor The Transit District normally makes funds available to purchase or install benches. Call The Transit District for more information on bus shelter placement.

Q. Public Art

Public art should capture and reinforce the unique character of a place. It can interpret the community by revealing its culture, history, or character. Art that invites participation and interaction, and that adds local meaning is preferred.

Guidelines

Art should add beauty and interest. It may feature humor, water, seating, and opportunities for children to play. The setting for public art is significant to the experience of the art itself. The place's impact on the art may be as great as the art's impact on the place. The two together enrich the place and make it memorable.

1. When considering placement of freestanding pieces of art or sculpture, avoid locations where it would compete with a storefront, obstruct a pedestrian path, create a traffic hazard, or compete with another sculpture.

2. Murals or bas-relief may be used to enliven otherwise blank walls.

3. Construct public art using durable materials and finishes such as stone or metal.

V. Lighting

Lighting can play an important role in the character, function, and security of a streetscape. Scale, style, lighting effect, cost and maintenance affect fixture selection. Street lighting is owned and maintained by the City of Stamford.

A. Pedestrian-Lighting

Pedestrian lighting consists of fixtures less than 14 feet high and is not provided by Connecticut Light & Power. It is generally not recommended in front of residences except at bus stops or where a comprehensive neighborhood or district plan calls for it. Various programs in the city may provide pedestrian lighting through a grant to a neighborhood association. Call the Operations Department for more information.

Pedestrian-scaled light posts and luminaries play a vital role in developing the unique character of commercial districts throughout the City. Pedestrian lights illuminate the sidewalk and provide a feeling of security at night. Fixtures should relate to the image and history of the individual area and to fixtures in similar districts in the City.

Spacing and Location

Locate lights as part of an overall system that organizes other street elements such as trees, benches, and paving.

1. Place lights at least 2 feet from the back of the curb to allow room for car bumpers and door swings. Align with street trees where possible.

2. Place lights at least 5 feet from the edge of the curb transition point nearest the driveway, curb cut, or alley and at least 20 feet from the extended flow line of the nearest intersection.

3. Space lights at least 50 feet apart. 60-115 feet is preferable in most cases to provide a pleasing effect and to ensure room for street trees and other furnishings. Closer spacing can also cause uncomfortable glare.

4. Install luminaries a maximum of 14 feet and a minimum of 12 feet above sidewalks to avoid glare into upper windows. Avoid placing lights directly in front of residencies to avoid

disturbing inhabitants.

Style and Materials

Select lighting styles to integrate with the architectural or historical character of the area.

1. Victorian type luminaries are recommended for most commercial streets in order to maintain consistency throughout the City. Avoid selecting different types of lighting for small projects. (HADCO model # R5IBANNIATRR or equivalent)

2. Globe type luminaries are reserved for parks and parkways exclusively.

3. Poles should be well articulated with enough detail to create a range of scale for the pedestrian whether near or far away. Flutes, moldings, or other traditional details are strongly preferred. (HADCO model P-2063-12 FT or equivalent)

4. Alternative fixtures that reflect local architectural or historical character are subject to approval by the Director of Operations.

5. Single luminaries are highly preferred over multiples, which should be considered only for special locations such as gateways or entry points of a district.

6. Pole and base are to be either black or green.

7. Luminaries are to be translucent or glare-free, utilizing poly-acrylic lenses, with an internal full top reflector.

8. Luminaries used in single or multiple pedestrian light fixtures are to use 85-165 watt inductive lamps to provide consistent light color citywide.

9. Multiple luminaries should not be more than 85 watts in each luminary.

B. Street Lighting

Street lighting plays an important role in the quality and safety of our streets, especially at night. Lighting illumination levels are based on two criteria: the uses along the street (such as commercial or residential) and the volume of automobile traffic. The City of Stamford and Connecticut Light & Power have guidelines for spacing, location, style, and color. Once a site plan has been developed including street trees, pedestrian lighting, and furnishings, the plan should be submitted first to the City of Stamford and then to Connecticut Lighting & Power. CL&P review should include transformer, cabinet, and meter locations. For questions regarding specific design issues such as pole spacing and wattage, contact the City's street lighting administrative engineer.

Spacing and Location

Locate streetlights as part of an overall system including cabinets, transformers, etc.

1. Place lights at least 2 feet from the face of the curb to allow room for car bumpers and door swings.

2. Place lights at least 5 feet from the edge of the curb transition point nearest the driveway, curb cut or alley. At signalized intersections, lights are generally mounted on the signal poles. Where signals do not occur, locate lights near the intersection.

3. Spacing for commercial streets will range from 100 to 150 feet. For residential streets, 150 to 170 feet is appropriate and for special districts, such as downtown, consult the City of Stamford street lighting design engineer.

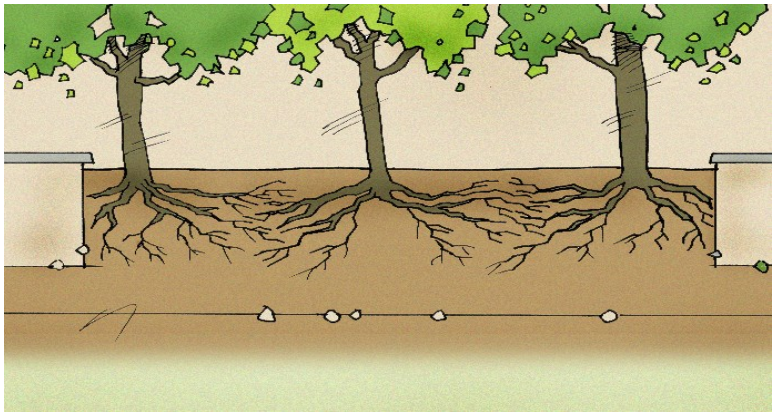
C. Special Effect Lighting

Special effect lighting may include string lighting in trees or up lighting in the tree grate or planting bed. If string lighting is desired, electrical outlets should be included adjacent to each street tree.

If up lighting is desired around trees, tree grates should be used with cutouts for the light. Up lighting should be selected to blend with paintings, be waterproof and directional. Up lighting should use fixtures, which shield the light source from passing motorists.

VI. Landscaping

A. Site Design Criteria



There are specific threshold issues to be considered in the preliminary determination of site-design criteria pertaining to the selection and planting of trees. First and foremost is the available space, particularly the space dedicated to the Amenity Zone component with a minimum of three feet (width from curb to sidewalk) being the enabling threshold for the addition of trees to the streetscape. . Other considerations include location and proximity to the underground utilities; presence of on-street parking and orientation of parking; sight lines; maintenance responsibilities (public or private); and long-term expectations.

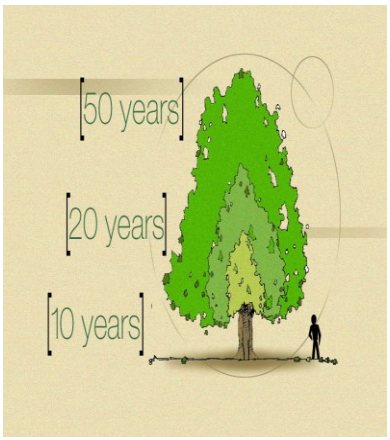
1. Purpose of Planting
If the primary purpose of a particular planting is the providing of an opportunity for a tree species to reach its full potential in terms of growth and longevity, then maximum soil volume and protection from mechanical injury are key design considerations.

Plantings intended for maximum growth and longevity of the individual trees, sited for the greatest potential for success, should be contained within a tree lawn area, and located on the building side of sidewalks when feasible. Trees should be planted with adequate spacing to allow for maximum crown development, symmetry, and full height.

If the primary purpose is to have the tree plantings be amenities to residents and pedestrians by improving the aesthetics of the street, then they may be appropriately viewed as a system, rather than as individuals.

Accordingly, the trees become visual connectors, unifiers, and buffers. They may be planted between the curb line and the sidewalk, and they may be contained within either a tree lawn or a tree pit depending upon the width of the Amenity Zone and the presence or absence of on-street parking.

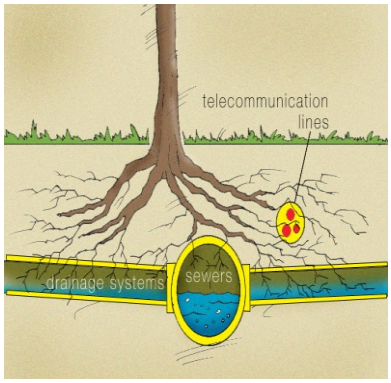
2. Available Growing Space
The space available for tree growth results from a combination of factors including available soil volume, distance from the curb line, proximity of buildings and established existing trees, presence of overhead wires and underground utilities, and proximity to intersections, curb cuts, light poles, and signs. It is important to note that it is the height and width of the mature tree that is the determining factor in calculating growing space requirements.



Trees may be grouped into two categories depending upon the available growing space. **Category I** trees include medium to large trees suitable for locations where adequate soil volumes can be provided (minimum of 1200 cubic feet of well-drained soil), overhead wires are absent, and setbacks from intersections, curb cuts, light poles, and signs can be maintained. **Category II** trees fit more appropriately into restricted growing areas. It is important to recognize that some sites simply do not have sufficient growing space available for the planting of trees.

Minimal spacing for tree plantings range from 35'-55' for Category I trees and 15'-25' for Category II trees. No plantings closer than 20 feet to light poles and signs, 30' from intersections, 10' from driveways and other curb cuts, 6' from hydrants, and no closer that 8 feet to the front face of the buildings.

3. Overhead and Underground Utilities
The presence of overhead utility lines restricts the choice of suitable trees to those that will reach heights of 35 feet or less at maturity. The presence of underground utilities restricts placement as tree roots may potentially damage piping and conduits, or interfere with maintenance and replacement as necessary.



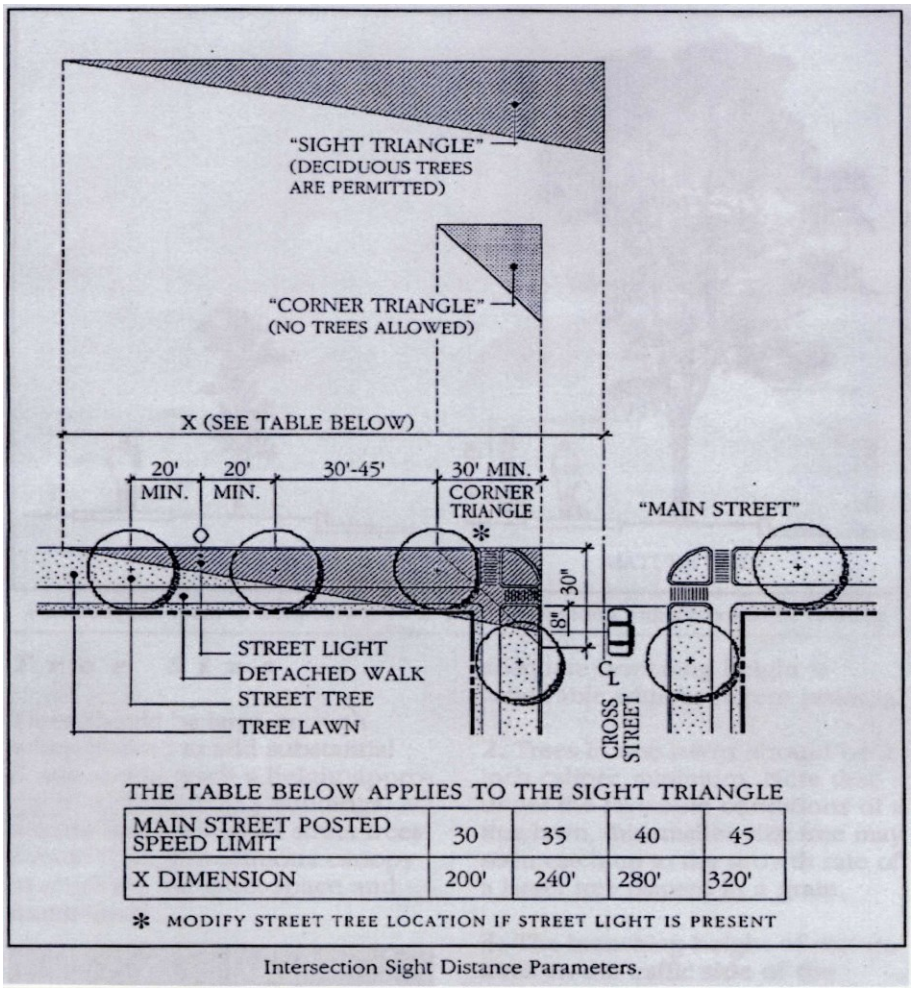
4. Presence and Orientation of On-Street Parking
The presence of on-street parking impacts tree placement and planting specifications. Trees must be placed far enough back from the curb to remain free from obstructing the opening of car doors and/or physical damage to trunks and lower limbs.

Stable surface materials, granite blocks or tree grates, may be necessary to provide a stable walking surface between the parked car and sidewalk and to prevent soil compaction.

Bollards and chain on the street side of the planting pit help reduce mechanical injury and direct pedestrians around planting areas.

Planted "peninsulas" within the parking lane are encouraged as a means of promoting safety and enhancing aesthetics.

5. Sight Lines
Trees should be selected and placed in a manner that does not interfere with vehicular and pedestrian safety. Considerations include proximity to intersections, corners, and curb cuts; proximity to traffic signals and signs; presence on ramps, bus stops, benches, and shelters; proximity to lighting.



MAIN STREET POSTED SPEED LIMIT	30	35	40	45
X DIMENSION	200'	240'	280'	320'

Intersection Sight Distance Parameters.

Trees should not be planted closer than 30 feet from the curb face at intersections and street corners within the corner triangle. Review with the Transportation Division to determine specific requirements.

Within the Sight Triangle, no non-plant materials over 32 inches or plant materials over 6 inches high are permitted, except for deciduous trees, traffic control, and lighting devices. (see diagram – Intersection Sight Distance Parameters)

Maintain minimum sight triangle and corner triangle distances for safe view of oncoming traffic and pedestrians.

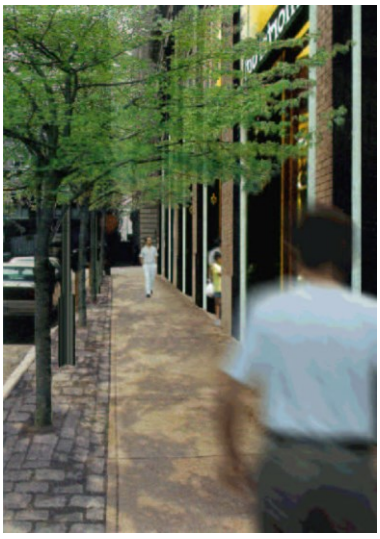
Trees must not interfere with visibility of traffic control devices, especially at intersections. Review with the Transportation Division to determine specific requirements.

At alleys, trees should not be located closer than 10 feet from the projected alley property line.

Trees should be located a minimum of 30 inches from the face of the curb.

For commercial and residential streets, the minimum distance from streetlights is 20 feet for most trees.

At all locations, trees should be adjusted slightly to ensure the driver's visibility of regulatory signs.



Create a clear walking zone between trees and buildings. In downtown, 10 feet should be the clear minimum. Distances as low as 5 feet may be possible where space is very limited, however few tree species will be appropriate in such a small area. Trees must be placed far enough away from buildings to allow them to grow without excessive pruning.

B. DETAILS

1. Tree Planters/Tree Pits
The urban planting area includes the area containing backfill suitable for tree growth and the opening within which the tree is planted. Minimum recommended tree planting area with prepared planting backfill is 5' X 15' (225 square feet) with a 5' X 5' pavement opening (25 square feet) or some other combination of dimensions equaling the square footage recommendations. Other combinations of planting area, pavement opening, and tree pit volume require review by staff.

2. Surface Treatments for Pavement Openings
In areas where maintenance is the responsibility of the City, the surface of pavement openings shall be 4"X 4"X4" granite block with 3/8" wide sand-filled joints. A two-foot square opening, mulched with shredded bark not to exceed a depth of 3 inches, shall be provided at the base of the tree.

In areas where maintenance is the responsibility of a private entity through a long-term maintenance agreement between the private party and the City, tree grates may be used as long as the maintenance responsibilities include regular inspection and enlargement of the tree grate as needed to accommodate the growth of the tree.

3. Planting backfill
Tree planting areas must be free draining, and must provide underdrainage connected to the nearest permanent drainage structure as necessary.

Recommended backfill material shall be composed of 40 percent coarse sand, 50 percent sandy loam topsoil, and 10 percent compost. Use of so-called structural fill may be encouraged in certain circumstances upon consultation with staff.

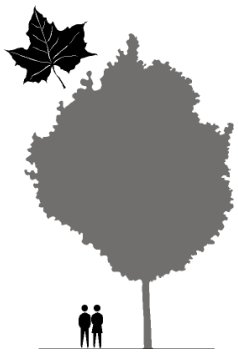
4. Tree Sizes
In residential settings, all trees must be a minimum 2-1/2" to 3" caliper size class. In urban settings, the next larger size class shall be utilized. In all plantings, individual trees must have a single trunk with a minimum lowest branching height of 7 feet.

5. Maintenance Responsibilities
Maintenance responsibilities include routine inspection and pruning; care of tree lawns to encourage healthy turf involving mowing, irrigation, and fertilization as necessary; inspection of tree grates with resetting as needed to prevent tripping hazards and enlargement of tree openings as necessary.

6. Long Term Expectations
Tree selection and placement is influenced by the long-term design expectations for the site. Trees planted to reach maturity require consideration of the space available for root growth (soil volume), and space available for the spread of the crown without the need for extensive pruning.

E. Tree Selection

1. Category I
Trees suitable for sites where overhead wires are not present and ample growing space is available.



Emerald Queen Norway Maple
(Acer platanoides 'Emerald Queen')

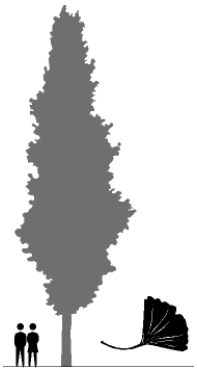
The Emerald Queen Norway maple grows to about 50' high and 40' wide at landscape maturity. The tree will be roughly 25' high and 20' wide when it is about 20 years old. The tree grows well in sun or shade and has a wide tolerance of acid to alkaline soils. It is therefore often planted on city streets and in public parks.

Red Maple
(Acer rubrum)

At maturity, these trees can be as large as 50'-70' tall and 15'-20' wide. The red maple requires moist soil and the thin bark of the young tree is easily damaged.

Green Ash
(Fraxinus pennsylvanica)

The green ash grows to 45'-55' tall and 35'-45' wide.

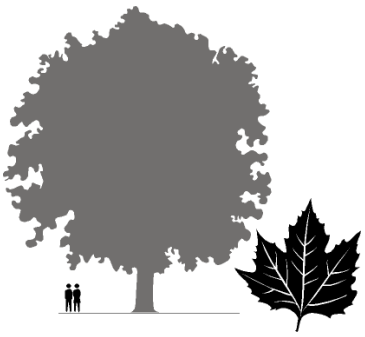


Ginkgo
(Ginkgo bilba)

The Ginkgo can grow as large as 55'-65' tall and 25'-30' wide.

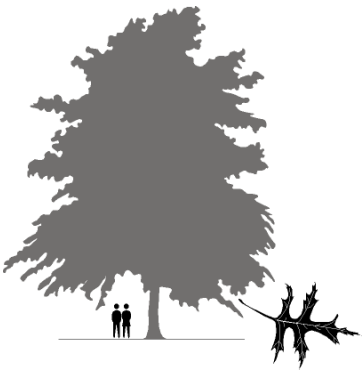
Honeylocust
(Gleditsia tricanthos inermis)

The honeylocust grows to about 45’ high and 35’ wide at landscape maturity. The tree grows at the rate of roughly 2’ a year for the first 10 years and prefers full sun.



London Planetree
(Platanus acerifolia)

The London planetree grows to 70’-80’ tall and 55’-65’ wide.

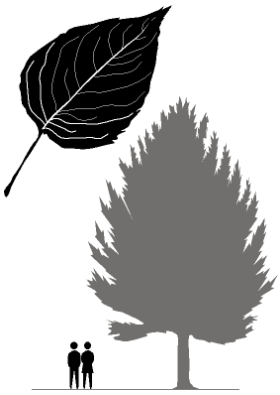


Pin Oak
(Quercus palustris)

The pin oak grows to 55’-75’ tall and 40’-55’ wide. The tree requires full sun and acid soil that is free of limestone.

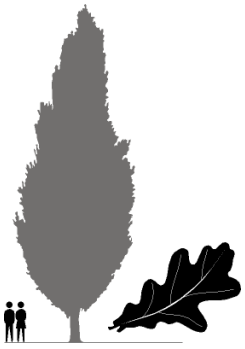
Sweetgum
(Liquidambar styraciflua)

The Sweetgum can grow to 50’-75’ high and 40’-65’ wide. The tree prefers full sun and acid soil.



Callery Pear
(Pyrus calleryana)

The callery pear grows to 35’-45’ tall and 25’35’ wide.

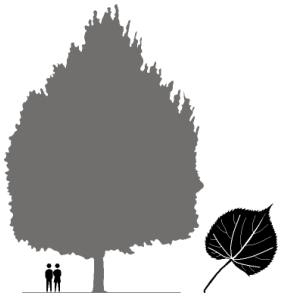


English Oak
(Quercus robur)

The English oak grows to 50’-60’ tall and 15’-20’ wide.

Red Oak
(Quercus rubra)

The red oak grows to 60'-80' tall and 40'-65' wide. The tree prefers full sun and well-drained, acid soil.



Littleleaf Linden
(Tilia cordata)

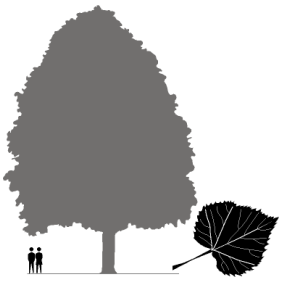
The littleleaf linden can grow as large as 60'-80' tall and 35'-55' wide. The tree is somewhat sensitive to drought and salt.

Japanese Zelkova
(Zelkova serrata)

The Japanese zelkova grows to 50'-60' tall and 50'-60' wide.

Sophora / Pagodatree / Scholartree
(Styphnolobium japonicum)

The sophora grows to 40'-70' high and 40'-70' wide at landscape maturity. The tree requires full sun.

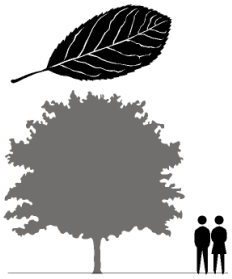


Silver Linden
(Tilia tomentosa)

The silver linden can grow as large as 60'-70' tall and 45'-55' wide. The tree is somewhat sensitive to salt.

2. Category II

Trees suitable for sites with overhead wires present and restricted growing space.

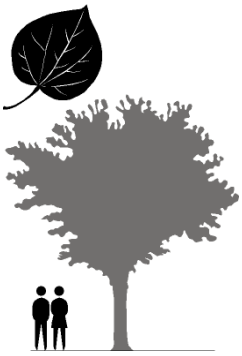


Shadbush/Serviceberry
(Amelanchier canadensis)

The shadbush/serviceberry only grows to 15'-30' high and 15'-25' wide. Therefore, it is ideal for planting under power lines, if the conditions are right for it. The tree is somewhat sensitive to drought, soil compaction, salt, and air pollutants. It recovers slowly after transplanting and prefers well-drained, moist, acid soils.

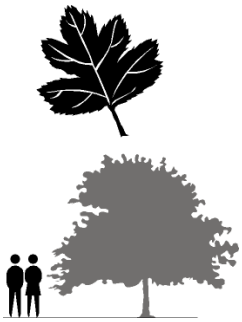
Kousa Dogwood
(Cornus kousa)

The kousa dogwood grows to 20'-30' high and 20-30' wide, making it ideal for planting under power lines as long as the conditions are right for it. The tree is sensitive to soil compaction and drought.



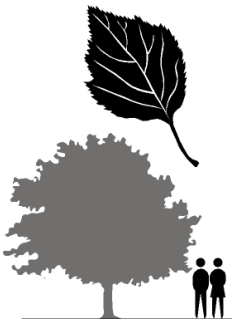
Eastern Redbud
(Cercis Canadensis)

The eastern redbud only grows to 25'-30' high and 25'-35' wide, making it ideal for planting under power lines as long as the conditions are right for it. The tree will maintain its vigor if it is watered when needed and occasionally fertilized.



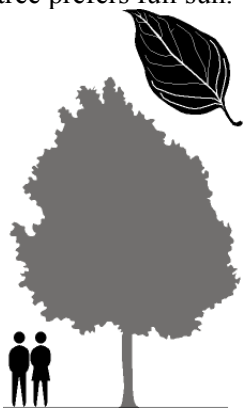
Crimson Cloud English Hawthorn
(Crataegus laevigata 'Crimson Cloud')

The English hawthorn grows to 15'-20' high and 12'-18' wide, making it ideal for planting under power lines as long as the conditions are right for it. The tree prefers full sun.



Winter King Green Hawthorn
(Crataegus viridis 'Winter King')

The Winter King green hawthorn grows to 25'-30' high and 25'-30' wide, making it ideal for planting under power lines as long as the conditions are right for it. The tree prefers full sun.



Japanese Tree Lilac
(Syringa reticulata)

The Japanese tree lilac grows to 20'-30' high and 15'-20' wide. Its small size makes it ideal for planting where there is limited space, such as under utility lines.

The Yoshino cherry grows to about 25’ tall and 25’ wide, making it ideal for planting under power lines as long as the conditions are right for it. The tree requires full sun and is moderately sensitive to pollution and soil compaction. It prefers moist soils, but is somewhat drought tolerant.

Kwanzan Oriental Cherry
(Prunus serrulata ‘Kwanzan’)

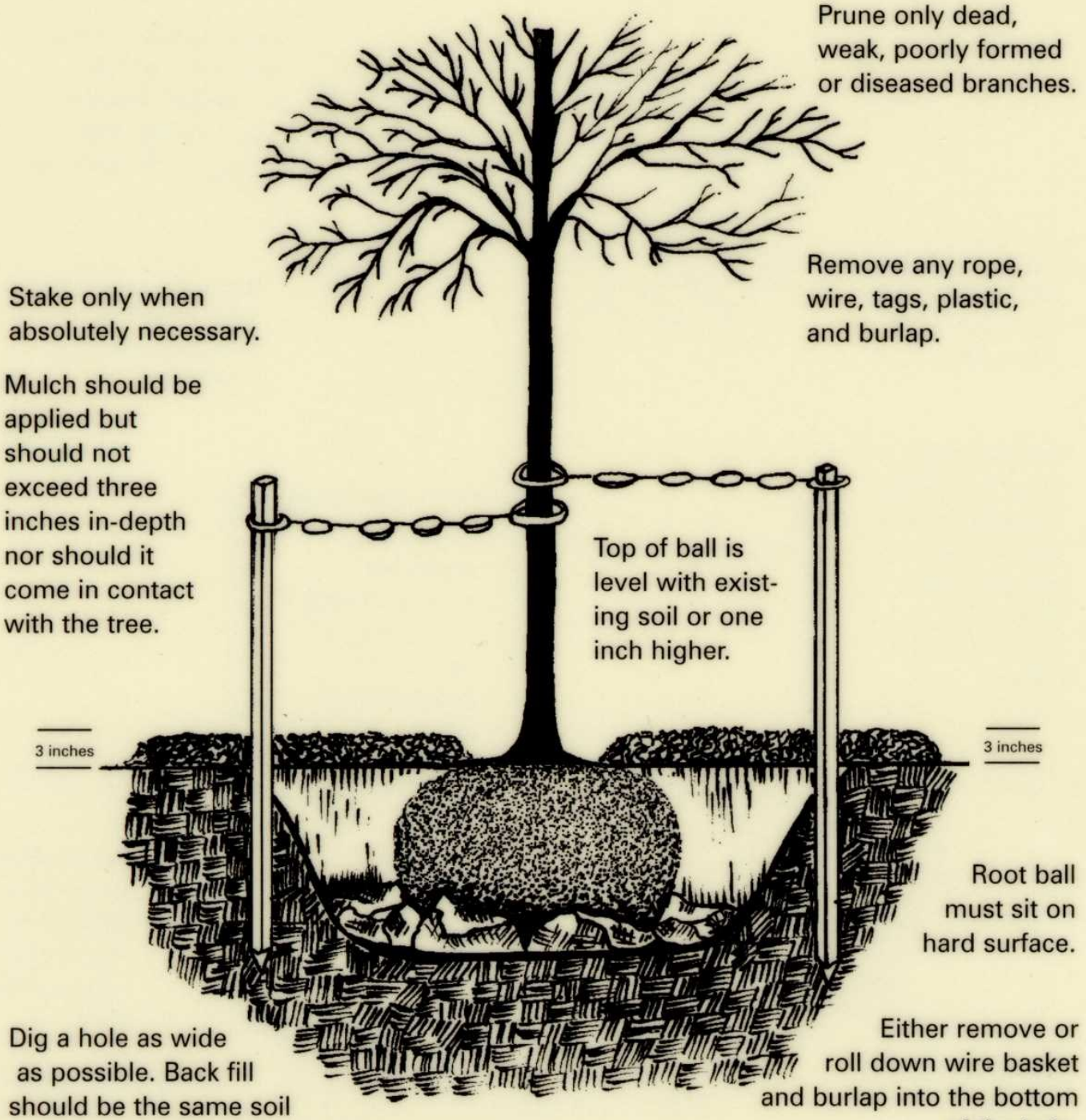
The Kwanzan cherry grows to 25’-35’ tall and 20’-25’ wide, making it ideal for planting under power lines as long as the conditions are right for it. The tree requires full sun and is moderately sensitive to pollution and soil compaction. It prefers moist soils, but is somewhat drought tolerant.

Turkish Filbert/Turkish Hazel
(Corylus colurna)

At maturity, the Turkish filbert will grow to 45’-60’ tall and 25’-35’ wide. Its excellent formal character makes it ideal for planting along streets. The tree prefers full sun and need to be watered well for the first few summers after it is transplanted. But once it is established, it requires little maintenance.

Yoshino Cherry
(Prunus yedoensis)

Tree Planting Details



SAMPLE SPECIFICATIONS FOR TREES

Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement. Plants shall be nursery grown, with a burlapped root ball (B&B), of first grade quality, conforming to the American Association of Nurserymen Standards (ANSI Z60.1 "American Standard for Nursery Stock") as well as generally accepted best trade practices, and as otherwise specified as follows:

1. Trees should be acquired, when feasible, from nurseries within a radius of 200 miles to Stamford unless otherwise approved.

Trees must fully represent the size category and shall average 2-1/2 inches – 3 inches caliper (suburban) and 3 – 3-1/2" caliper (urban) with straight trunks, balanced tops, and a single leader to a minimum height of at least 7 feet prior to branching unless specified otherwise.

All plant material shall have well finished branch systems together with vigorous fibrous root systems.

All plant material shall be free from all insect pests, plant diseases, disfiguring knots, stubs, sun-scald, abrasions to the bark or any other objectionable disfigurement.

Plants shall not be pruned before delivery.

Clump species, when specified, shall have three or more main stems starting from the ground.

All burlapped root balls shall be compact and tight to the trunk. No broken root balls or root balls with loose trunks will be accepted. All wire baskets must be entirely removed prior to planting.

All trees and shrubs shall be clearly marked or tagged for identification, **including species and variety**, and shall show the date of planting.

All trees and shrubs shall be handled with sufficient care to prevent damage to the root ball, trunk, or branches.

Trees and shrubs shall be protected from desiccation and/or freezing during handling and storage. Planting shall be done according to accepted professional practices, and include but need not be limited to providing adequate space around and under the root ball, and backfilling with suitable prepared planting soil mix where existing soil in planting area is deemed unacceptable.

Burlap shall be untied completely and removed from the upper 1/3 of the root ball. **Wire baskets shall be removed completely, or cut away from the top half of the root ball.**

The root ball shall be positioned so the top of the root collar is at or above the level of surrounding soil. Care shall be taken to insure that the tree is not set too deep.

Watering shall be done during and immediately following planting so as to constitute puddling and draining until the root ball is saturated and settled within the planting hole. A "TREEGATOR" or equivalent shall be provided/installed with each tree at the time of planting.

STAKING AND GUYING **No trees shall be supported with stakes and guy wiring unless otherwise directed.** Stakes, when used, shall be nearly vertical and not pose a hindrance to passersby.

MULCHING - All trees shall be mulched, using a shredded bark mulch to a depth of no more than three inches, and formed for adequate watering. Mulch shall be kept away from the trunk. Mulch shall be organic and free from deleterious materials. It shall be suitable for use as top dressing of trees and shrubs, and shall consist of one of the following materials: shredded hardwood, ground or shredded bark, or wood chips.

"TREEGATORS" – A "Treegator" or equivalent shall be installed at each tree at the time of planting and filled with water to its capacity.

FERTILIZING – All planted trees and shrubs shall be fertilized only as directed.

VII. Maintenance

The property owner is responsible for the proper maintenance of landscaping areas in the right-of-way fronting their property. Maintenance includes mowing; weeding, cleaning, snow shoveling, raking, re-seeding and otherwise repairing all the landscaping and paving materials in the right-of-way including sidewalks and street trees. The only exception to this occurs in the case of designated parkways, where the Parks Department performs landscape maintenance, and downtown where the Downtown Special Service District is responsible for the streetscape.

Landscaping must be maintained continuously. This includes necessary watering, weeding pruning, pest control and replacement of dead or diseased plants. Replacement plants should be the same type as used originally. Replacement time should not exceed one year.

A. Trees, Shrubs and Sod
Proper maintenance can prolong the life and beauty of landscaping. Basic care should include:

1. Maintaining tree spaces and landscaped areas including watering, cleaning, weeding, mulching, mowing, fertilizing and aerating when necessary.

2. Remove grates, paving materials or any other material installed in the tree space when maintenance on the tree or tree roots is necessary, and properly reinstall when finished.

3. Replace grates or paving materials when damaged or destroyed.

B. Lighting
It is critical that lighting is maintained and that continuous electrical service is provided. The following procedures should be implemented:

1. Maintain lighting control devices including timers, photocells, etc.

2. Replace damaged or missing light poles or parts within 30 days of damage.

3. Replace burned out bulbs or lamps within 10 days of burn out.

4. Perform general maintenance work including regular cleaning and painting when required.

C. Furnishings
Street furnishings must be maintained to remain attractive and functional amenities. Painting, cleaning and repairing will help ensure a more desirable and enduring environment.

D. Sidewalks
Cracked, broken or missing sidewalk paving is hazardous to public safety. Recommendations for sidewalk upkeep are as follows:

1. Maintain concrete joints and replace sealant when necessary.

2. Remove snow, ice or leaves when necessary.

3. Remove trash on a regular basis.