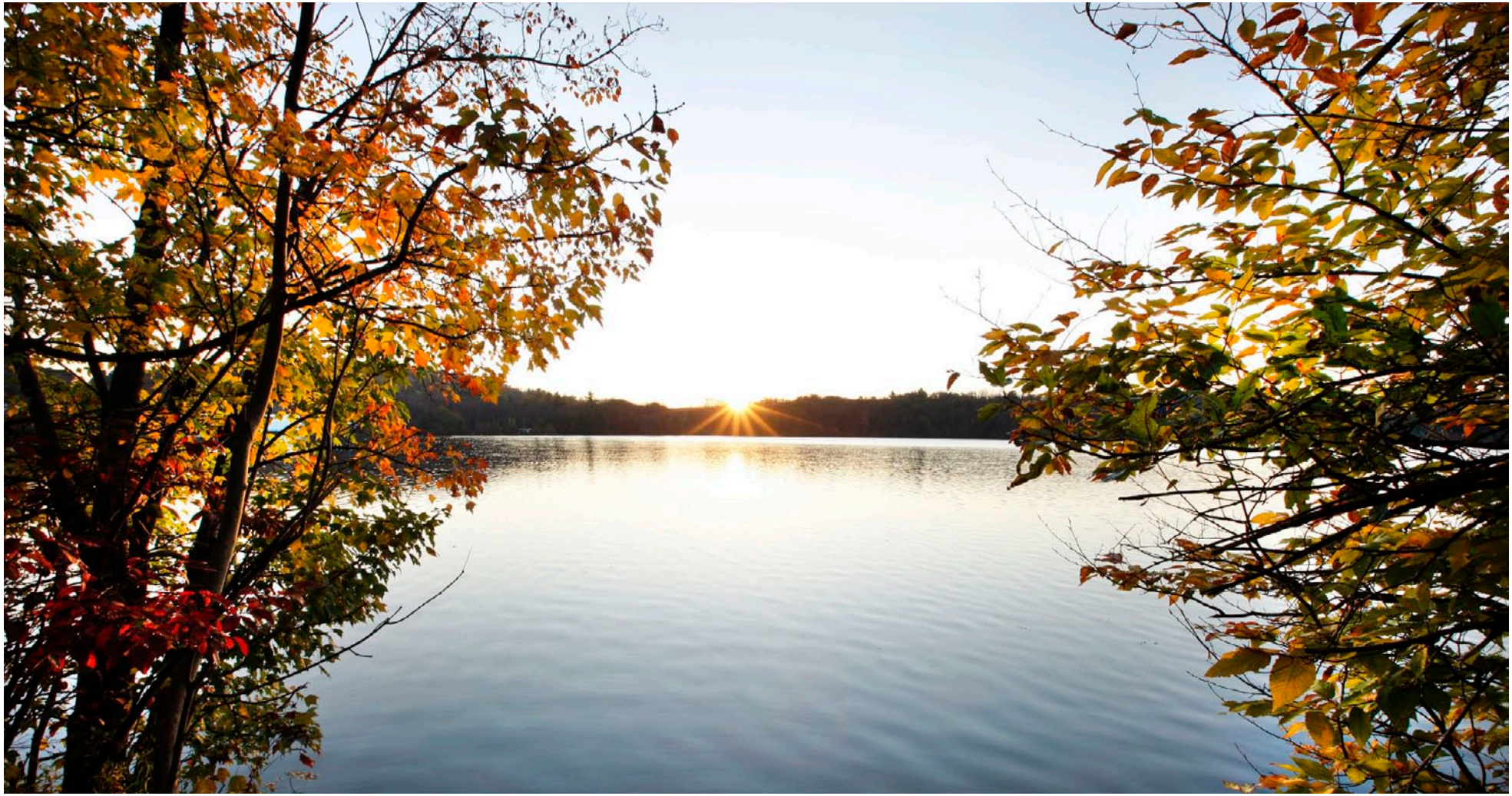

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LANDSCAPE MASTER PLAN REPORT

February 2013

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CO OP

Forestry and Natural Resources
AKRF, Inc.
New York State Department of Environmental Conservation

NOTE:

The project is generally referred to as the EPT Concord Resort or Concord throughout this Landscape Master Plan. In Chapter 3 Signs & Lighting, the branding will be addressed.

1.0 LANDSCAPE VISION

LANDSCAPE VISION

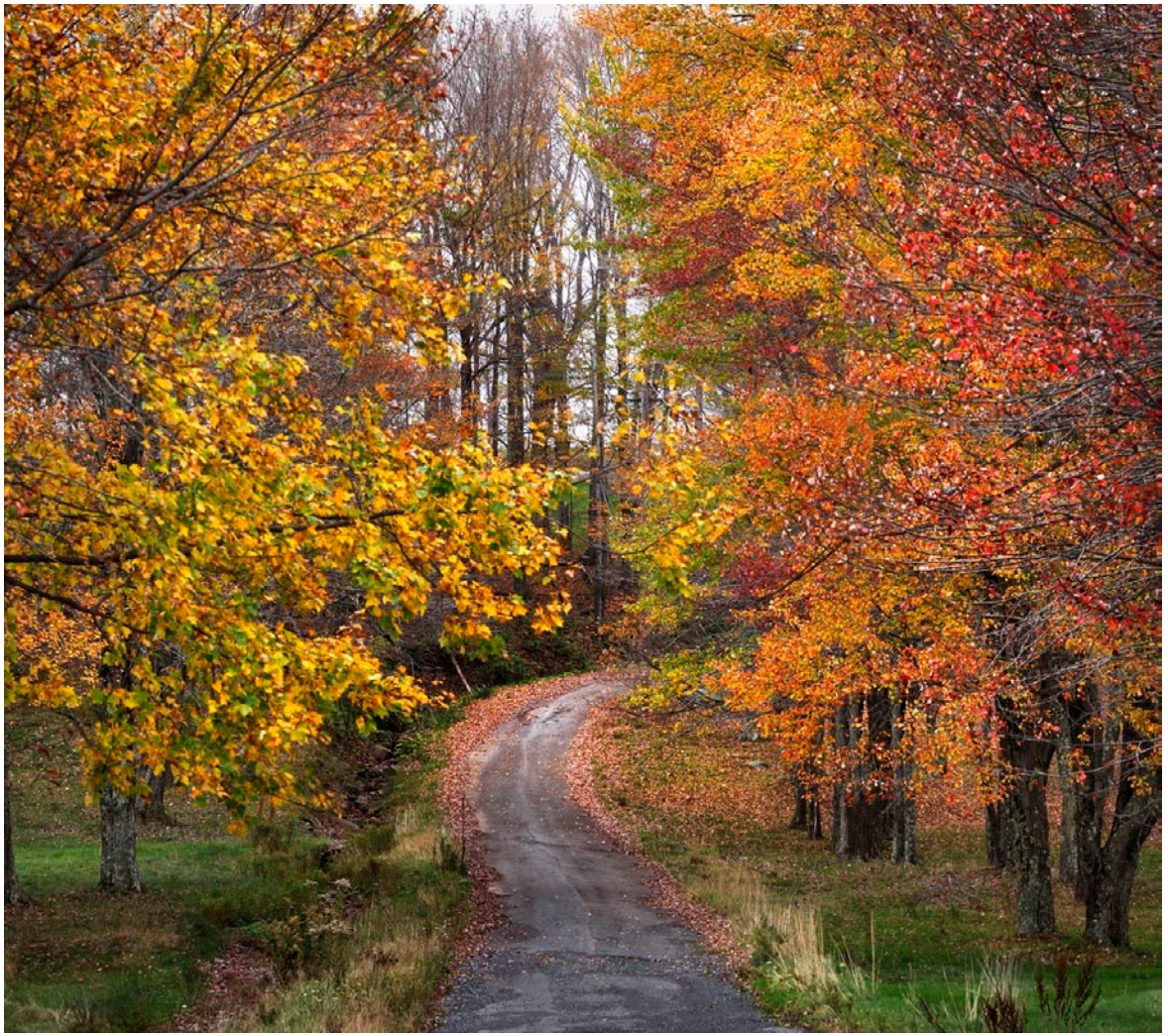
The landscape vision for the EPT Concord Resort is to build upon the natural beauty of the site, and to create a distinctive Catskills landscape experience and recreational opportunity for residents and visitors.

The landscape vision for Concord is based on the following guiding principles:

- The natural beauty of the setting should be preserved and enhanced, so that the landscape setting is the dominant framework of the new community;
- Respect for nature and natural systems is a core value of the community, resulting in sensitive development balanced with care for the environment.
- Introduced site elements and landscapes are thoughtful designs that will complement the natural setting and preserve the existing character of the site.
- Landscape designs, while individualistic should emphasize use of native plant materials to reinforce a sense of place.
- Landscapes beyond the core built areas should transition to an informal natural character in order to blend with the surroundings. This concept would be applied to all areas of the Resort, including destination areas and within the individual landscapes of residential parcels and lots.

In the following chapters of this document, the ideas described are intended to provide a sense of the proposed landscape for the Concord community's common areas, including the main entry landscape, community signs and lighting, the trails system, and the residential areas and open space amenities and forest management.

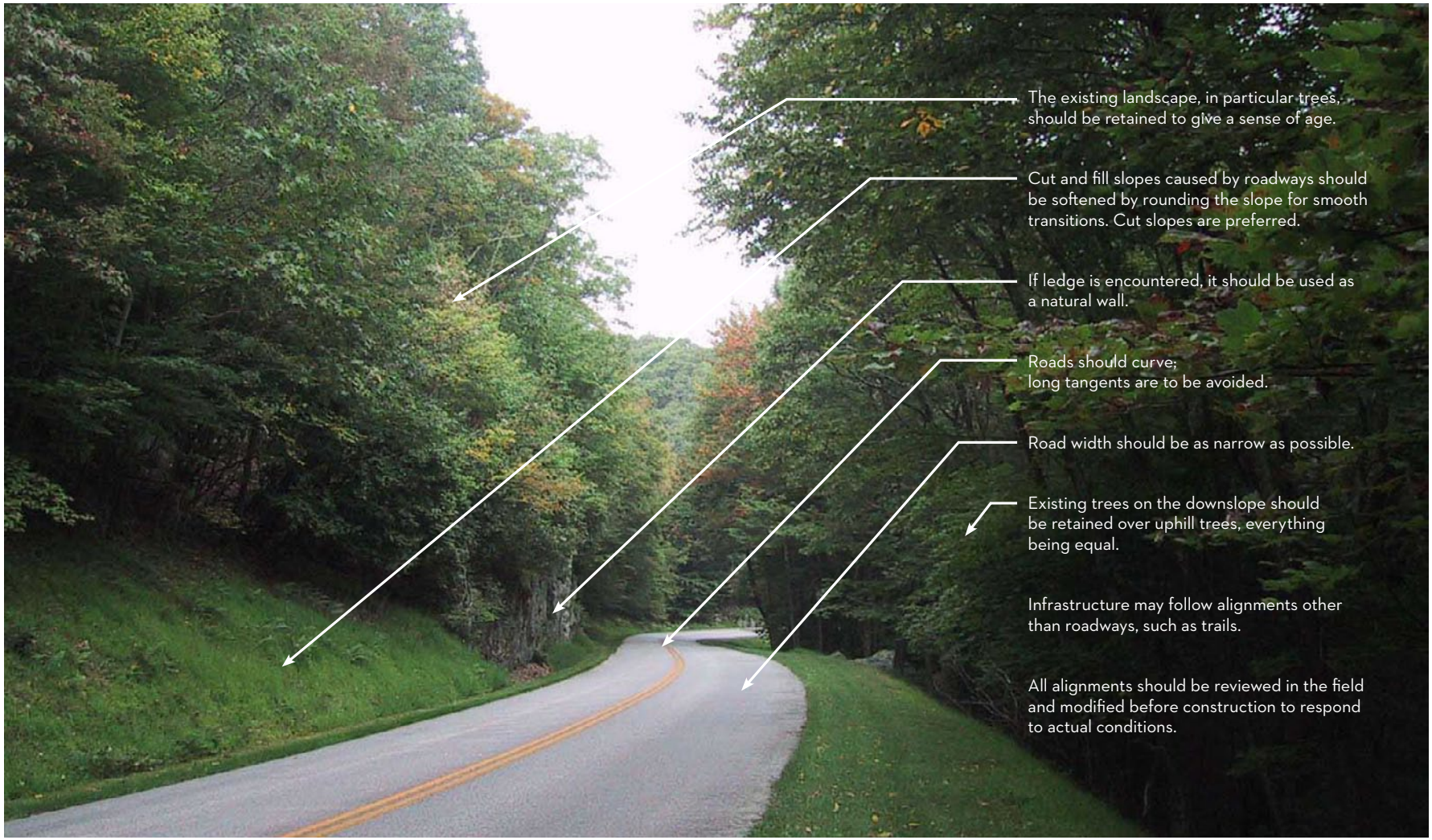
The intent is to use this document as a reference that would guide the specific landscape improvements for the Resort going forward.




CINEMA
BOWL
FUN
& GAMES

2.0 ROADWAY CHARACTER, BUFFERS, & PARKING LOT LANDSCAPE STANDARDS

ROADWAY PRINCIPLES



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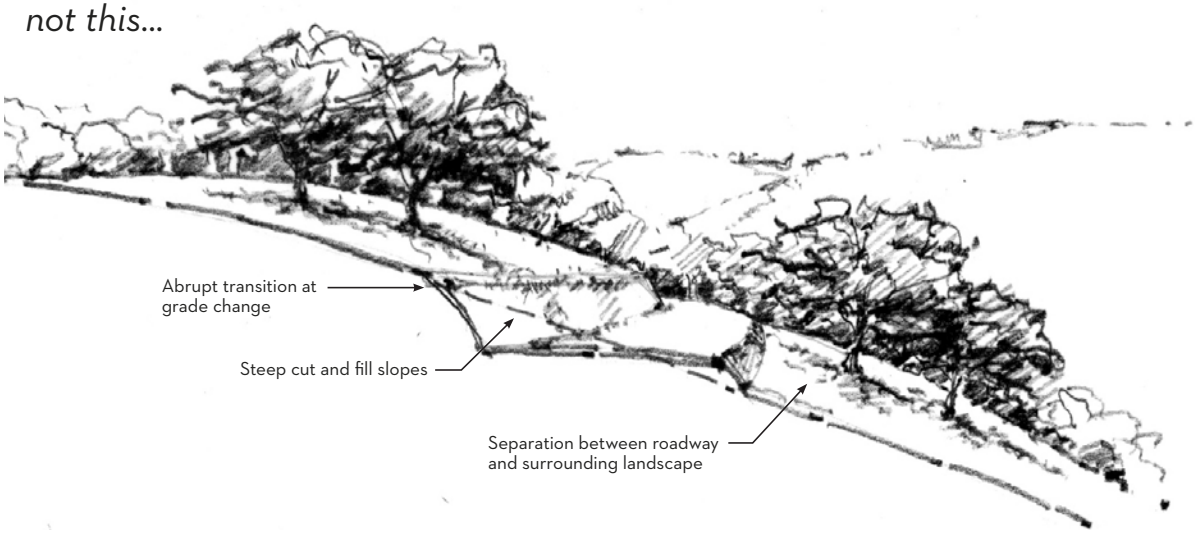

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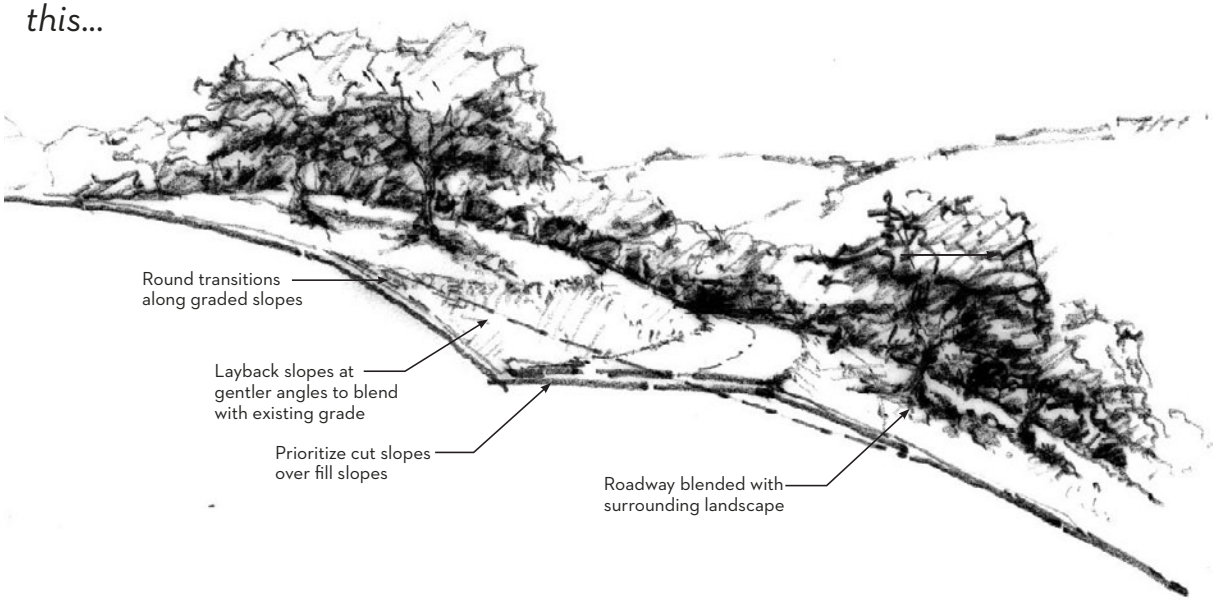
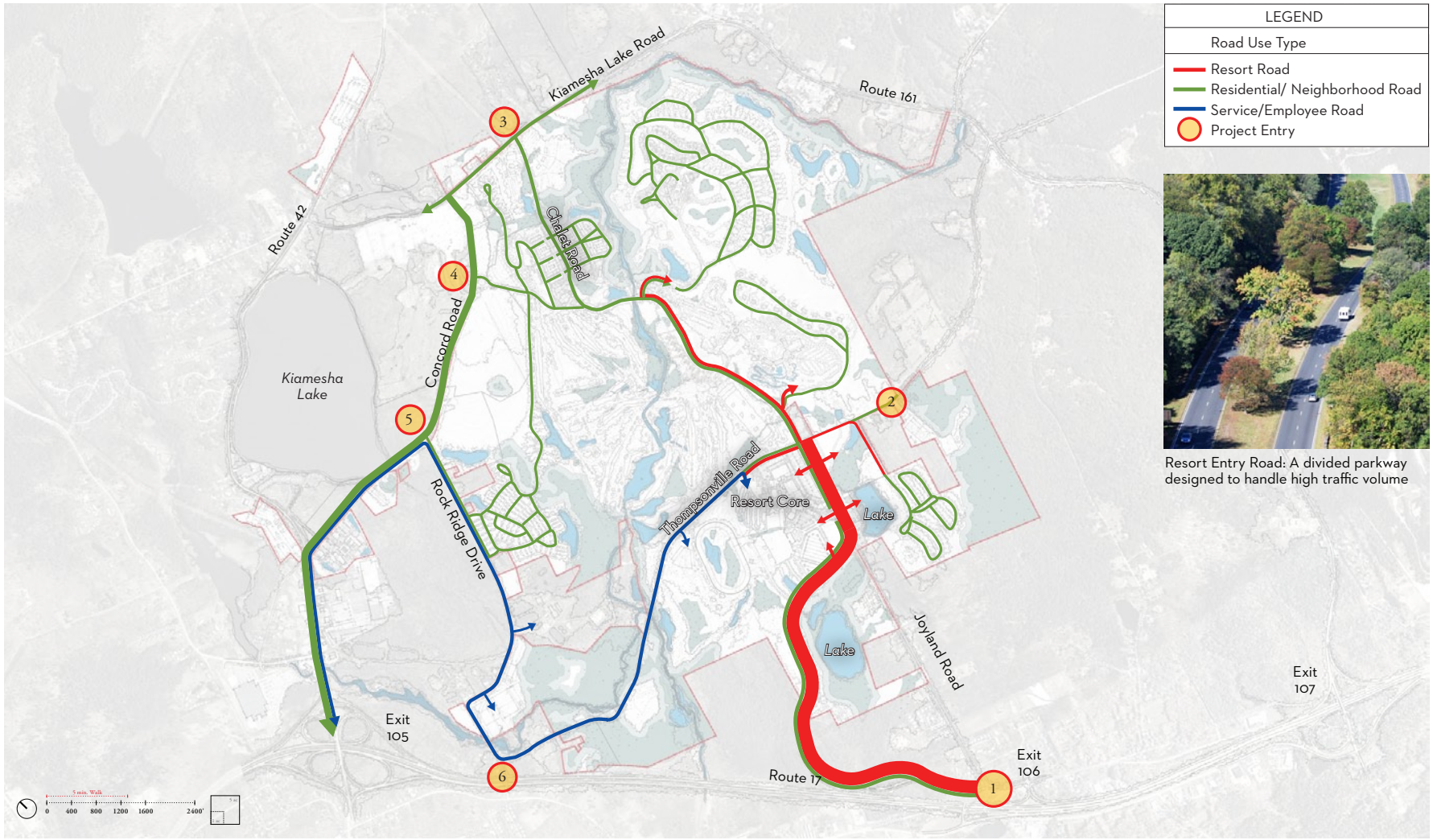


Native condition

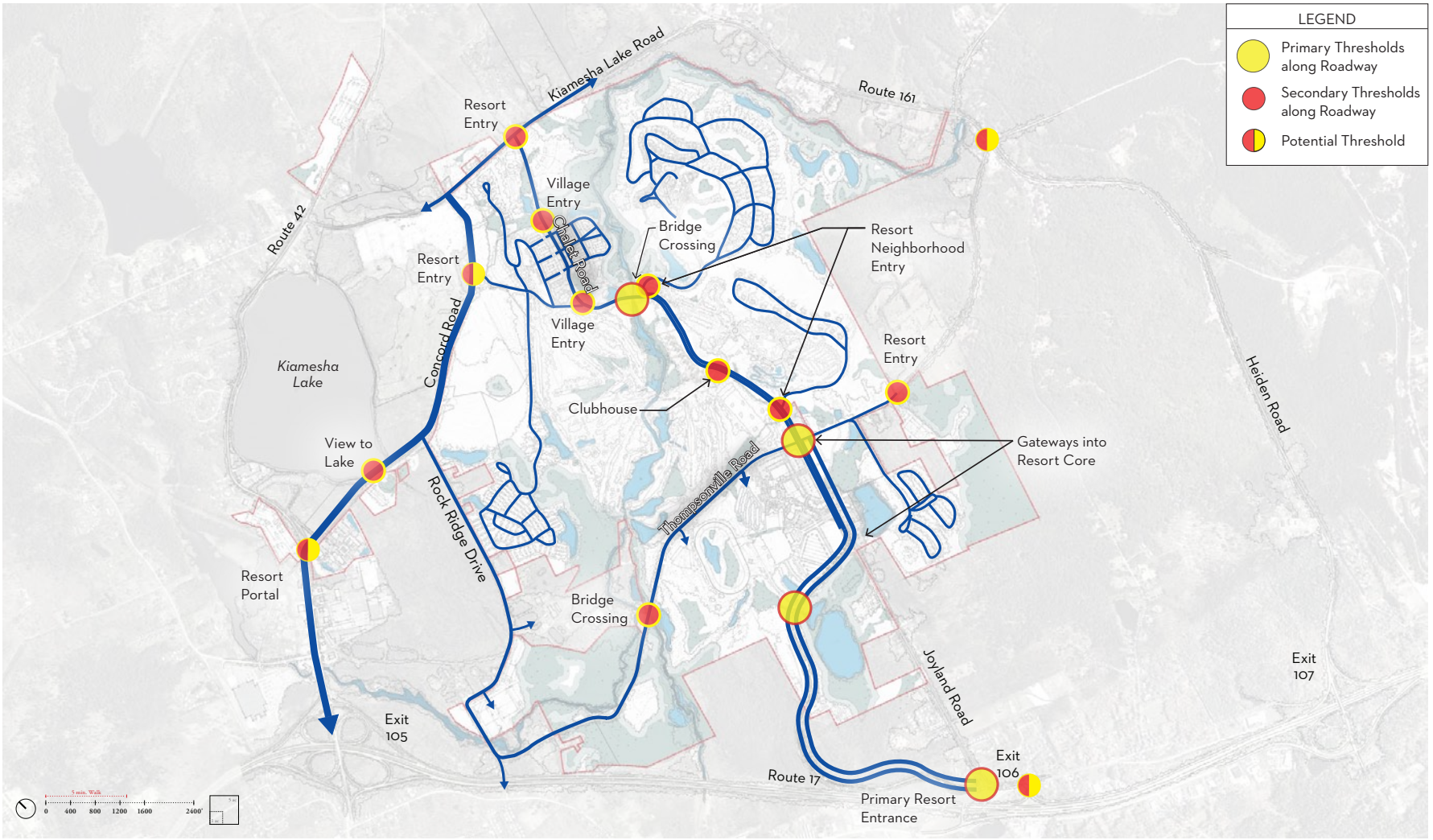
During construction

Finished roadway with trees preserved

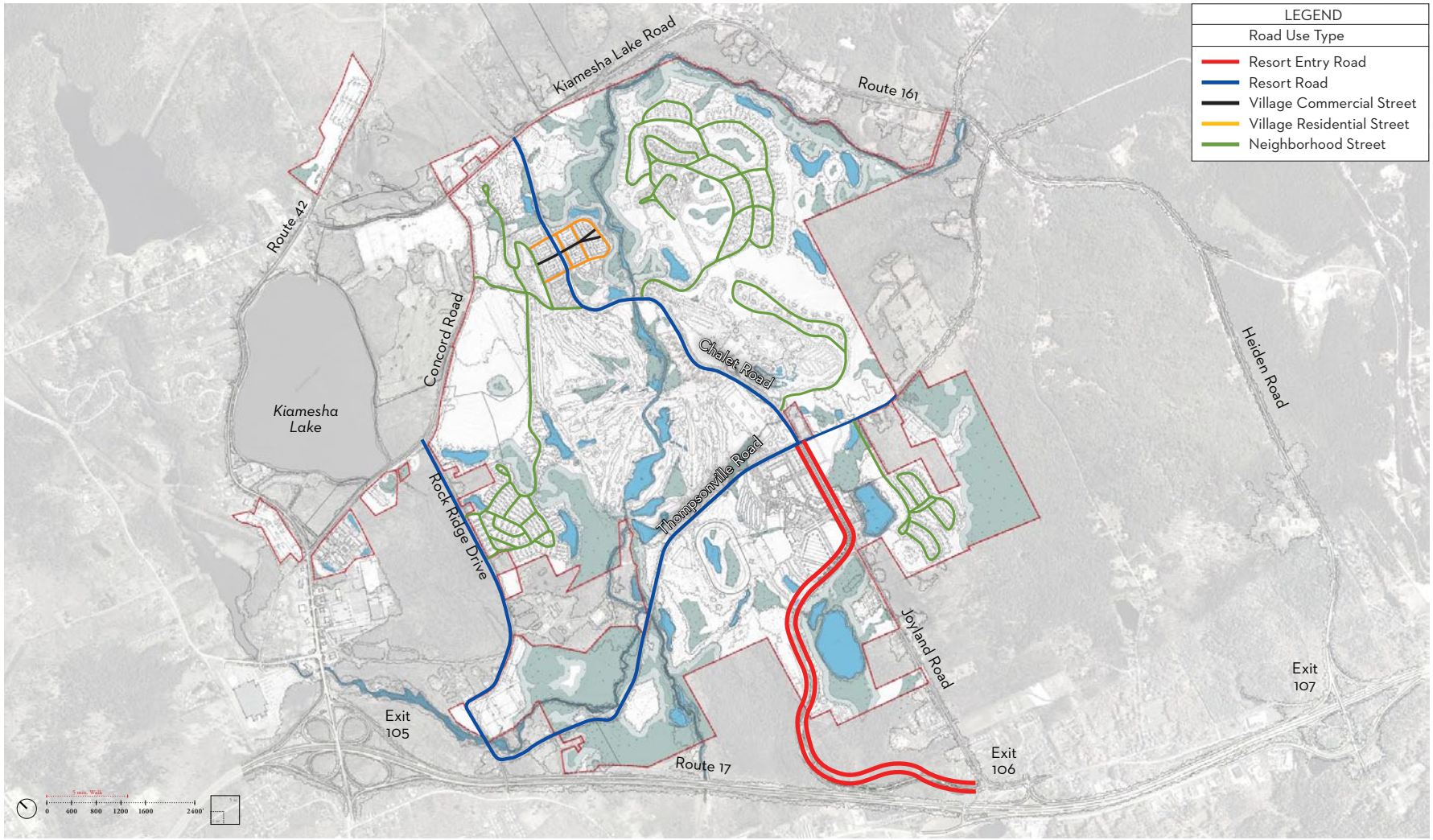
ROADWAY USE HIERARCHY



Resort Entry Road: A divided parkway designed to handle high traffic volume

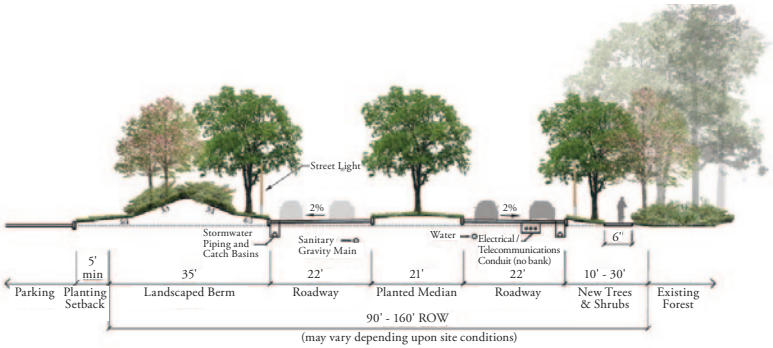

LEGEND
Primary Thresholds along Roadway
Secondary Thresholds along Roadway
Potential Threshold
Kiamesha Lake Road
Route 161
Resort Entry
Village Entry
Chalet Road
Route 42
Resort Entry
Bridge Crossing
Resort Neighborhood Entry
Village Entry
Concord Road
Kiamesha Lake
Resort Entry
Heiden Road
Clubhouse
Gateways into Resort Core
View to Lake
Rock Ridge Drive
Thompsonville Road
Resort Portal
Bridge Crossing
Joyland Road
Exit 107
Exit 105
Exit 106
Route 17
Primary Resort Entrance

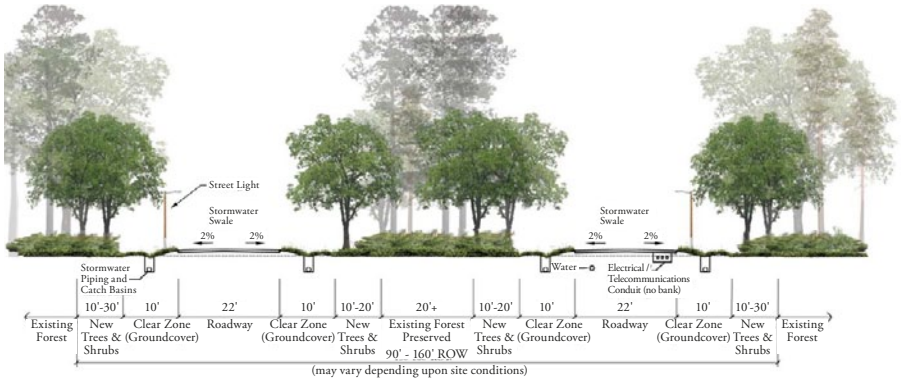
ROADWAY TYPES



	RESORT ENTRY ROAD	RESORT ROAD	VILLAGE COMMERCIAL	VILLAGE RESIDENTIAL	NEIGHBORHOOD (RESIDENTIAL STREET)
Description	Divided boulevard - two lanes each way. Vegetated median; width varies, 25' minimum. Travelways need not be parallel. Alignment follows topography and responds to existing trees and rock outcrops.	Meandering country road. Follows existing alignment of Chalet Road, Thompsonville Road, and Rock Ridge Drive.	Generally straight country road that is the "main street" through the residential village. Alignment follows village residential blocks.	Alignment follows village residential blocks.	Street layout follows topography.
Right of Way	90' - 160'	42' - 50'	50' - 58', varies based on on-street parking	50'-60'. Varies based on on-street parking.	50' (includes sidewalk and planting strip)
Design Speed	35 MPH	30 MPH	25 MPH	25 MPH	25 MPH
Paved Road Width	11' drive lanes; 22' paved surface each way; gravel shoulder of minimal width	11' drive lanes; 22' paved surface; gravel shoulder of minimal width	11' drive lanes; 30'-38' paved surface	11' drive lanes; 30'-38' paved surface; minimal shoulder	12' drive lanes; 24' paved surface each way
Curb	None	None	6" Concrete/ Granite Curb	6" Concrete/ Granite Curb where applicable	Curbless preferred
Length	Refer to engineer's drawings	Refer to engineer's drawings. Future Phases TBD.	Refer to engineer's drawings. Future Phases TBD	Refer to engineer's drawings. Future Phases TBD	Refer to engineer's drawings. Future Phases TBD
On-street Parking	No	No	Yes	Yes	Yes
Landscape Character	Native trees/shrubs to supplement existing vegetation. Canopy over road. Retain existing trees wherever feasible. Natural planting pattern, formal within Resort Core.	Supplemental planting as needed to improve visual quality and screening	Large scale canopy trees, use single species along individual streets	Large scale canopy trees, use single species along individual streets	Regular but informal planting of large and medium scale street trees.
Drainage	Swales for collection and conveyance. Bioswales preferred for infiltration. Detention basins only where no alternative.	Swales for collection and conveyance. Bioswales preferred for infiltration. Detention basins only where no alternative.	Bioswales and vegetated strips preferred where percolation rates allow. Catch basin and centralized collection to detention basin where in-situ percolation not feasible.	Bioswales and vegetated strips preferred where percolation rates allow. Catch basin and centralized collection to detention basin where in-situ percolation not feasible.	Bioswales and vegetated strips preferred where percolation rates allow. Catch basin and centralized collection to detention basin where in-situ percolation not feasible.
Lighting Intent	Outside of Entertainment Village: minimum amount as needed by code - should feel "edge of town". Also see Roadway Lighting on p.67 for pole heights.	Minimum amount as needed by code and at intersections. Also see Roadway Lighting on p.67 for pole heights.	Street lighting spaced both sides (opposite). Also see Roadway Lighting on p.67 for pole heights.	At road intersections. Also see Roadway Lighting on p.67 for pole heights.	At road intersections, except key areas as shown on plan. Also see Roadway Lighting on p.67 for pole heights.
Road Edge Treatment	Stone walls, art pieces and trails as shown.	Stone walls, art pieces and trails as shown.	Art pieces and sidewalks or trails as shown.	Art pieces and sidewalks or trails as shown.	Art pieces and sidewalks or trails as shown.
Representative Landscape Species	Supplement existing with native or compatible, including birch, beech, sugar maple, balsam fir, serviceberry, mountain laurel, sweet fern and similar.	Kalmia latifolia, Rhododendron maximum, Viburnum trilobum, Thuja occidentalis, Acer rubrum, Carpinus betulus, Ostrya virginiana, Pinus strobus, Quercus palustris	Quercus rubra, Ulmus americana, Quercus bicolor	Acer rubrum, Acer saccharum, Quercus palustris	Acer rubrum, Acer saccharum, Quercus palustris
Notes	Dispersed snow storage, no collection areas. Above ground utilities to be located at least 10' from paved surface.	Snow collection to be visually unobtrusive and not block pedestrian paths or sightlines.	Snow collection to be visually unobtrusive and not block pedestrian paths or sightlines.	Snow collection to be visually unobtrusive and not block pedestrian paths or sightlines.	Snow collection to be visually unobtrusive and not block pedestrian paths or sightlines.

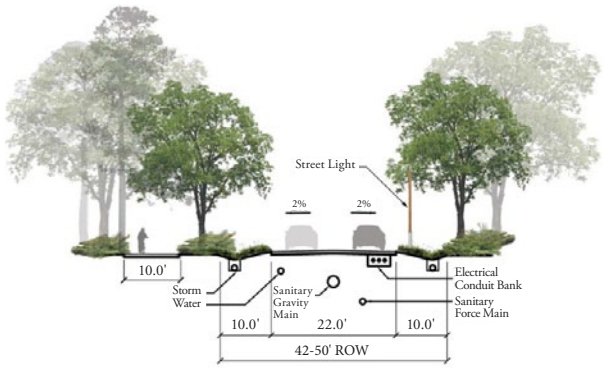
RESORT ENTRY ROAD



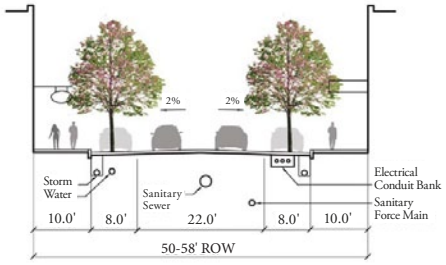


RESORT ROAD

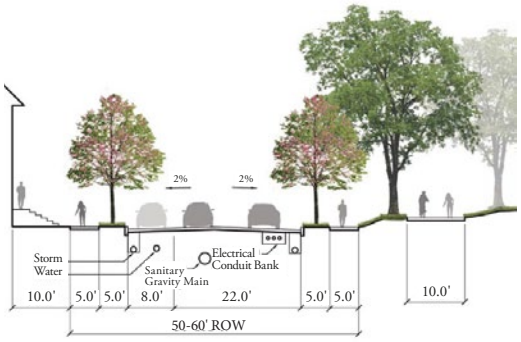
Heavy Timber Covered Bridge Option



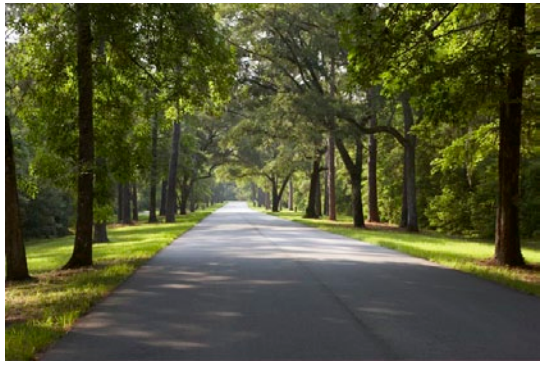
VILLAGE COMMERCIAL

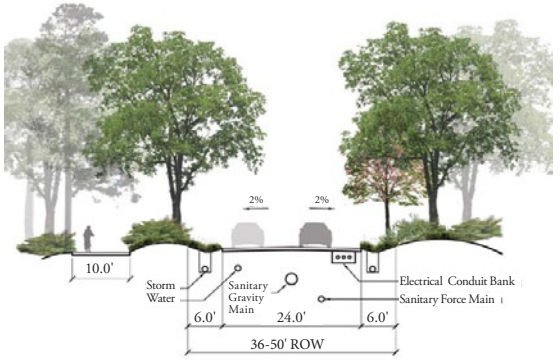


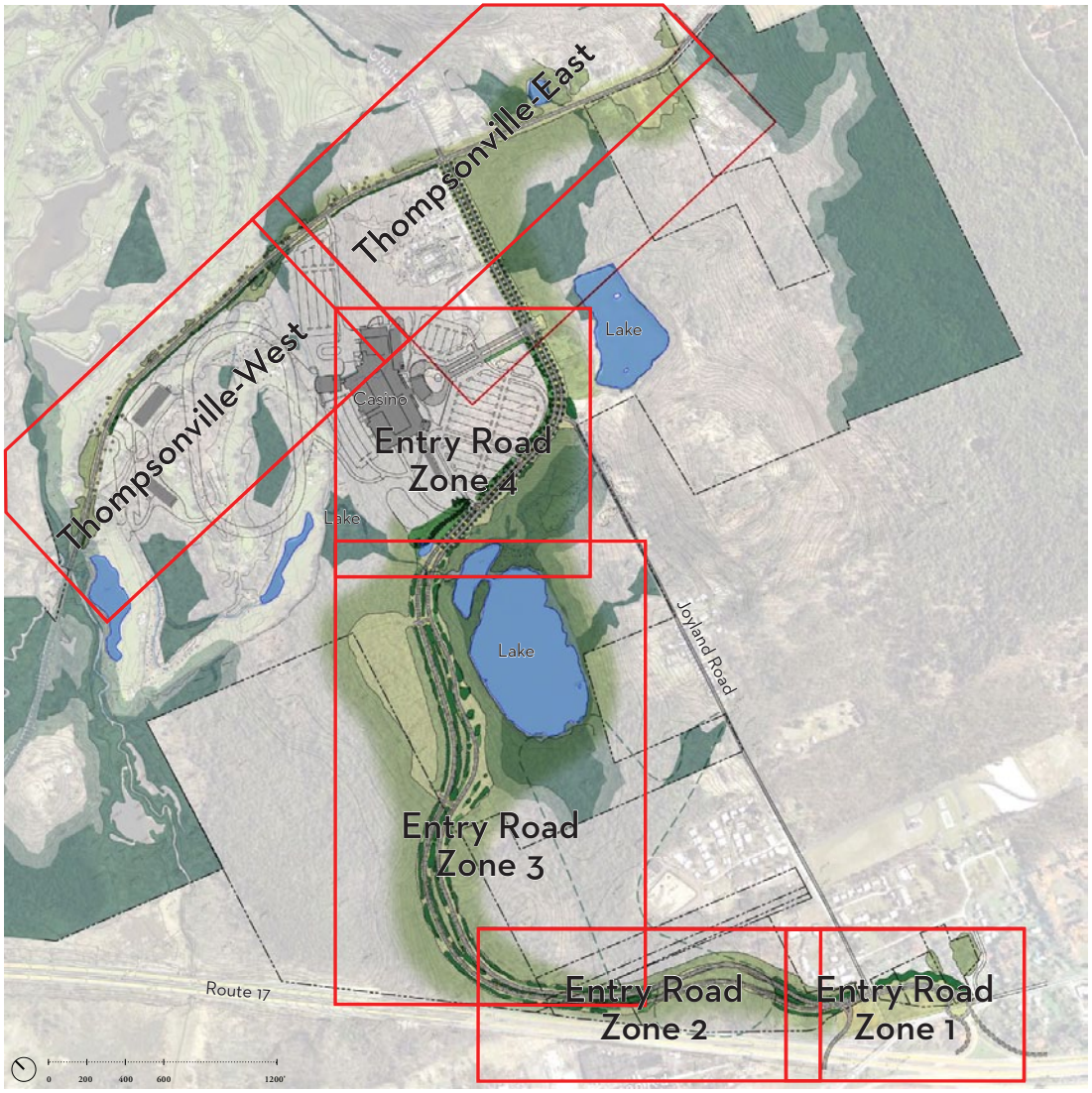
VILLAGE RESIDENTIAL



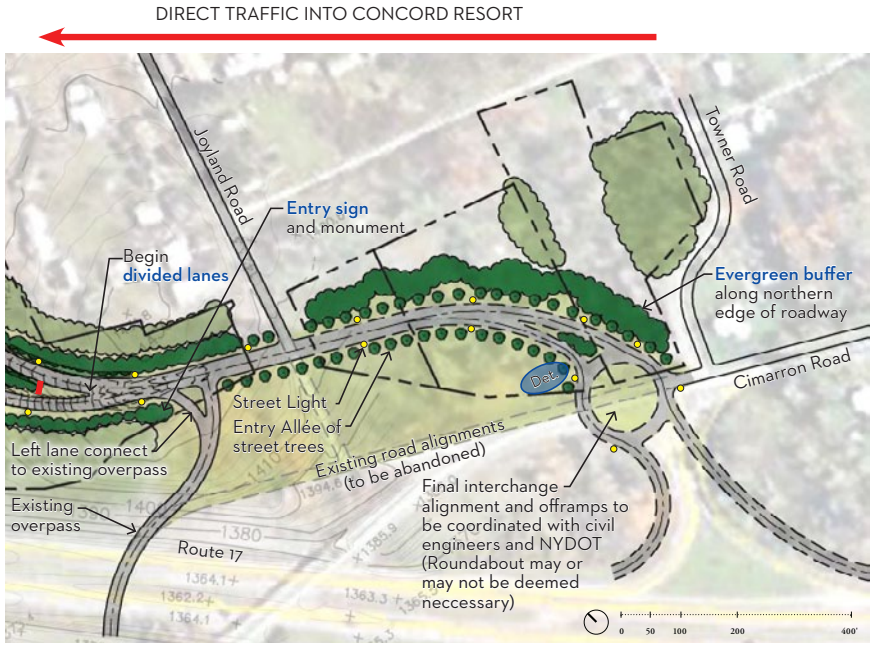
NEIGHBORHOOD STREET






Thompsonville-East
Thompsonville-West
Lake
Casino
Entry Road
Zone 4
Lake
Lake
Joyland Road
Entry Road
Zone 3
Route 17
Entry Road
Zone 2
Entry Road
Zone 1
0
200
400
600
1200'

ENTRY PARKWAY - ZONE 1



LEGEND

	Existing Forest
	Proposed Trees
	Proposed Shrubs
	Wildflower Meadow
	Street Light
	Timber Barrier
Det.	Detention Basin
	Wetlands
	Wetlands Setback

Notes
1. Stormwater detention areas are preliminary pending design by civil engineer.
2. Light locations are preliminary pending design by lighting consultant.
3. Refer to plant list and images in Appendix 8.0

Legend and Notes shall apply to all Phase 1 Roadway Zones

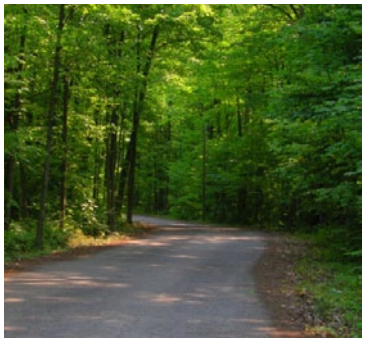
ZONE 1 - ROADWAY CHARACTERISTICS

Item	Description	Plant Species
Character	Highway interchange, clear and safe traffic flow into Concord Resort	
Curbing	Curbing at interchange per NYDOT requirements.	
Drainage	Surface flow into vegetated swales, rain gardens and detention basins	
Lighting	Project street light pole and fixture, 20' pole ht.	
Roadway Edge	Grass	
Shrub Layer	None	
Tree Layer	**Evergreen Buffer** - Mixed species on northern edge of entry road to screen parcels north of interchange **Street Tree** - Deciduous canopy tree along road	Abies concolor, Abies fraseri, Picea glauca, Picea pungens, Pinus strobus Quercus palustris

Street trees align with road

Evergreen Buffer along entry road to screen adjacent parcels

Undulating groundplain in roundabout adds visual interest to project entry

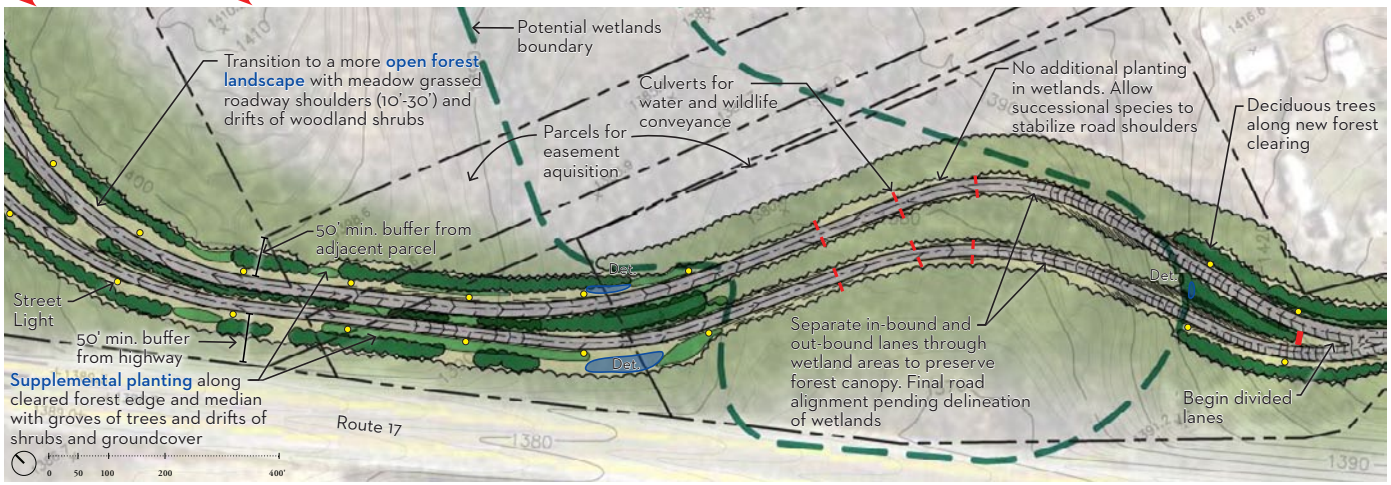


Roadway blends with natural contours to preserve forest

ENTRY PARKWAY - ZONE 2

BEGIN OPENING UP OF FOREST CANOPY

ENCLOSURE



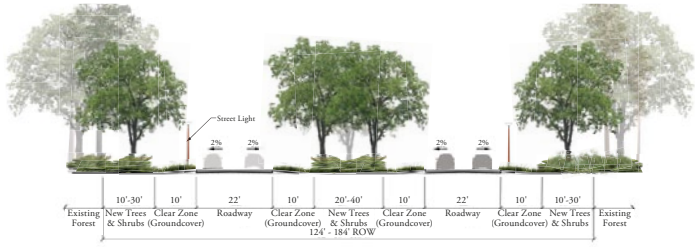
Accent with bluebells planted under a birch grove

Birch grove with woodland groundcover

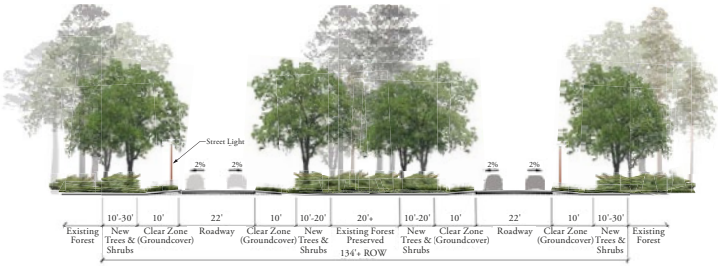
Minimal impact to forest through wetland zones

ZONE 2 - ROADWAY CHARACTERISTICS

Item	Description	Plant Species
Character	Zone of decompression, sense of enclosure with a quiet woodland feel	
Curb	No curb	
Drainage	Surface flow into vegetated swales, rain gardens and detention basins	
Lighting	Project street light pole and fixture, 20' pole ht. No lights in wetland areas.	
Roadway Edge	Woodland groundcovers	Hyacinthoides non-scripta, Dryopteris intermedia, Dryopteris campyloptera, Osmunda cinnamomea, Tiarella cordifolia
Shrub Layer	Drifts of ornamental shrubs for visual variety and screening.	Aesculus parviflora, Clethra alnifolia, Kalmia latifolia, Pieris japonica
Tree Layer	Revegetate along forest edge to conceal bare forest trunks.	Acer rubrum, Amelanchier laevis, Betula nigra, Fagus grandifolia, Nyssa sylvatica



Entry Road Section-Zone 2: New Vegetation in Median



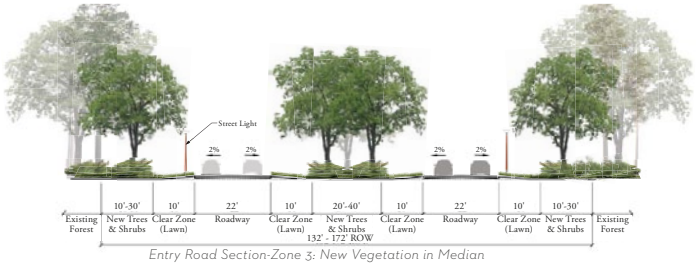
Entry Road Section-Zone 2: Preserved Vegetation in Median

ENTRY PARKWAY - ZONE 3

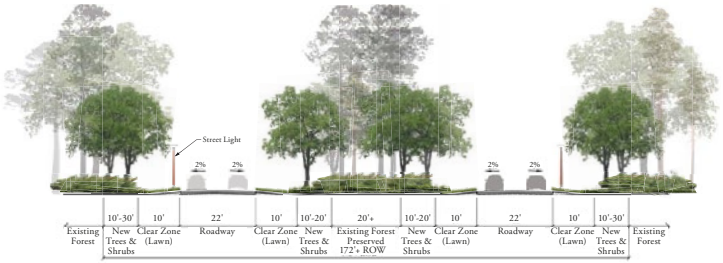
ZONE 3 - ROADWAY CHARACTERISTICS

Item	Description	Plant Species
Character	Open woodland landscape, potential views to lake	
Curb	No curb	
Drainage	Surface flow into vegetated swales, rain gardens and detension basins	
Light	Project street light pole and fixture, 20' pole ht.	
Roadway Edge	Woodland meadow grass	Shaded areas - (Roadside seedmix and swale) Sun areas - (Roadside seedmix and swale)
Shrub Layer	Drifts of ornamental shrubs for visual variety.	Cornus sericea, Clethra alnifolia, Ilex verticillata, Kalmia latifolia, Rhododendron viscosum, Vaccinium corymbosum, Viburnum acerifolium
Tree Layer	Revegetate along forest edge to improve visual quality and diversify forest composition.	Acer saccharinum, Amelanchier laevis, Betula nigra and Betula papyrifera, Carya ovata, Fagus grandifolia, Quercus coccinea and Quercus rubra

Woodland plantings in clumps and drifts

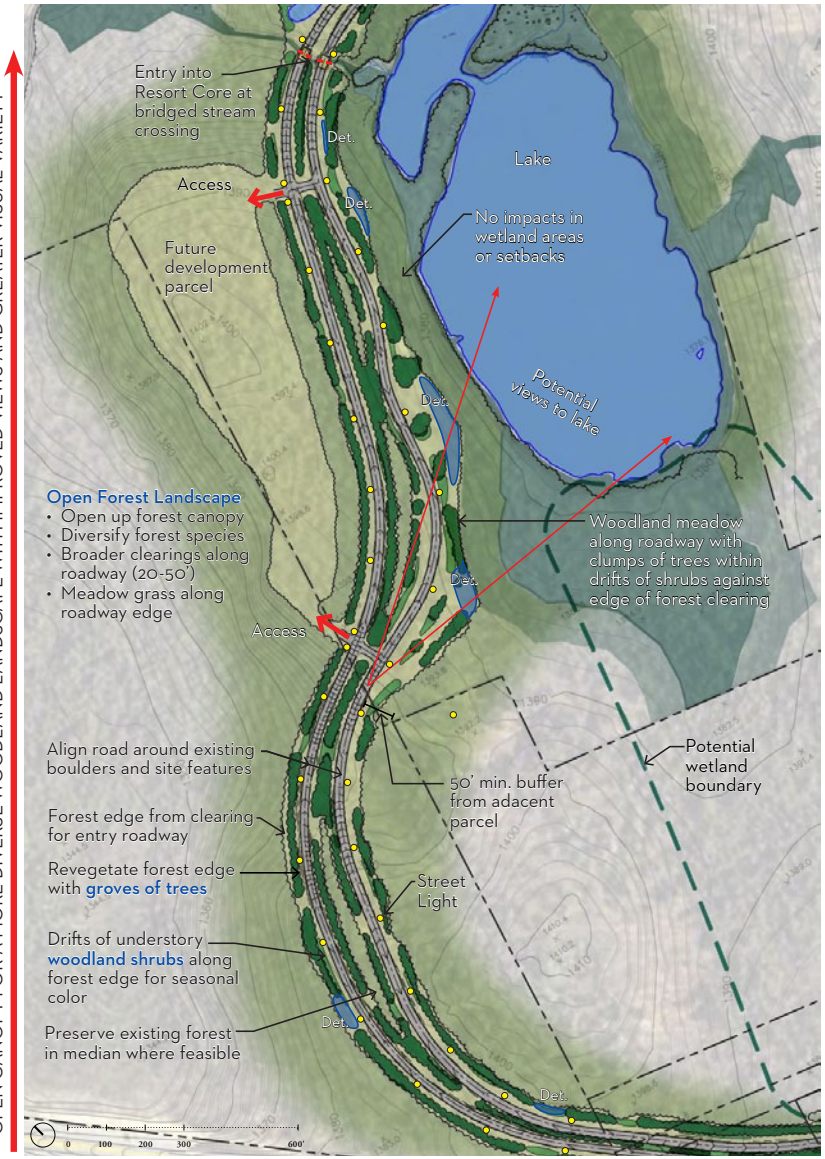


Entry Road Section-Zone 3: New Vegetation in Median



Entry Road Section-Zone 3: Preserved Vegetation in Median

OPEN CANOPY FOR A MORE DIVERSE WOODLAND LANDSCAPE WITH IMPROVED VIEWS AND GREATER VISUAL VARIETY



ZONE 4 - ROADWAY CHARACTERISTICS

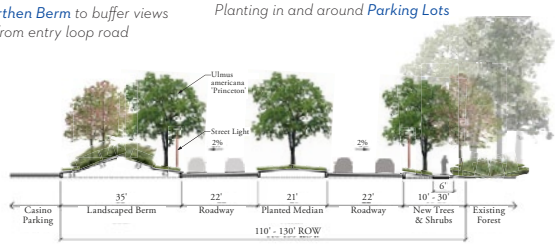
Item	Description	Plant Species
Character	Formally planted boulevard with earthen berm to screen parking	
Curb	Vertical concrete curb	
Drainage	Catch basins to detention basins	
Lighting	Project street light pole and fixture, 20' pole ht.	
Irrigation	All landscape areas along boulevard are irrigated	
Roadway Edge	Grass, ground covers	
Shrub Layer	Mixed shrub border on earthen berm to screen parking	Azalea spp., Cornus alba, Kalmia latifolia, Pieris japonica, Viburnum acerfolium, Taxus cuspitata
Tree Layer	Allée of trees, Ornamental trees on berm, Revegetate forest edge	Allée: Ulmus americana 'Princeton', Berm: Cornus kousa, Hamamelis x intermedia, Malus spp. Forest edge: Amelanchier laevis, Betula nigra

Entry to Resort Core over stream

Formal allée of trees along boulevard

Planted Earthen Berm to buffer views of parking from entry loop road

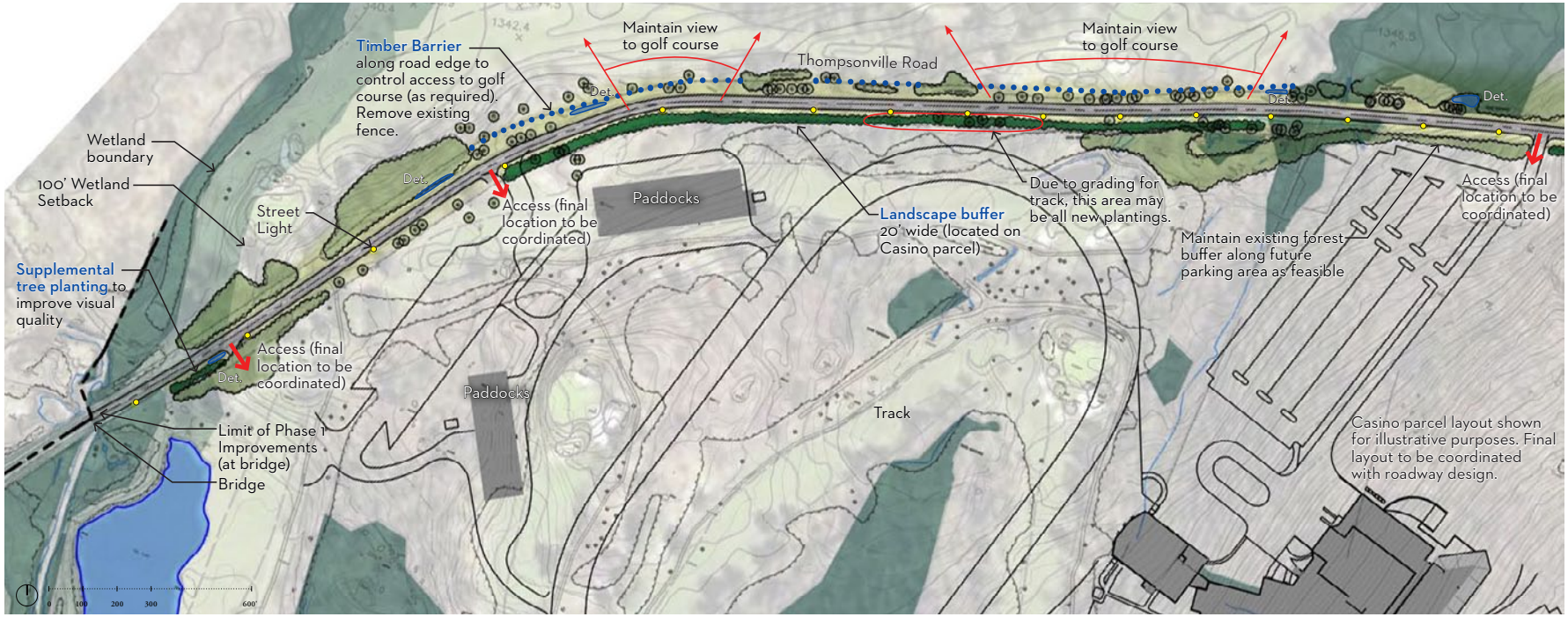
Planting in and around Parking Lots



Entry Road Section-Zone 4: Formal Allée at Boulevard

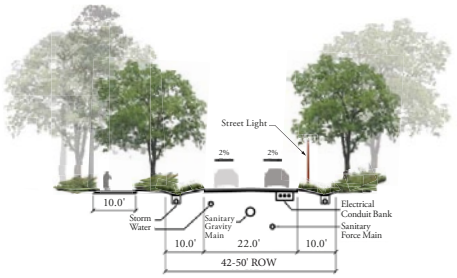
ENTRY PARKWAY - ZONE 4

THOMPSONVILLE ROAD - WEST



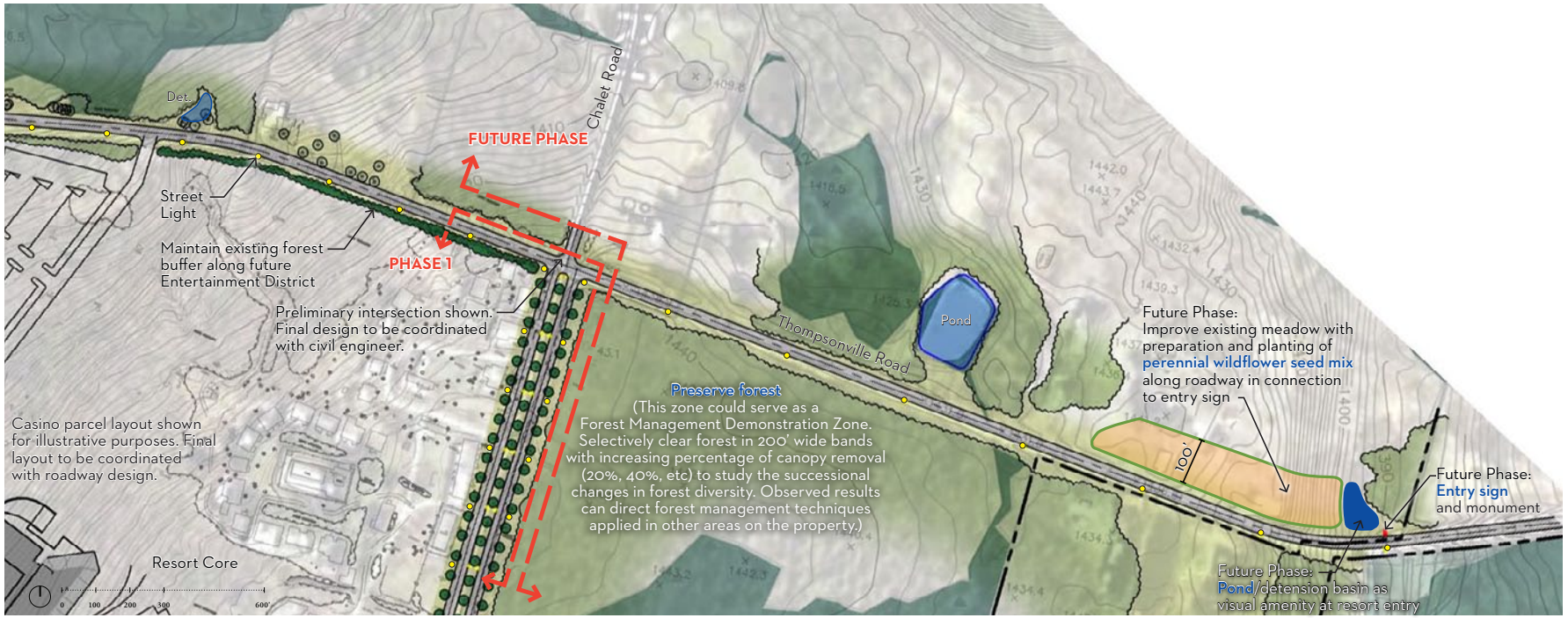
THOMPSONVILLE ROAD (WEST & EAST) CHARACTERISTICS

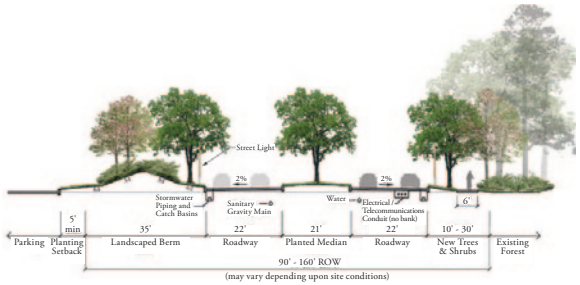
Item	Description	Plant Species
Character	Country road with improved grass shoulders	
Curb	No curb	
Drainage	Surface flow into vegetated swales, rain gardens and detension basins	
Lighting	Project street light pole and fixture, 16' pole ht.	
Roadway Edge	Meadow grass	Shaded areas - (roadside and swale mix) Sun areas - (roadside and swale mix)
Shrub Layer	Large shrubs as needed to improve visual quality and screening	Kalmia latifolia, Rhododendron maximum, Viburnum trilobum Thuja occidentalis
Tree Layer	Supplemental planting as needed to improve visual quality and screening	Acer rubrum, Carpinus betulus, Ostrya virginiana, Pinus strobus, Quercus palustris



Thompsonville Road Section:
Wider Roadway with Improved Drainage

THOMPSONVILLE ROAD - EAST & JOYLAND ROAD





Entry Road Section-Zone 4: Formal Allée at Boulevard

Wildflower Meadow

BUFFER PLANTING REQUIREMENTS

A road buffer requirement will be required, per the Comprehensive Development Plan (CDP):

A. Along the Resort Entry Road and Resort Roads a minimum of 20'-0" buffer, per the CDP, is required:

- Tree plantings shall include 1 evergreen screen trees per 20 linear feet of roadway along both sides of the roadway, in informal groups, to provide adequate screening.
- Tree plantings shall include 1 large canopy tree per 40 linear feet of roadway along both sides of the roadway.
- A minimum of 1 shrub is required per 5 linear feet of roadway along both sides of the roadway. Shrubs to be 60% deciduous and 40% evergreen. Shrubs to be planted in informal drifts to create a natural informal character appropriate to the setting. A group of three shrubs may be substituted for 1 small deciduous tree.

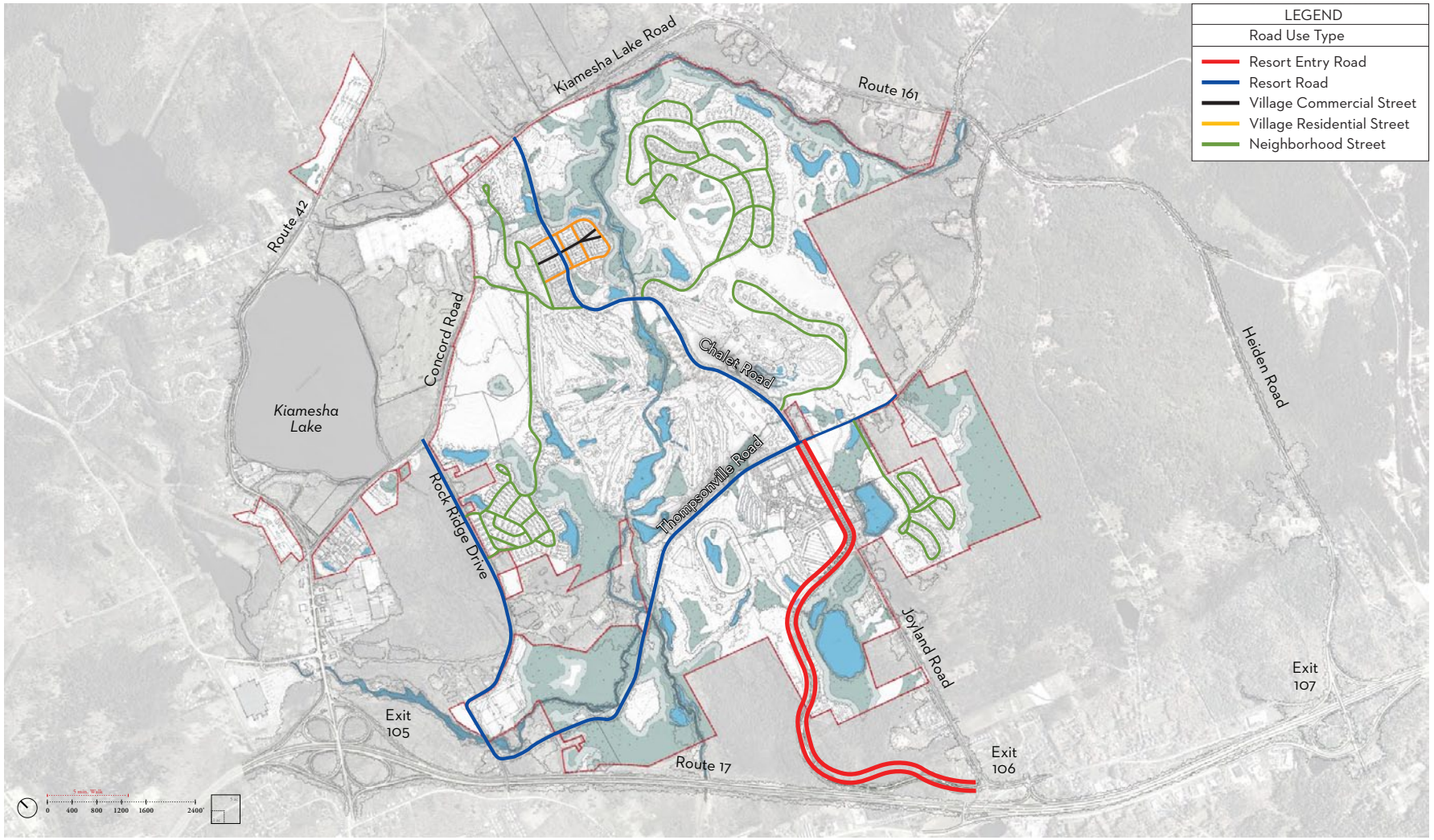
B. Along the Neighborhood Street a minimum of 10'-0" buffer, per the CDP, is required:

- Tree species shall have 1 evergreen screen trees per 20 -30 linear feet of roadway along both sides of the roadway, in informal groups, to provide adequate screening.
- Tree planting shall include 1 large canopy tree per 40 - 50 linear feet of roadway along both sides of the roadway.
- A minimum of 1 shrub is required per 5 linear feet of roadway along both sides of the roadway. Shrubs to be 60% deciduous and 40% evergreen. Shrubs to be planted in informal drifts to create a natural and informal character appropriate to the setting.

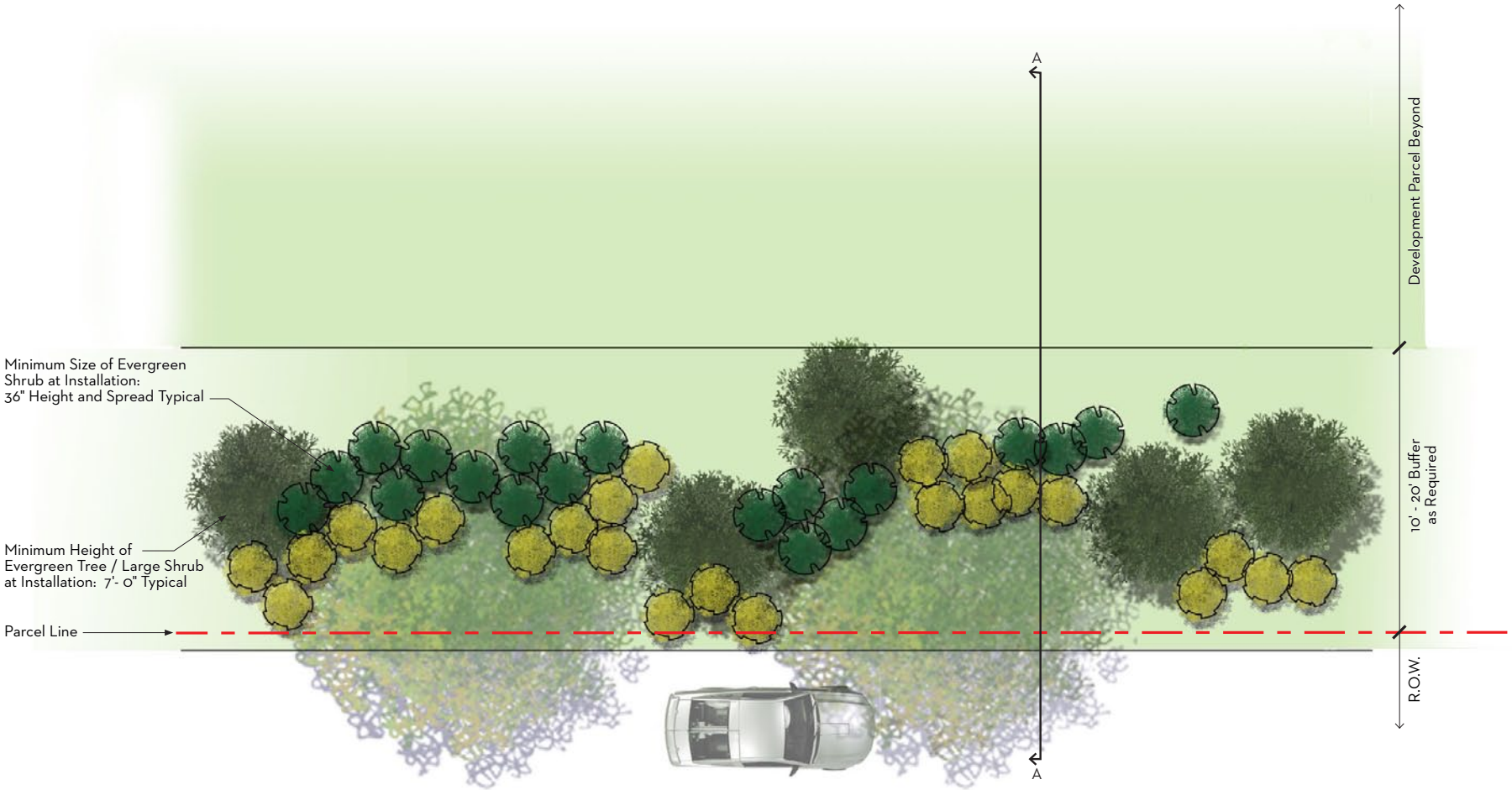
Tree species shall be native or adapted to the site conditions. Overall landscape character will remain natural and informal. The need for permanent irrigation shall be minimized.

Note:

- All existing trees determined healthy by an arborist within the Buffer Planting zone 8" caliper or larger to be preserved. Trees smaller than 8" to be preserved as much as possible.
- The front yard setback at the Neighborhood Residential can be a part of the 10' buffer zone.


LEGEND
Road Use Type
Resort Entry Road
Resort Road
Village Commercial Street
Village Residential Street
Neighborhood Street
Kiamesha Lake Road
Route 161
Route 42
Concord Road
Chalet Road
Heiden Road
Kiamesha Lake
Rock Ridge Drive
Thompsonville Road
Joyland Road
Exit 105
Exit 107
Exit 106
Route 17
0
400
800
1200
1600
2400'

NOTE:
Preserve healthy existing trees to the extent possible.

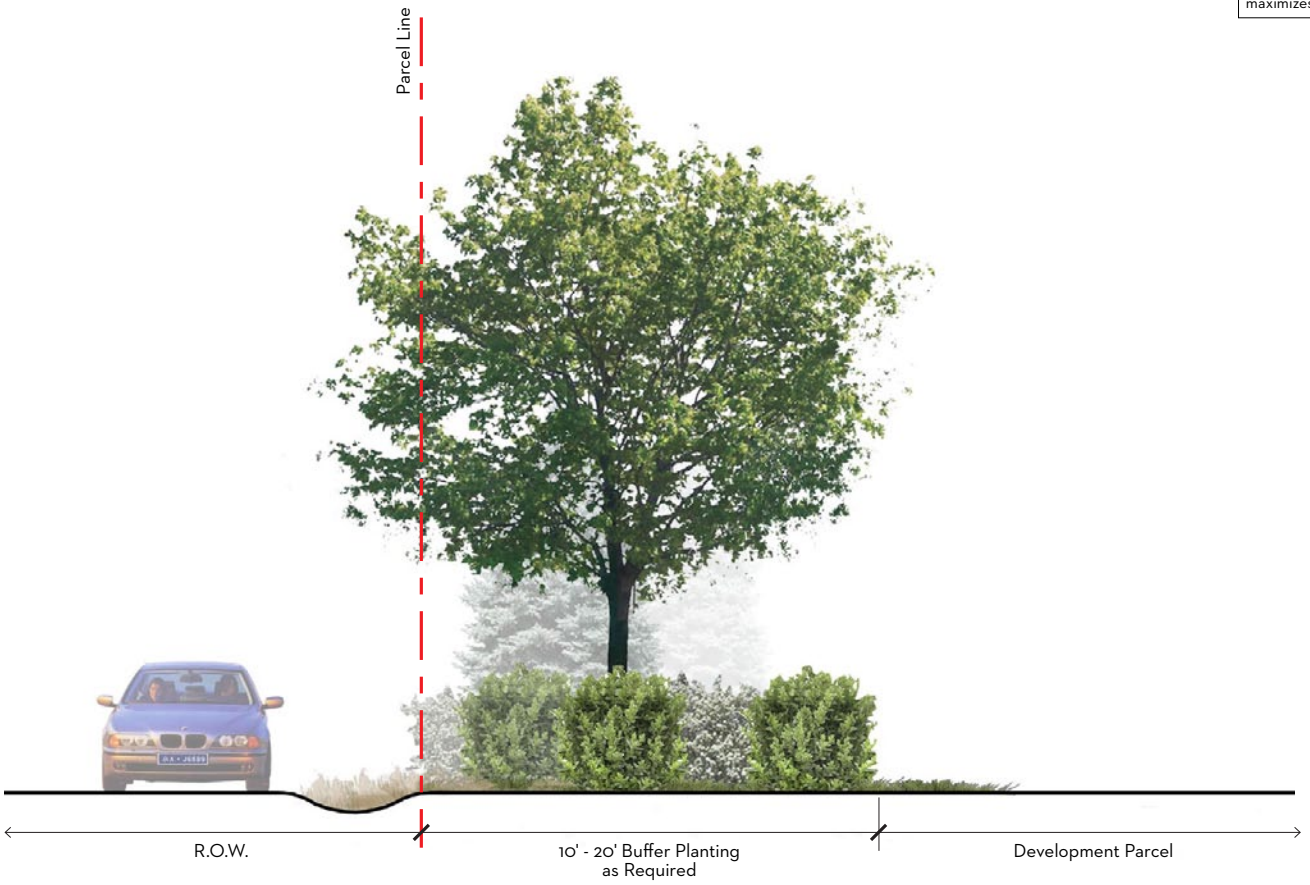


0 8 16'

1" = 8'

PLAN: Typical Roadway Buffer Planting at Development Parcel

NOTE:
A berm is not required along roadways (that do not have parking), which maximizes existing tree preservation.



0 4 8'
1" = 4'

SECTION A: Typical Roadway Buffer Planting at Development Parcel

PARKING LOT LANDSCAPE STANDARDS

Parking lot design standards are required to protect the landscape character, provide adequate shade and screening of unsightly views, reduce heat island effect and improve opportunities for stormwater retention on site.

The following general standards will apply to all parking lots of 4 cars or more at Concord. Landscape design of parking lots are to be performed by a licensed landscape architect and bioretention is to be designed as part of a comprehensive storm water management plan by a licensed civil engineer.

All deciduous canopy trees shall be 2.5" caliper minimum, with branching above root ball 8' minimum where planted as interior shade trees or within 10' of the parking lot perimeter.

Use of appropriate plantings, native or adapted trees, shrubs, grasses and groundcovers, are to be selected from the Approved Plant List in the Appendix.

Use of Bioretention areas are encouraged at lot perimeters and planting islands. Bioretention areas and swale sections are to be used per civil recommendations based on water table conditions on site. If utilized, a 5-year maintenance plan is required to monitor vegetation and soils, assuring vegetative good health and amending soils to reduce unhealthy salt levels. Refer to the Approved Plant List in the Appendix for appropriate grasses, perennials and native shrubs and trees.

Bioretention berm sections are to be used per civil recommendations based on high water table conditions on site.

Perimeter Planting:

A setback planting area is required for all lots/parcels adjacent to each other and adjacent to a right-of-way. Two adjacent parcels/lots that have shared parking shall be exempt from setback planting requirements specifically along the shared lot/parcel boundary line.

Tree species shall be native or adapted to the site conditions. Landscape character shall be either formal or preferably informal along parking lot perimeter (where space allows), and shall use a combination of evergreen and deciduous plantings to provide strong screening and seasonal interest. Perimeter planting and adjacent buffer planting to have similar or complimentary plant species / palette.

Required depths of setback planting areas shall vary according to parking lot size:

A. Lots less than 18 spaces or 6,000 sf shall have 10 feet of setback planting area.

- A minimum of one shrub is required per 3 linear feet parking lot perimeter where parking lot faces an adjacent parcel or right-of-way. Informal massings are preferred over formal hedges.
- Perimeter tree species shall be 50% canopy trees and 50% evergreen screen trees. A minimum of one tree is required per 30 lineal feet of parking lot perimeter where a lot is facing an adjacent property or right-of-way.

B. Lots greater than 18 spaces or 16,000 sf shall have 15 feet of setback planting area.

- A minimum of one shrub is required per 3 linear feet parking lot perimeter where parking lot faces an adjacent parcel or right-of-way. Informal massings are preferred over formal hedges.
- A minimum of one deciduous shrub is required per 6 linear feet parking lot perimeter where parking lot faces an adjacent parcel or right-of-way. Informal massings are preferred over formal hedges.
- Perimeter tree species shall have one evergreen screen trees per 26 lineal feet of parking lot perimeter where a lot is facing an adjacent property or right-of-way. Evergreen trees to be grouped informally to provide screening.
- Perimeter tree species shall be 50% canopy trees and 50% evergreen screen trees. A minimum of one tree is required per 30 lineal feet of parking lot perimeter where a lot is facing an adjacent property or right-of-way.
- Exception: At Casino Resort & Entertainment Village, a minimum of 5' of setback planting area is required as a transition zone. Setback planting area must be coordinated with Resort Entry Roadway planting. Setback planting area may be seed or sod.

C. Where 2 separate lots adjoin, an 8' minimum planting area is required between lots.

- A minimum of one shrub is required per 3 linear feet parking lot perimeter where parking lot faces an adjacent parcel or right-of-way. Informal massings are preferred over formal hedges.
- Perimeter tree species shall be 50% canopy trees and 50% evergreen screen trees. A minimum of one tree is required per 30 lineal feet of parking lot perimeter where a lot is facing an adjacent property or right-of-way.

An additional landscape buffer is required where a parking lot adjoins the main entrance road to the Resort. See buffer requirements below:

Notes:

- These setback planting requirements are in addition to any road buffer requirements prescribed in the CDP.
- All existing trees determined healthy by an arborist within the Perimeter Planting zone 8" caliper or larger to be preserved. Trees smaller than 8" to be preserved as much as possible.

Interior Planting

A 10' wide planting strip is preferred at every other interior parking row and shall be planted with large canopy trees to provide a consistent shade canopy.

Minimum tree quantity is based on 1 tree per 5 spaces per the CDP, to be planted within planter strips, tree wells, and planter islands with minimum spacing of 25' between trees.

Planter islands at ends of rows shall have a minimum size of 9' x 18', and shall have 2 trees.

Where planting strips occur, continuous shrub planting is required within planting strips within the center 4' wide zone, consisting of low shrubs with a mature height of 3 feet selected from the Approved List.

Edges to planting strips shall have a 2' wide planting zone planted with low groundcover or grasses to allow for car overhangs.

Note:

- All existing trees determined healthy by an arborist within the Interior Planting zone 8" caliper or larger to be preserved where possible. Trees smaller than 8" to be preserved as much as possible.

Bioswales and Detention Areas

Appropriate Plantings shall be used that are predominantly native and salt-tolerant. Informal plantings are preferred, such as grasses, perennials, and low shrubs.

Parking Lot Layout

Parking Stalls shall be typically 90 degree parking; other layouts such as diagonal parking will be reviewed and approved at discretion of the Design Review Committee.

Street Screens, Walls and Fencing

Street screens, wall and fencing are allowed to help screen parking lots from public view.

Street screens, walls and fences are subject to review by the Design Review Committee and may not exceed 4' in height.

Street screens, walls and fences shall be softened with appropriate planting to soften their visual impact.

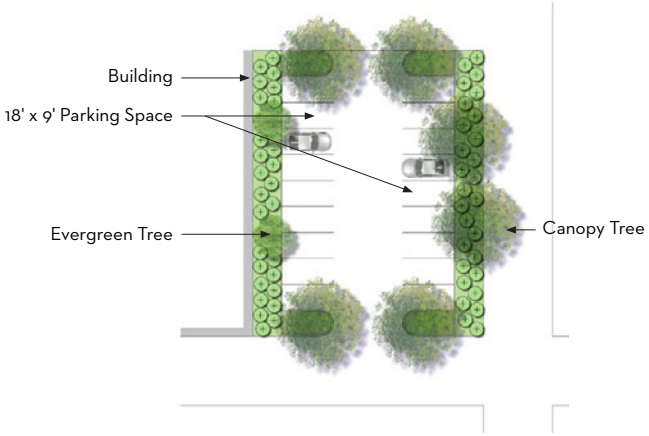
Walls and fences shall be quality designs and materials with a contemporary design aesthetic that complement the Resort.

Vinyl and chain-link mesh fencing are prohibited.

Note:

- All existing trees determined healthy by an arborist within the Parking Lot zone 8" caliper or larger to be preserved where possible. Trees smaller than 8" to be preserved as much as possible.

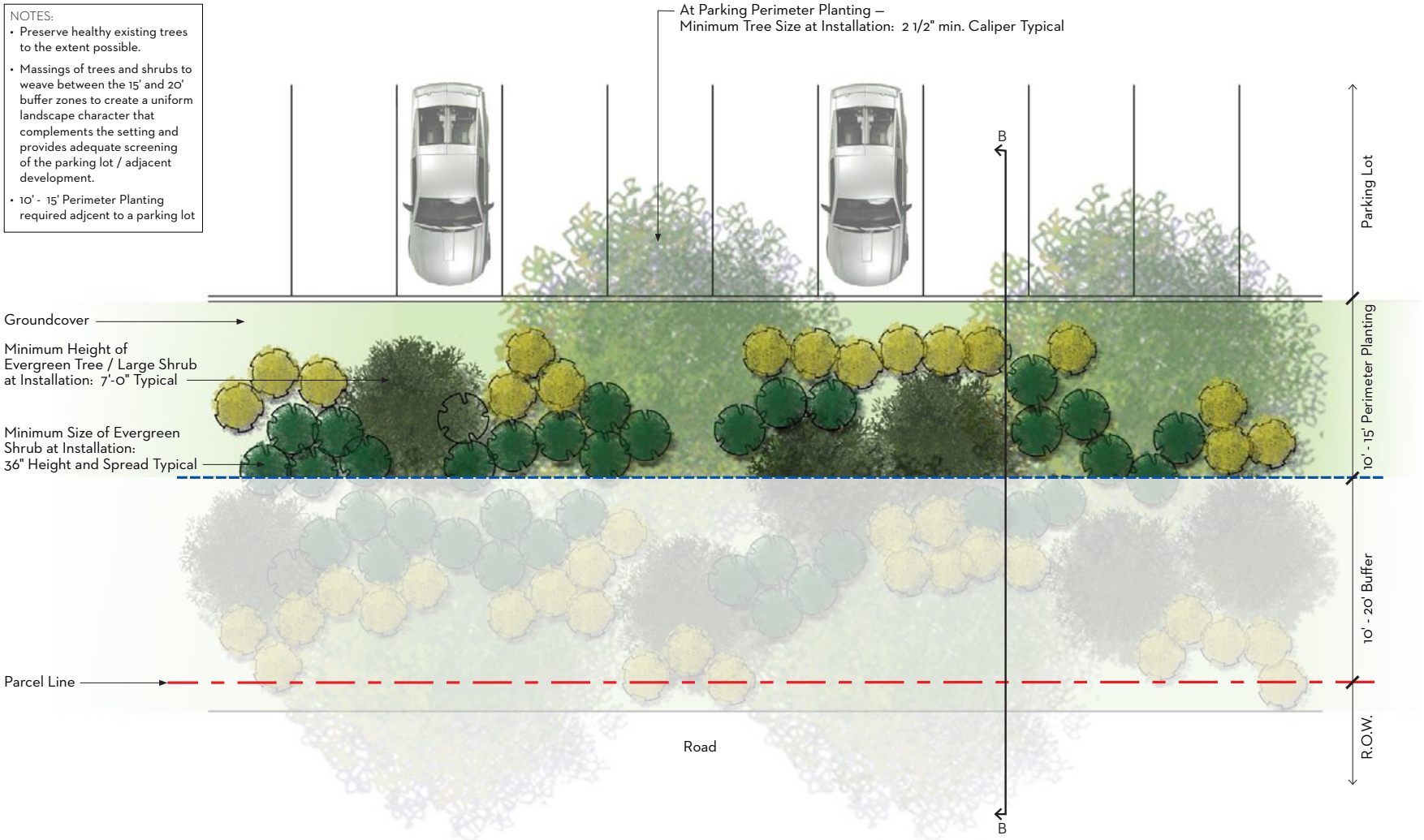
Standard Perimeter Planting
16,000 sf or more



Standard Perimeter Planting
6,000 sf to 16,000 sf

0 40 80'
1" = 40'

NOTES:
- Preserve healthy existing trees to the extent possible.
- Massings of trees and shrubs to weave between the 15' and 20' buffer zones to create a uniform landscape character that complements the setting and provides adequate screening of the parking lot / adjacent development.
- 10' - 15' Perimeter Planting required adjcent to a parking lot

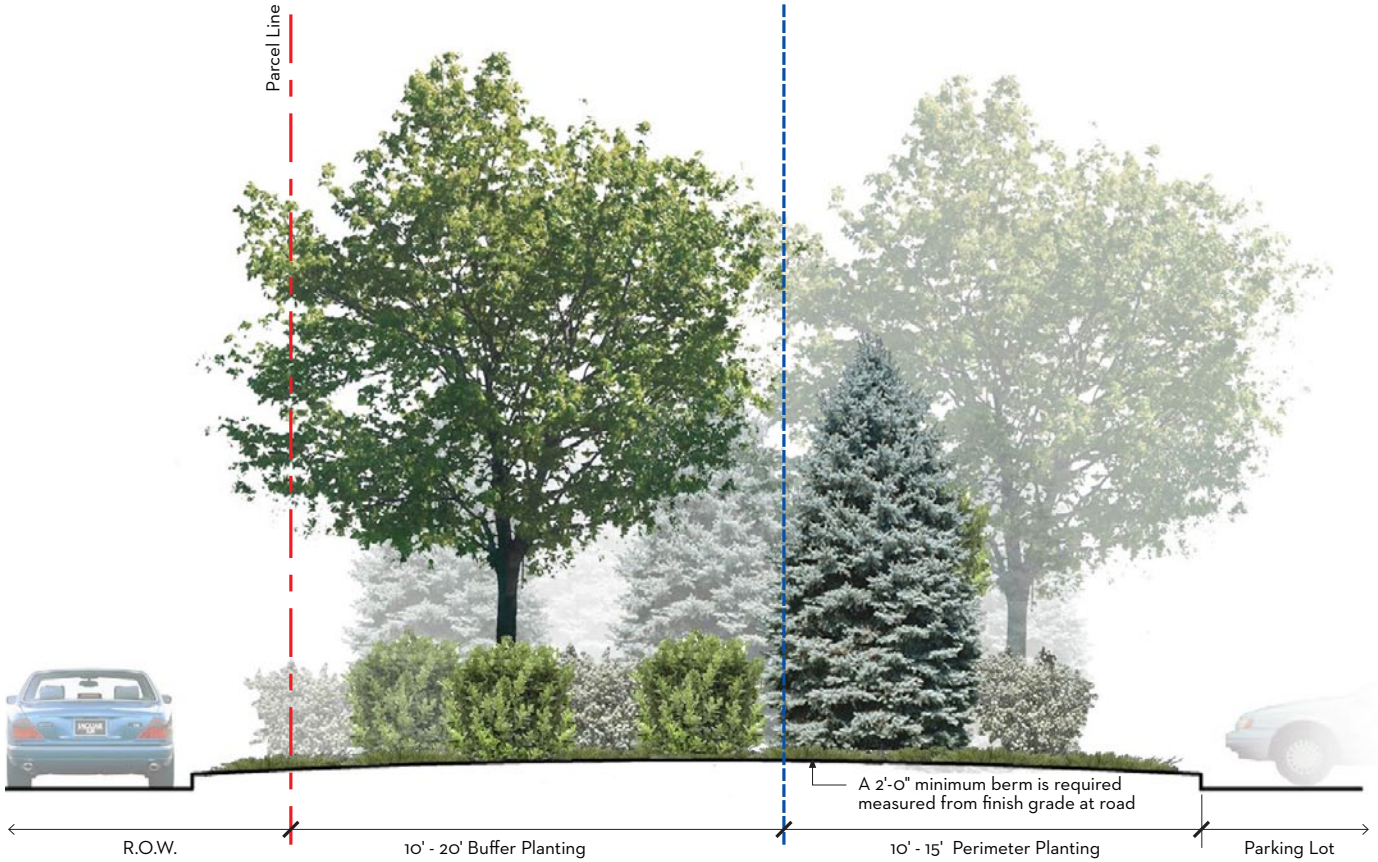


0 8 16'

1" = 8'

OPTION 1 - PLAN: Typical Perimeter Parking / Buffer
(This option occurs along Resort and Neighborhood Roads when adjacent to a parking lot)

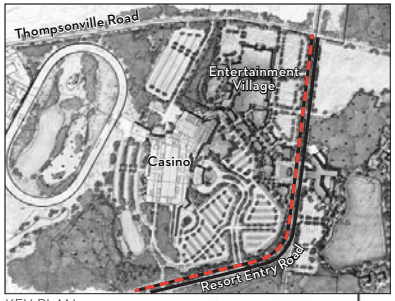
NOTE:
- 10' - 15' Perimeter Planting required adjcent to a parking lot



0 4 8'

1" = 4'

OPTION 2 - SECTION B: Typical Perimeter Parking / Buffer



KEY PLAN

At Parking Perimeter Planting –
Minimum Tree Size at Installation: 2 1/2" min. Caliper Typical

NOTE:
Preserve healthy existing trees to the extent possible.

Planting Setback

Parcel Line

Parking Lot

5' Min. Planting Setback

R.O.W.

Resort Entry Road

0 8 16'

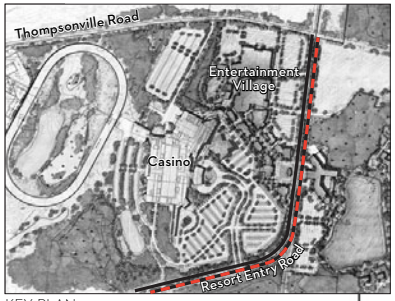
1" = 8'

OPTION 2 - PLAN: Exception to Typical Perimeter Parking / Buffer - Casino and Entertainment Village Only *(Typical West Side of Resort Entry Road)*

0 4 8'

1" = 4'

OPTION 2 - SECTION C: Exception to Typical Perimeter Parking / Buffer -
Casino and Entertainment Village Only *(Typical West Side of Resort Entry Road)*



KEY PLAN

At Parking Perimeter Planting –
Minimum Tree Size at Installation: 2 1/2" min. Caliper Typical

NOTES:
- Preserve healthy existing trees to the extent possible.
- Massings of trees and shrubs to weave between the 15' and 20' buffer zones to create a uniform landscape character that complements the setting and provides adequate screening of the parking lot / adjacent development.

Groundcover

Minimum Height of Evergreen Tree / Large Shrub at Installation: 7'-0" Typical

Minimum Size of Evergreen Shrub at Installation: 36" Height and Spread Typical

Parcel Line

D

D

Parking Lot

10' - 15' Perimeter Planting

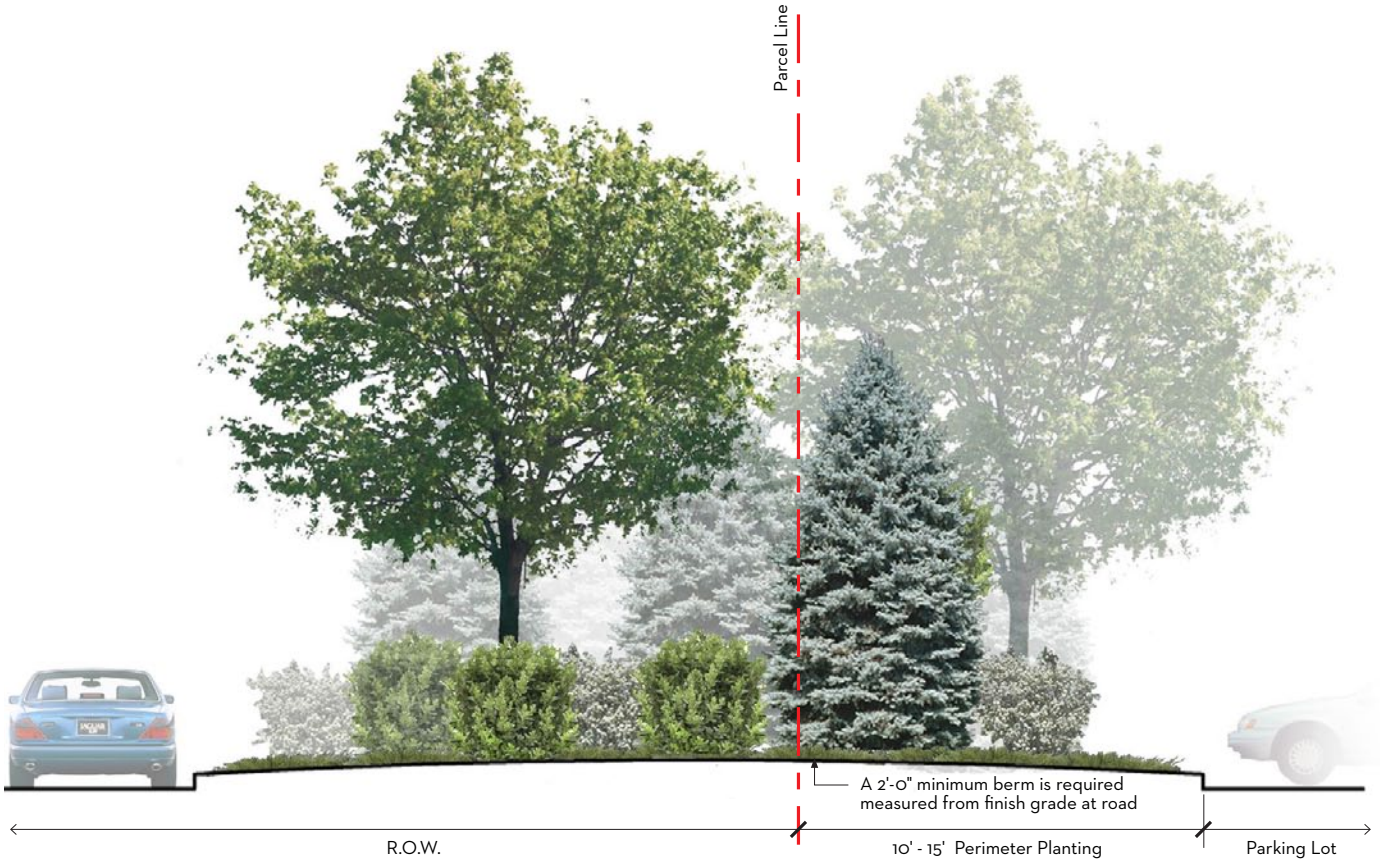
R.O.W.

Resort Entry Road

0 8 16'

1" = 8'

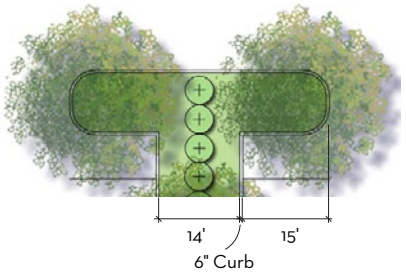
OPTION 3 - PLAN: Exception to Typical Perimeter Parking / Buffer - Resort Entry Road *(Typical East Side)*



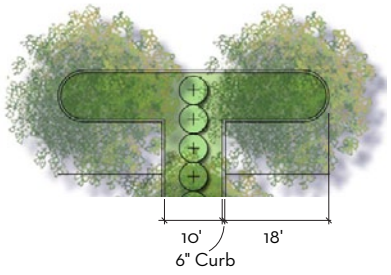
0 4 8'

1" = 4'

OPTION 3 - SECTION D: Exception to Typical Perimeter Parking / Buffer - Resort Entry Road *(Typical East Side)*

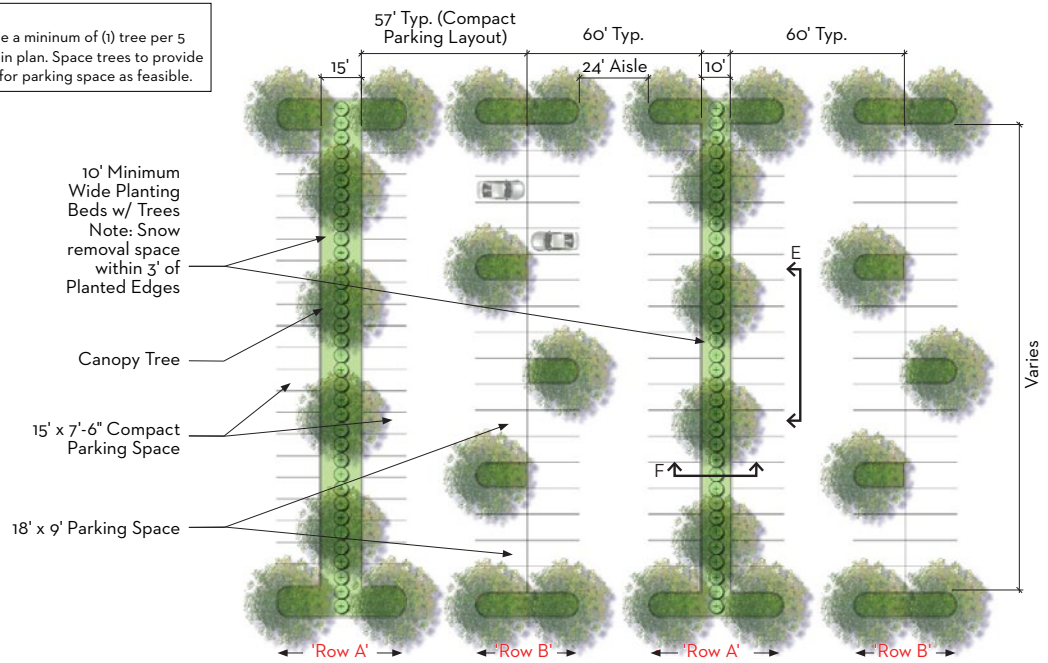


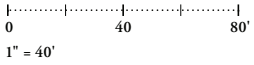
Typical End Condition
Compact Car Parking Layout



Typical End Condition
Standard Car Parking Layout

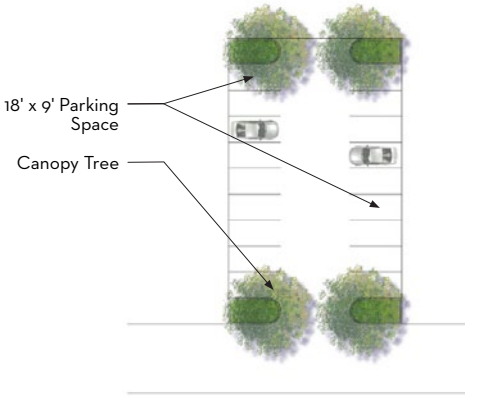
NOTE:
For Row 'A' and 'B' provide a mininum of (1) tree per 5 parking spaces as shown in plan. Space trees to provide adequate uniform shade for parking space as feasible.





Preferred Interior Planting
16,000 sf or more

NOTE:
Provide a mininum of (1) tree per 5 parking spaces as shown in plan.



Preferred Interior Planting
6,000 sf to 16,000 sf

0 2 4 6 8'

1/4" = 1'-0"

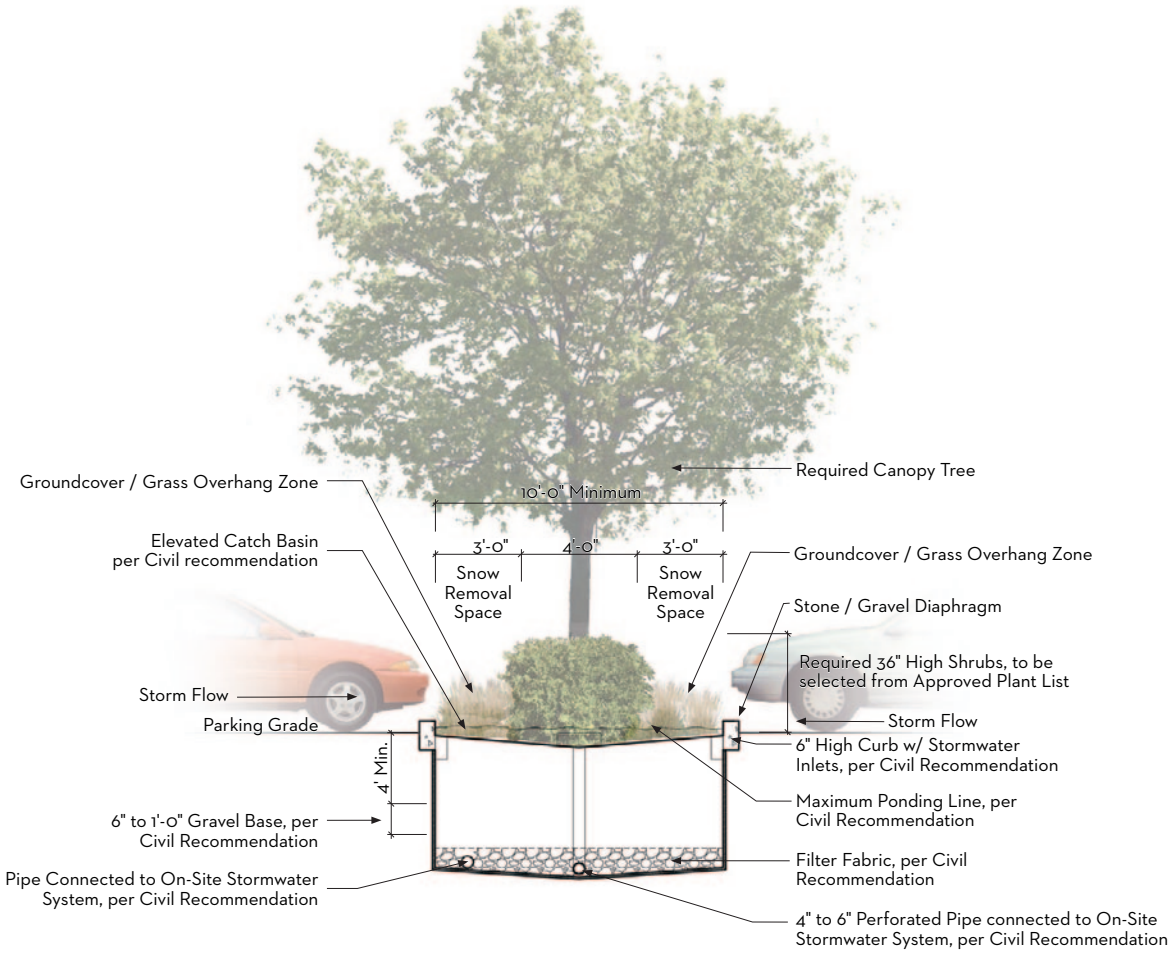
ELEVATION E: Bioretention Cell

Required Elements

- 2' wide stone/gravel diaphragm
- 2" - 3" mulch layer

Recommended, But Not Required

- Gravel under drain, base if subsoil infiltration rate is greater than 0.5"/hr

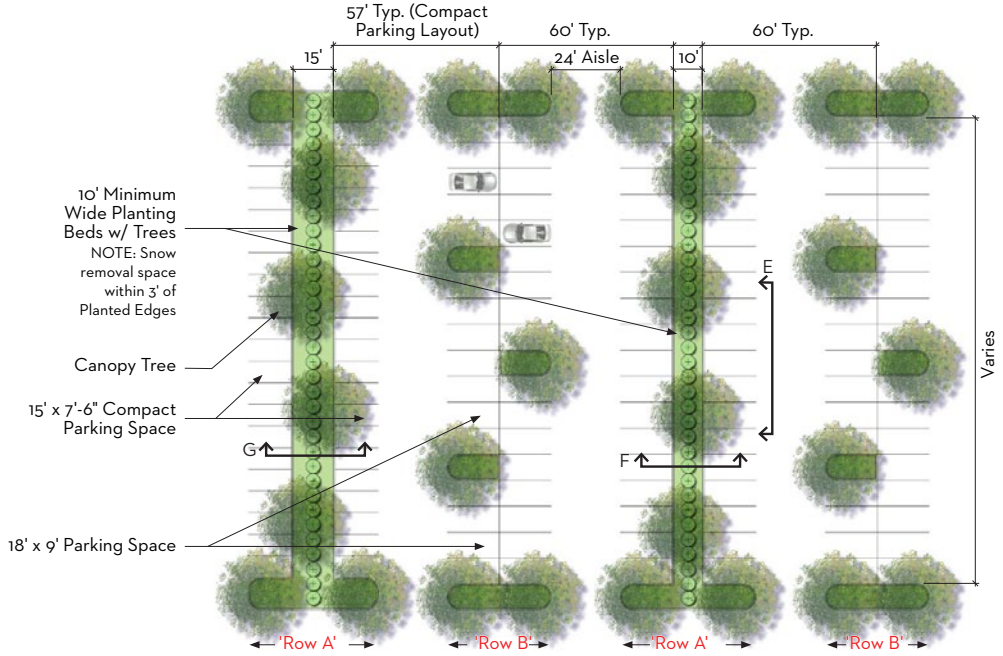


0 2 4 6 8'

1/4" = 1'-0"

SECTION F: Bioretention Cell *(see Preferred Interior Planting Plan)*
Scenario 1: Depth to seasonal groundwater table is greater than 6'.

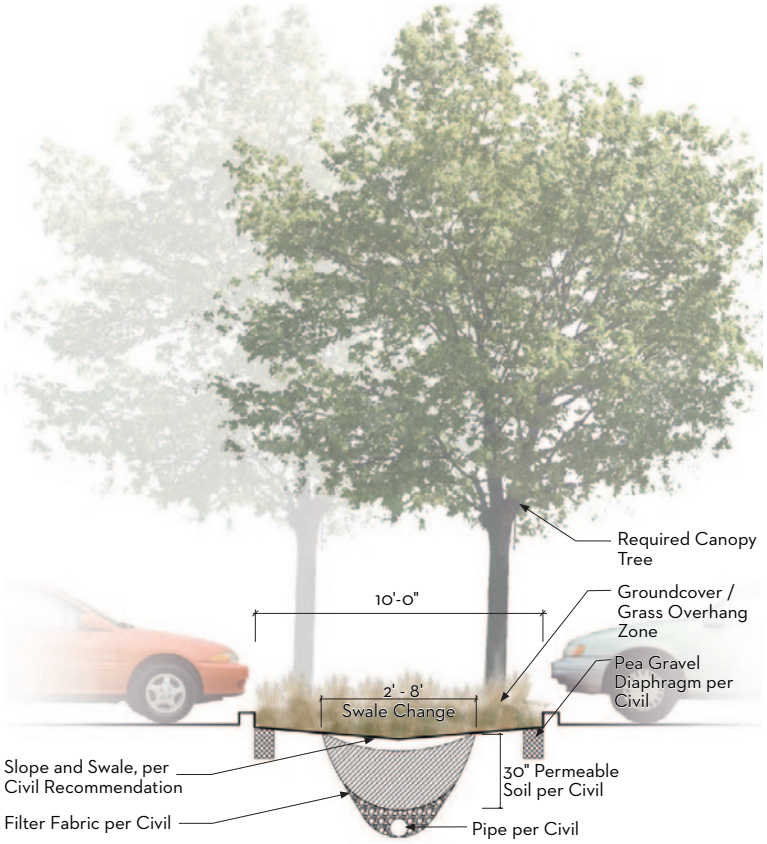
NOTE:
For Row 'A' and 'B' provide a mininum of (1) tree per 5 parking spaces as shown in plan. Space trees to provide adequate uniform shade for parking space as feasible.



0 40 80'

1" = 40'

Standard Typical Interior Planting w/ Swale Option
16,000 sf or more

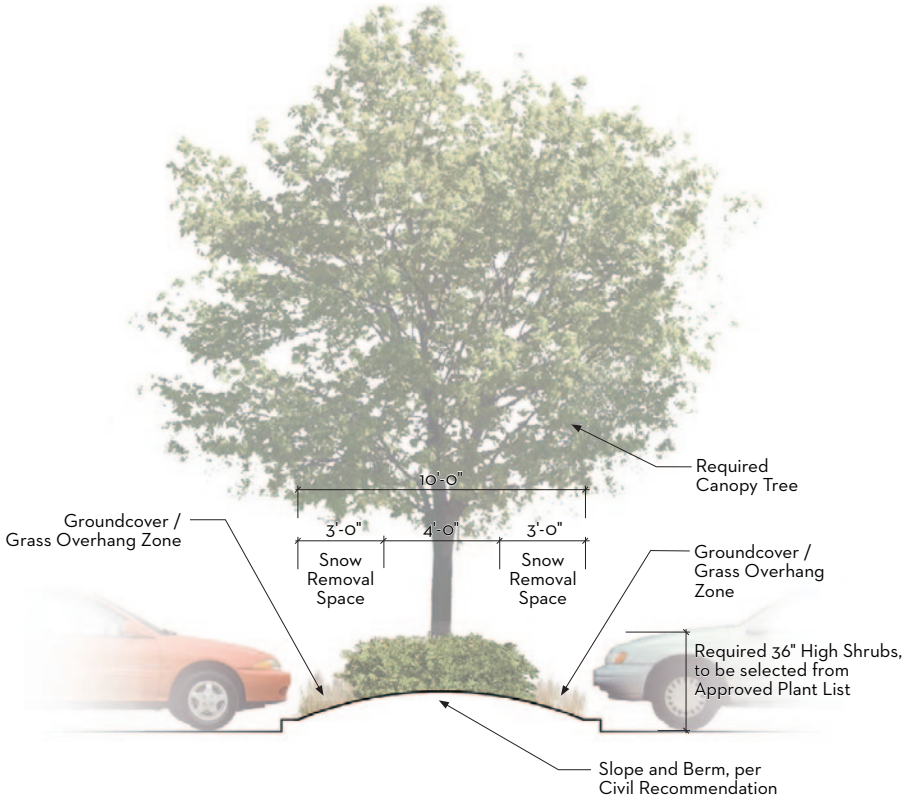


0 2 4 6 8'

1/4" = 1'-0" *at full size (11 x 17")*

SECTION F: Swale (Wet Swale)
Scenario 2: If groundwater table is greater than 2' below proposed bottom of swale.

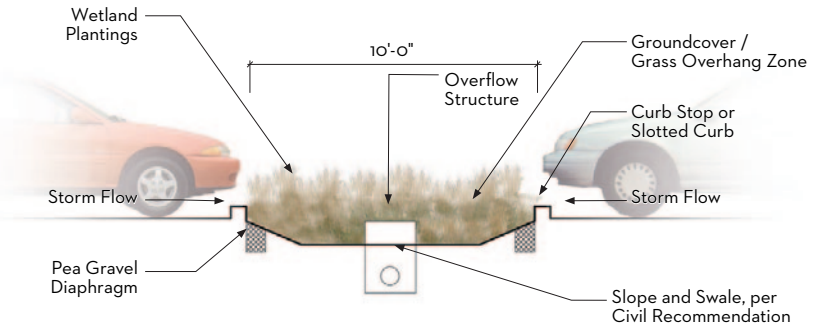
BIORETENTION AND SWALE SECTIONS FOR PARKING LOT ARE TO BE USED PER CIVIL RECOMMENDATIONS BASED ON WATER TABLE CONDITION ON-SITE



0 2 4 6 8'

1/4" = 1'-0"

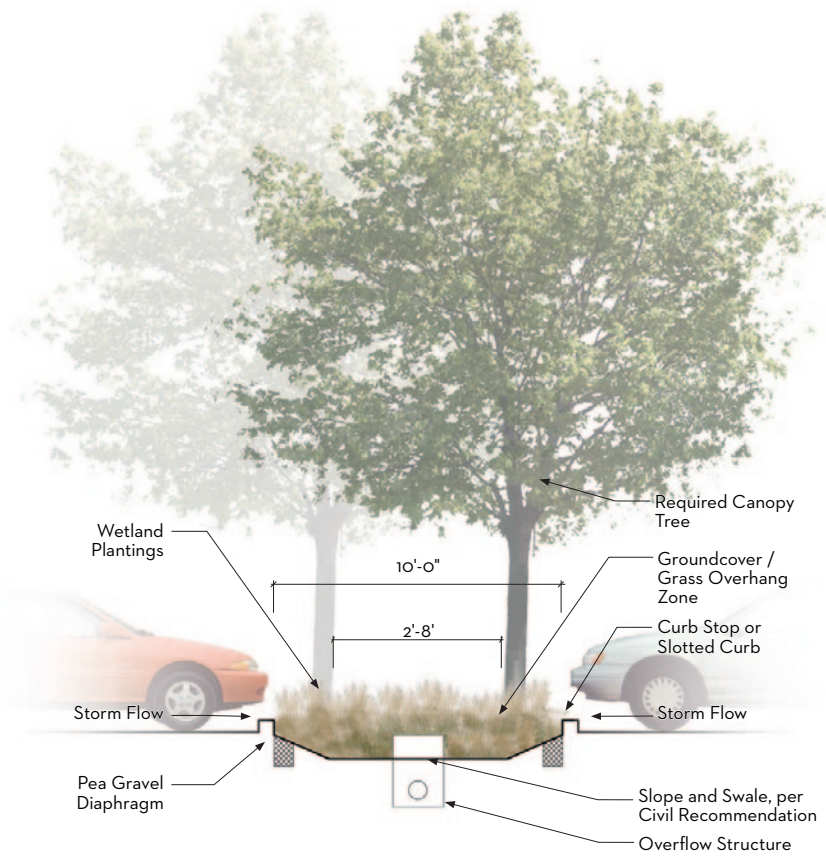
SECTION F: Berm



0 2 4 6 8'

1/4" = 1'-0"

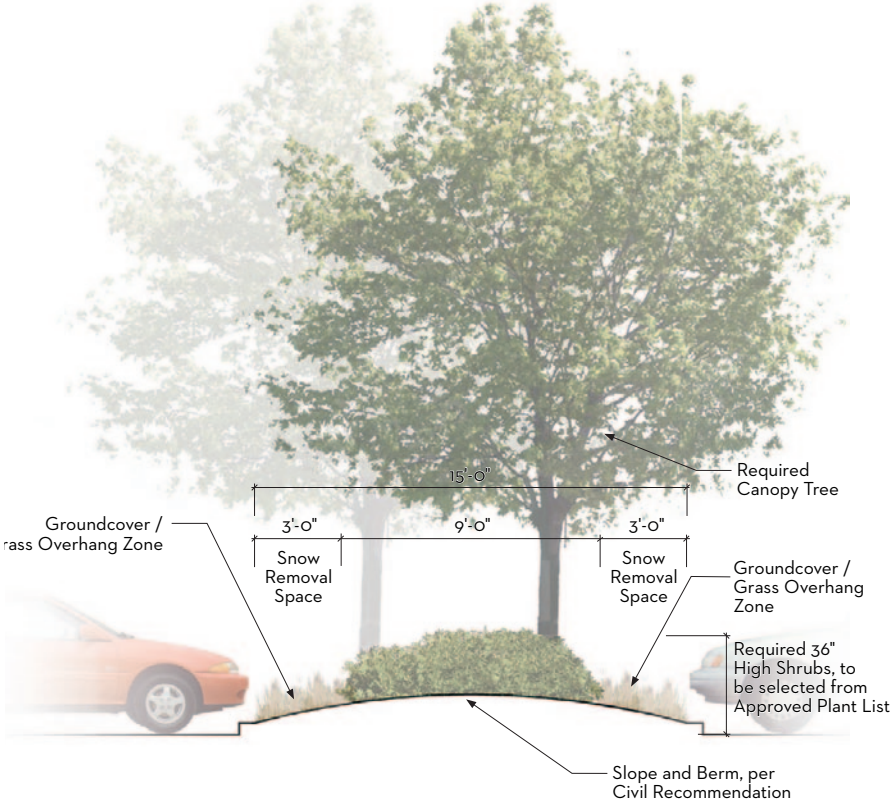
SECTION G: Swale (Wet Swale)
Scenario 3: If groundwater table is less than 2' below proposed bottom of swale (without trees).



0 2 4 6 8'

1/4" = 1'-0"

SECTION G: Swale (Wet Swale)
Scenario 4: If groundwater table is less than 2' below proposed bottom of swale (Scenerio 2 with trees).



SECTION G: Berm

0 2 4 6 8'

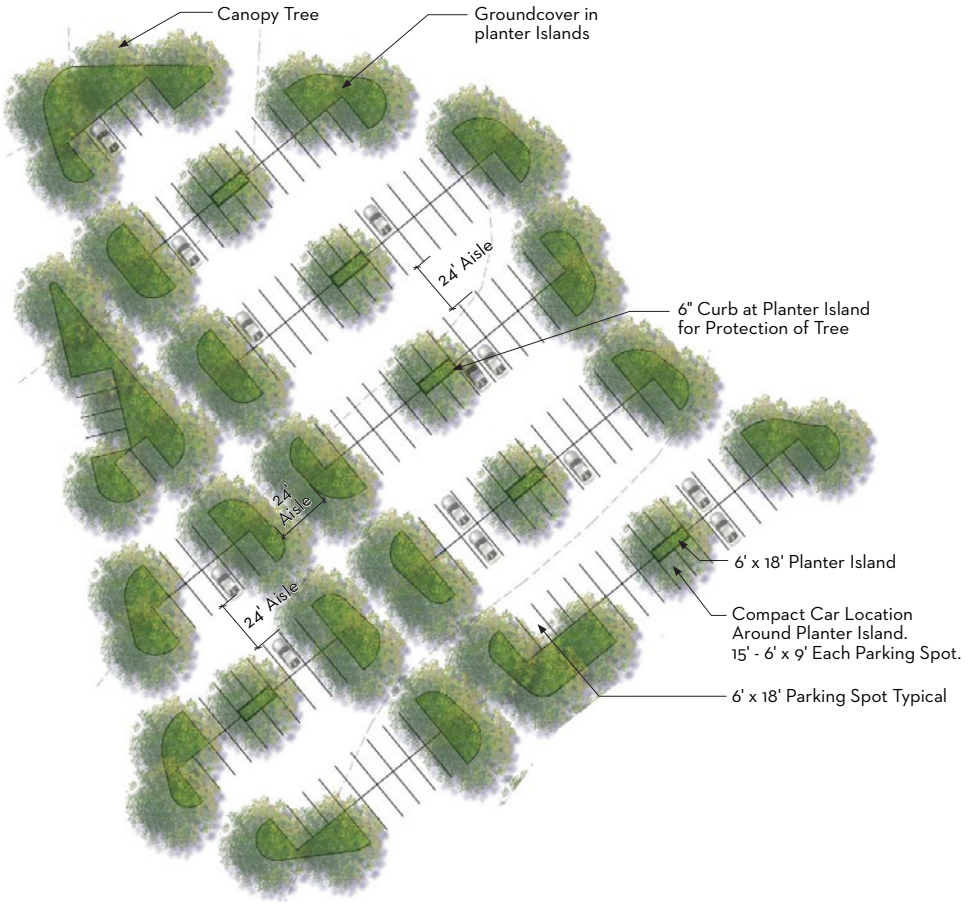
1/4" = 1'-0"

BERM SECTIONS FOR PARKING LOT ARE TO BE USED PER CIVIL RECOMMENDATIONS BASED ON WATER TABLE CONDITION ON-SITE

NOTES:
Trees within parking rows may be accommodated in planter islands, planting strips, or diamonds.

Required Elements

- 1 tree per 5 parking spaces



Parking Lot Planting

OPTION 1: Parking Lot at Casino

0 50 100'

1" = 50'

NOTES:
Trees within parking rows may be accommodated in planter islands, planting strips, or diamonds.

Required Elements

- 1 tree per 5 parking spaces

0 50 100'

1" = 50'

Parking Lot Planting

OPTION 2: Parking Lot at Casino

3.0 SIGNS & LIGHTING

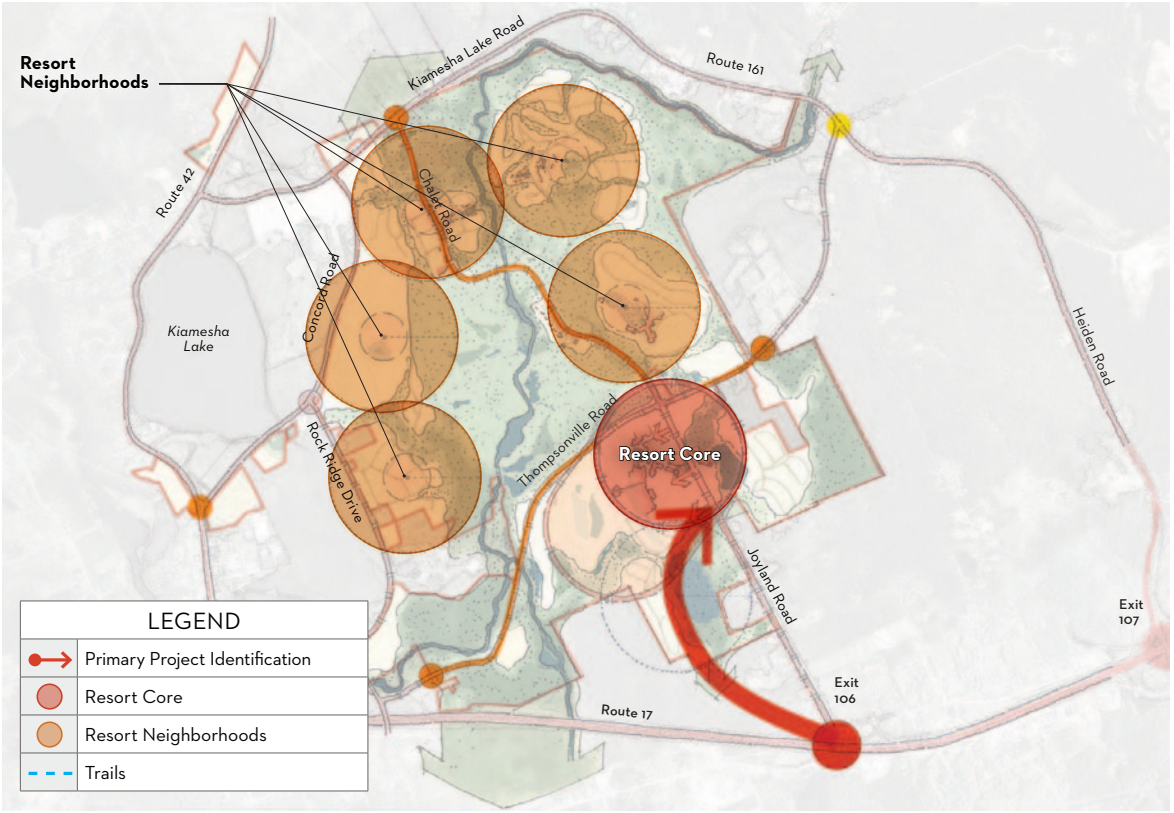
CONTEXT & BRANDING

Signage and Lighting Environments

Signage and lighting designed for the EPT Concord Resort is organized into four environments:

- **Primary Project Identification** welcomes visitors and residents to the resort while providing directional and informational resources.
- **Resort Core** signage and lighting offer more detailed information and directions while creating exciting, vibrant spaces.
- **Resort Neighborhood** signage and lighting is emblematic of those found in historic Catskills communities, with contemporary quality and finishes.
- **Trail** signage and lighting is predominantly functional, designed to provide necessary directions and information without detract from the outdoor experience.

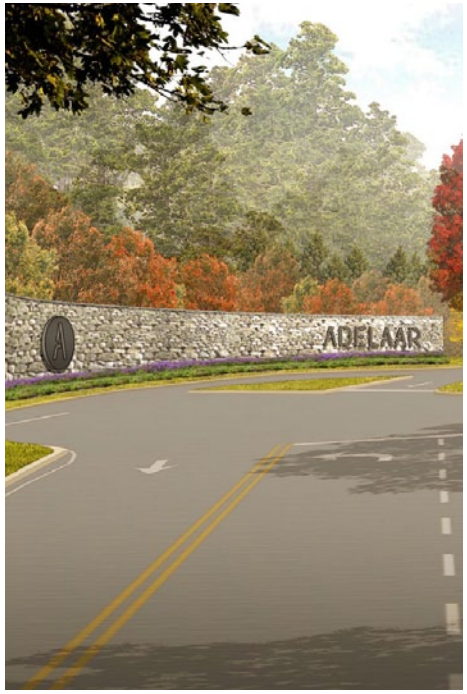
Signage and lighting in the Resort Core should create exciting, vibrant spaces.



Signage & Lighting Framework Plan

PRIMARY RESORT IDENTIFICATION

The Primary Resort Identification should be clear and informative.



RESORT CORE

Signage and lighting should be fun, playful, and inviting for Concord Resort residents and visitors.

RESORT NEIGHBORHOODS

Neighborhood signage and lighting should be evocative of traditional Catskills communities with contemporary craft.

TRAILS

Signage along trails should be simple and integrated into the natural environment of the trail surroundings.

CONTEXT & BRANDING (CONT'D)

Precedent Imagery

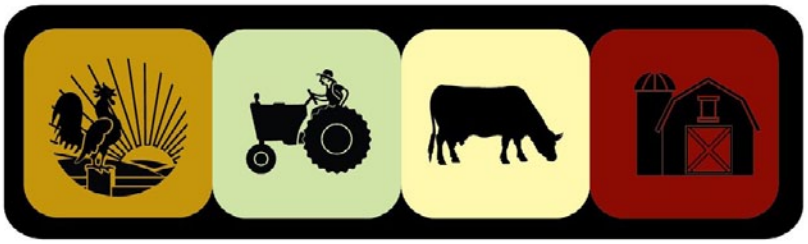
Precedent research into the character of signage and lighting in the Catskills and in similar resort contexts has yielded the following set of signage and lighting conceptual design priorities:

- **Bold, clean color** should be used to highlight important information, directions, and outdoor spaces.
- **Pictograms** can portray information and directions simply and universally.
- **Playful, sculptural attributes and iconography** can attract a variety of visitors and guests.
- **Subtle, natural materials** should be used for all signage and lighting structures to enhance the overall landscape experience.

Signage and lighting should enhance the clean, natural character of the Catskills landscape.

NOFA-NY
NORTHEAST ORGANIC FARMING ASSOCIATION OF NEW YORK

CATSKILL FOOD INITIATIVE



PAKATAKAN Farmers' Market

CONTEXT & BRANDING (CONT'D)

Materials

The material palette composition will further refine the character of the EPT Concord Resort signage and lighting. Several priorities for the material of signage and lighting structures include:

- **Pure, honest expression and assembly** of materials to evoke the materials' inherent character
- **Natural treatment of material finishes** to allow for a rich variety of textures and colors
- **Amplify the lush surrounding landscape** through simple, consistent treatment of signage and lighting structures in their respective environments

TIMBER

CORTEN

STONE

WOOD

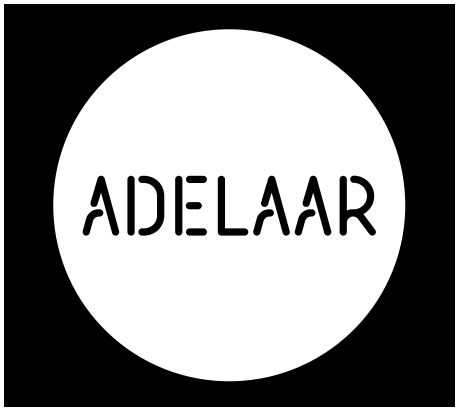
METAL

The signage and lighting material palette, set against the diverse textures of the EPT Concord Resort landscape, should enhance the overall experience of the resort for visitors and guests.

PRIMARY LOGO

POSITIVE

NEGATIVE

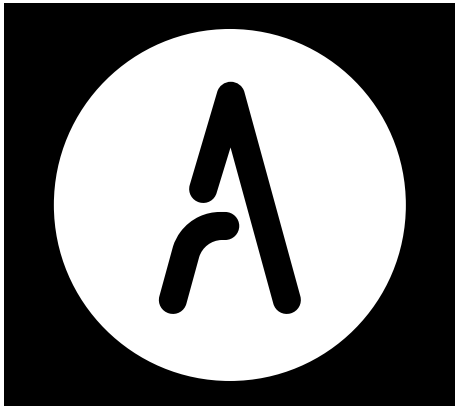


This is the primary logo. It should be used for corporate, environmental and promotional material.

SECONDARY LOGO: REDUCED MARK

POSITIVE

NEGATIVE



This is a secondary logo. It is a reduced mark and should be used instead of the secondary logotype in environmental or promotional material, where applicable.

COLOR PALETTE

PRIMARY

BLACK
Pantone: Black
CMYK: 50, 40, 40, 100
RGB: 0, 0, 0
Web#: 000000

WHITE
Pantone: –
CMYK: 0, 0, 0, 0
RGB: 255, 255, 255
Web#: FFFFFF

SECONDARY

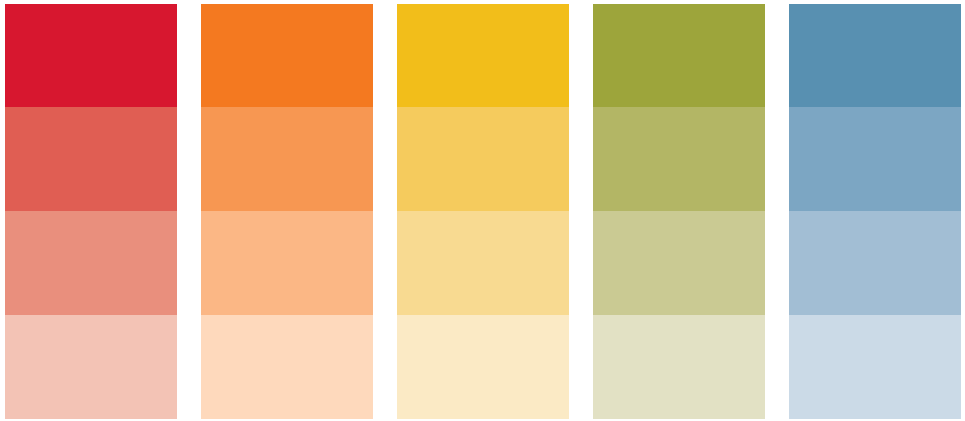
RESORT RED
Pantone: 185 U
CMYK: 0, 100, 85, 10
RGB: 215, 23, 47
Web#: ED1B34

SPORTS ORANGE
Pantone: 151 U
CMYK: 0, 65, 100, 0
RGB: 244, 121, 32
Web#: F47920

FAMILY YELLOW
Pantone: 7404 U
CMYK: 5, 25, 100, 0
RGB: 242, 190, 26
Web#: FFC20E

GOLF GREEN
Pantone: 583 U
CMYK: 45, 25, 100, 0
RGB: 157, 165, 59
Web#: 9DA53B

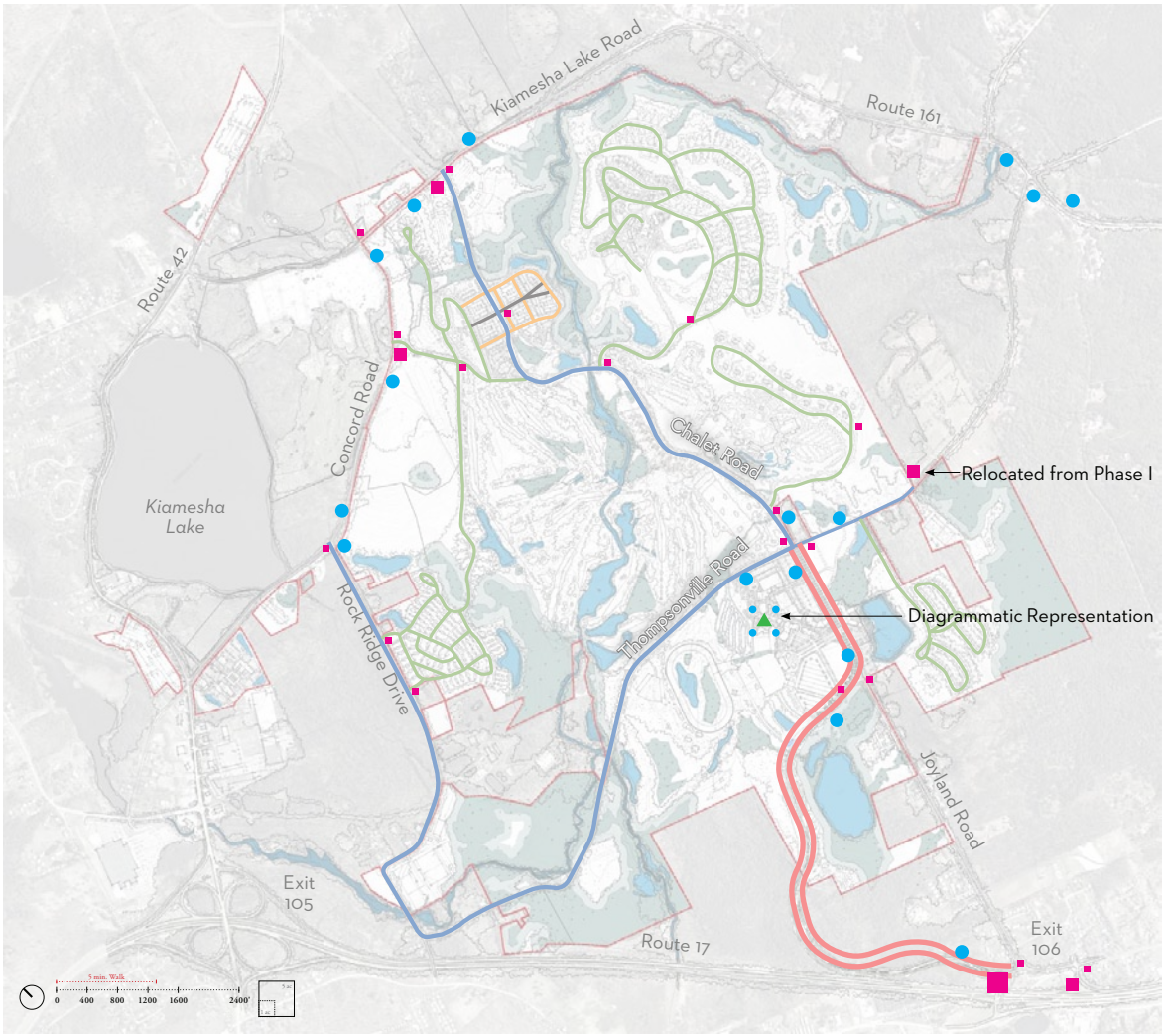
VILLAGE BLUE
Pantone: 7459 U
CMYK: 50, 10, 0, 30
RGB: 88, 144, 177
Web#: 5B90A9



RESORT RED **SPORTS ORANGE** **FAMILY YELLOW** **GOLF GREEN** **VILLAGE BLUE**

These are tints of ADELAAR colors. They should be used minimally and only to supplement the main palette. The following instances are guidelines as to when tints can be used.

- As transparent overlays over images for type readability on the web only
- For complex designs where the master palette benefits from additional complementary colors (e.g. maps)
- As a background color, when needed



PRIMARY RESORT IDENTIFICATION

The first signage and lighting environment is the Primary Resort Identification, which welcomes visitors and residents to the EPT Concord Resort while providing directional and informational resources.

Access to the resort from Route 17 will serve as the resort's primary entrance. A monument sign will be constructed at this entrance, with special lighting, signage, and landscape considerations along the entry route.

Secondary Resort entrances at Concord Road, Kiamesha Lake Road, and Thompsonville Road will have smaller monument signs, with more functional informational and directional signage and standard resort lighting treatment.

Resort access from Heiden Road will have directional signage. This entrance will not have a monument sign, and lighting treatment will begin at the resort property.

LEGEND

	Description	Phase 1 Qantity	Phase 2 Quantity
■	Primary Resort Identification		1
■	Secondary Resort Identification		2
▬	Facility I.D.		-
▪	Street I.D.		13
▪	Trail I.D.		-
▲	Project Directory		1
▲	IRD Stanchion Upgrade	TBD	-
●	Vehicular Directional	4	12
●	Pedestrian Directional		4

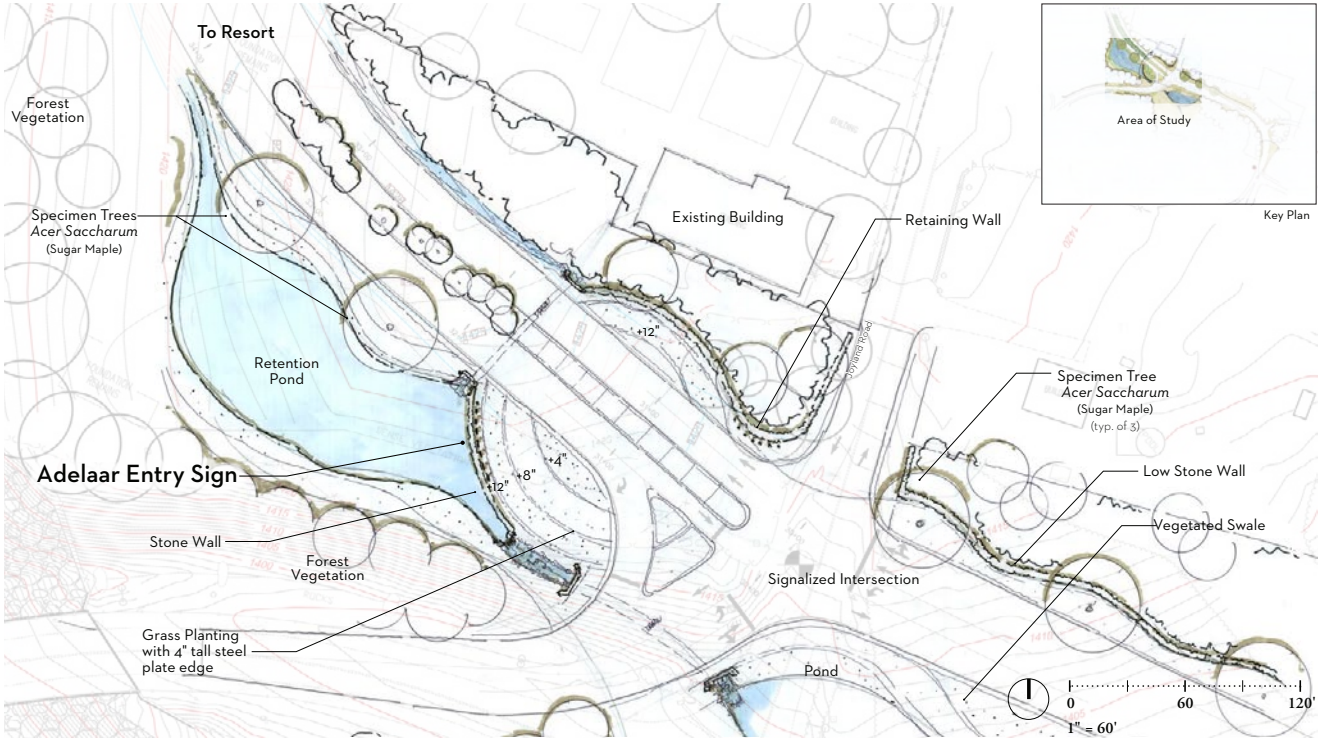
PRIMARY RESORT IDENTIFICATION (CONT'D)

Resort Monument Sign Options

The resort monument sign should be an exciting, inviting landmark for the EPT Concord Resort. The precise location of the resort monument sign is to be determined pending the alignment of the entry road. Consideration for the resort monument sign includes:

- **Layering the display of information with landscape elements** (water, vegetation, site walls) will effectively draw visitors and residents into the landscape entry sequence.

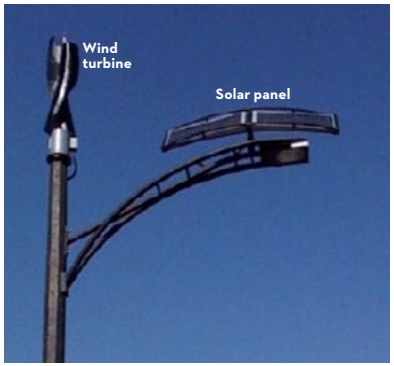
Landscape treatment: layering of stone and vegetation to create a strong sense of entry



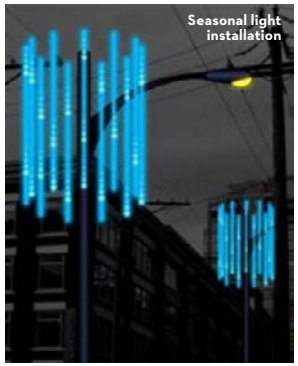
Glowing Returns

Cabinet construction letters and monogram with a dark bronze patina finish. Return surfaces are perforated (or open) mental backed up with day/night acrylic. Returns appear dark bronze at day and have soft warm glow at night. The success of this idea is based on the notion that objects are always viewed in perspective and never straight on.

This drawing also indicates a gradient wash of illumintation, bright at the bottom and dark at the top, along the wall's length.



Streetlight options for Primary Resort Entry Road



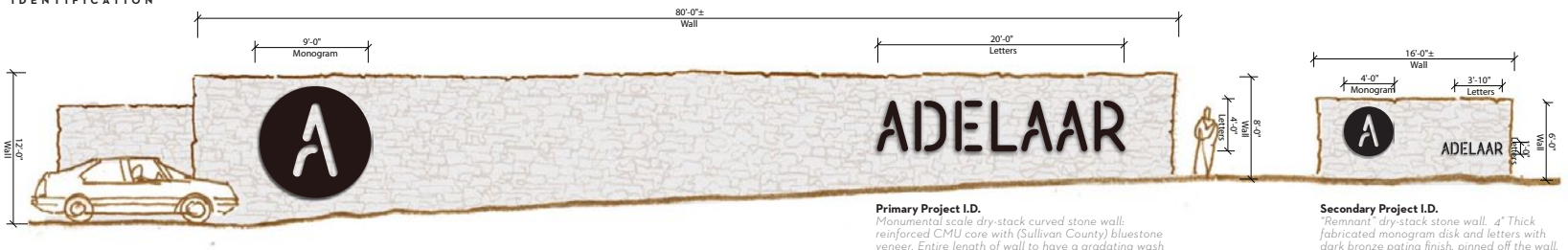
Recommended streetlight for Concord Resort Roads

Secondary Resort Identification:

Electronic Informational and Directional Signage

PRIMARY RESORT IDENTIFICATION (CONT'D)

IDENTIFICATION



Primary Project I.D.
Monumental scale dry-stack curved stone wall: reinforced CMU core with (Sullivan County) bluestone veneer. Entire length of wall to have a gradating wash of light from remote fixtures- starting bright at the base and fading away as it washes up the face of the wall.

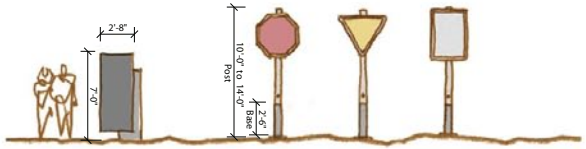
6" Thick fabricated monogram disk and letters with dark bronze patina finish, pinned off the wall. Return surfaces are perforated metal backed up with day/night acrylic (will look dark bronze at day and will have soft glow at night).

The front faces of both are solid.

Secondary Project I.D.
"Remnant" dry-stack stone wall. 4" Thick fabricated monogram disk and letters with dark bronze patina finish, pinned off the wall. The monogram has the same illumination effects on the return surfaces as used on the Primary I.D..

The letters, due to their size, may require LED embedded in solid acrylic, wrapped with perforated metal and capped with a solid face.

INFORMATIONAL

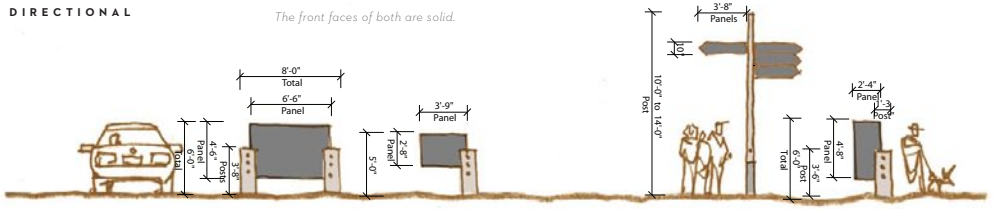


Project Directory
Interactive touch screen LCD display, locations to be determined. Dynamic display is supported by fabricated stanchion with Textured Charcoal metal finish. Side B of display features changeable internally illuminated static graphics- either promotional or wayfinding in nature.

IRD Stanchion Upgrade
A distinctive and appropriate upgrade of the typical unistrut post used for these off-the-shelf regulatory signs. Tapering wood post (or not) with similar charcoal gray base wrap or metal cleat detail. Cast and rolled project monogram fastened to pole above the base, two-sides.

Signs themselves are fastened to a rear panel or frame of appropriate material and finish: black iron, galvanized metal or blackened corten.

DIRECTIONAL



Vehicular Directional
Sign panel bearing directional information located and sized specifically for vehicular windshield viewing. These should be consistent (as opposed to Facility I.D. signs that might bear different character). Signs typically rely upon reflective materials for night viewing.

Fabricated thin profile frame with sign surfaces, both sides, with a mill or corten finish. Graphics are reflective vinyl. Sign supported by Weathered Gray finish gluelam posts with expressed black finish hardware. Multiple and single message variations as required.

Pedestrian Directional
Pedestrian scaled directional sign. Major and minor variations. Overhead message units use project tapering wood post with Weathered Gray finish, Textured Charcoal metal cleat or base wrap. Cast and rolled project monogram fastened to pole above the base, two-sides. Eye level units have thin profile frame with sign faces, both sides. Graphics are masked and painted. Sign supported by gluelam post with expressed black finish hardware.

Sign panels include directional arrow ends (differing them from street I.D. signs). Stacked single message panels providing direction as required.

Facility I.D. (Destinations, services, etc.)
"Remnant" dry-stack stone wall, 8' to 12' in length. Sign panel shape and material can vary- inset stone or metal surface, surface mounted metal or wood thin profile cabinet. Internal LED fixtures provide illumination for push-through or edge-lit graphics. Additional remote aimable spotlight fixtures may be used.

Street I.D. (Vehicular Circulation)
Project tapered round wood gluelam posts (Structura Bol line) with Weathered Gray finish. Extruded metal pole base with Textured Charcoal finish. Cast and rolled project monogram fastened to pole above the base, two-sides.

Blade-mount sign panels with reflective graphics both faces. Panels are supported by bracket arms, same Textured Charcoal finish as base.

Trail I.D. (Pedestrian Circulation)
Low profile, pedestrian scale trail markers for the network of walkways throughout the project. Base similar to project light post units with small wood finial with carved messages. Additional cut-out project monogram applied to (cast into) metal bases, two-sides.

RESORT CORE

The Resort Core is the entertainment destination in the EPT Concord Resort. Signage and lighting in this environment should reflect and promote a high-energy, vibrant, and seasonally-varied center for diverse activities.

Lighting will play a particularly significant role in defining the atmosphere of the Resort Core, going beyond functional illumination of streets and squares to become engaging sculptural installations. These installations should be inviting to visitors and residents young and old, whether spending a lively evening in the casino or going out to dinner as a family.

As in other resort environments, signage and lighting in the Resort Core should equally be designed in harmony with the landscape design. Successful lighting design in the Resort Core can be used both to evoke landscape textures and patterns as well as to illuminate the qualities of the landscape itself.

Resort Core Key Plan









Resort Core Light Installation Options

RESORT CORE (CONT'D)

Light Installations

Light installations in the Resort Core should be:

- **Vibrant**
- **Seasonal**
- **Artistic**
- **Flexible**
- **Changing**

Pedestrian Street Lighting

Pedestrian street lighting in the Resort Core should have:

- **Simple Profiles**
- **Contemporary Luminaires**
- **Wood pole, metal bases**

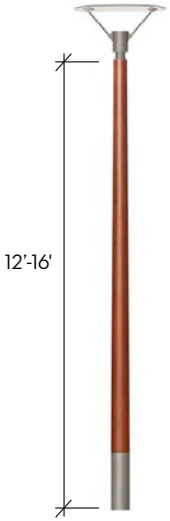
Aubrilam Dome or comparable

LED Parking Display

Interactive LCD Displays

RESORT NEIGHBORHOODS

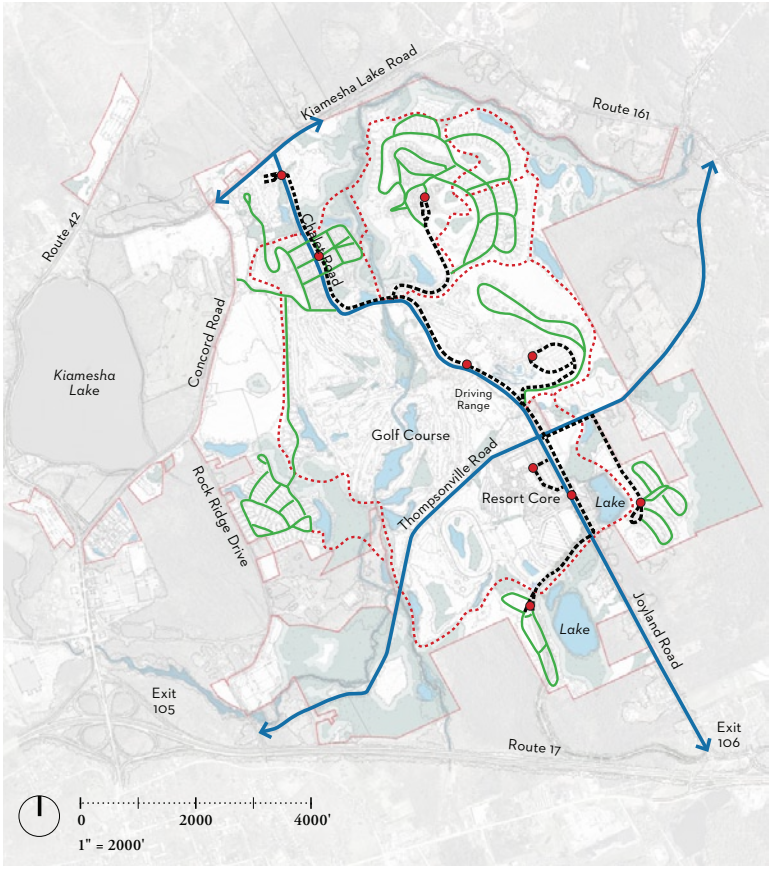
Neighborhood signage and lighting should be emblematic of those found in historic Catskills communities, with contemporary quality and finishes.



Aubrilam Dome or comparable

Se'lux Discera 4 LED or comparable

Neighborhoods Key Plan

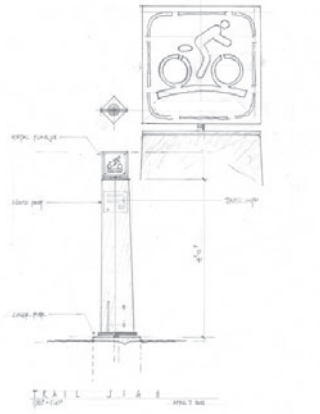


Trail Network Illustrative Plan

LEGEND

- Class 1: Path/Multi-trails
- Class 2: Bike Lane
- Hiking Trail
- Trolley

Multi-Use Path Trail Markers



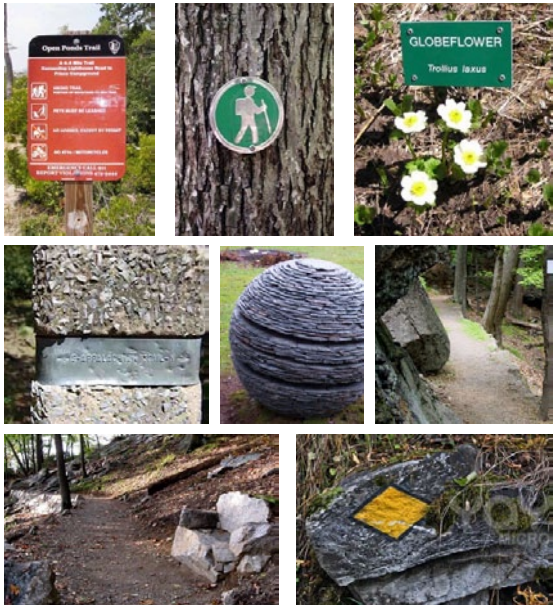
Trail I.D. (Pedestrian Circulation)
Low profile, pedestrian scale trail markers for the network of walkways throughout the project. Base similar to project light post units with small wood finial with carved messages. Additional cut-out project monogram applied to (cast into) metal bases, two-sides.

Multi-use path trail markers should be simple, effective, and directional using pictograms. Lighting could be used at crossroads or nodes.

TRAILS

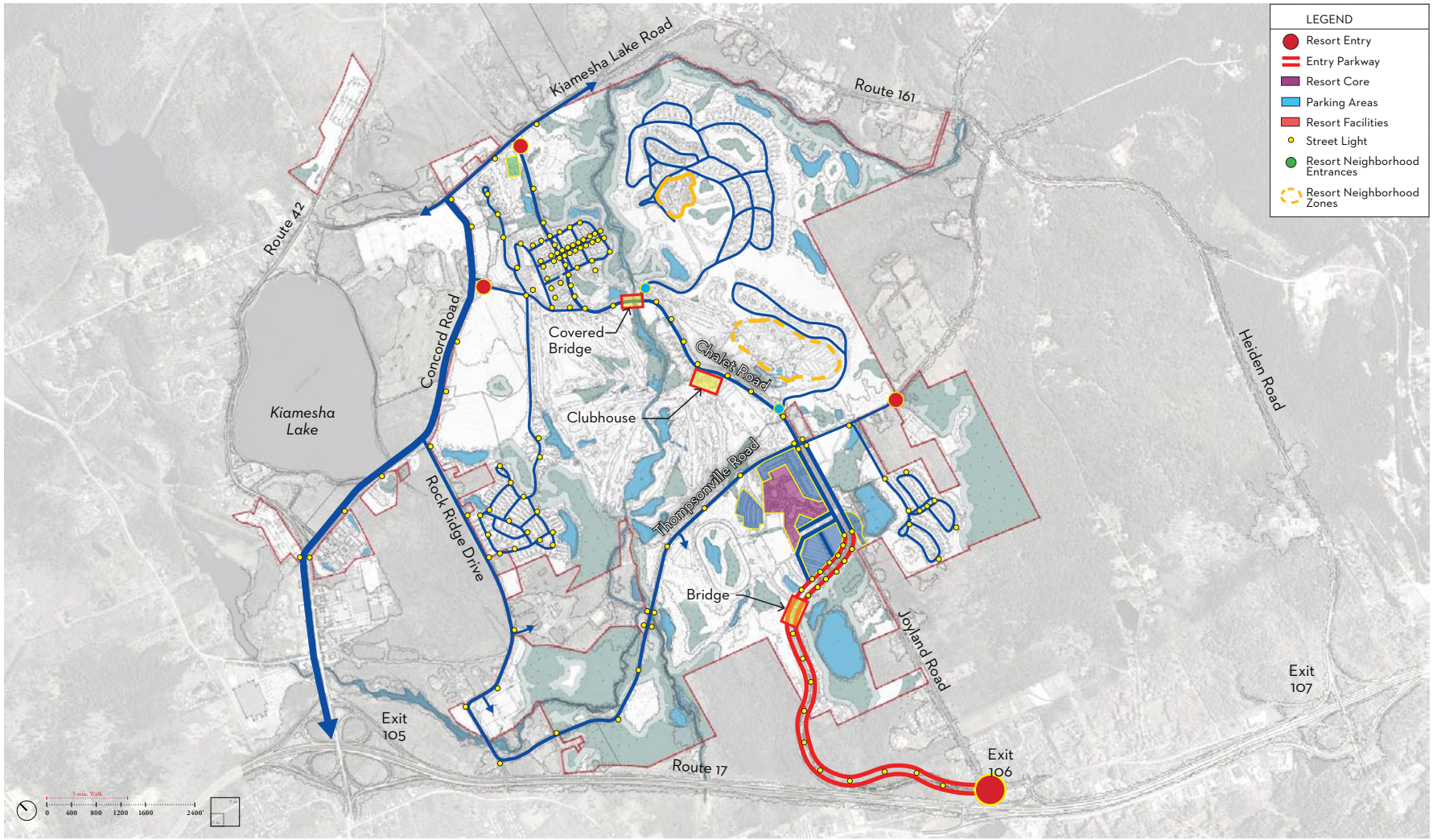
Trail signage and lighting is predominantly functional, designed to provide necessary directions and information without detract from the outdoor experience.

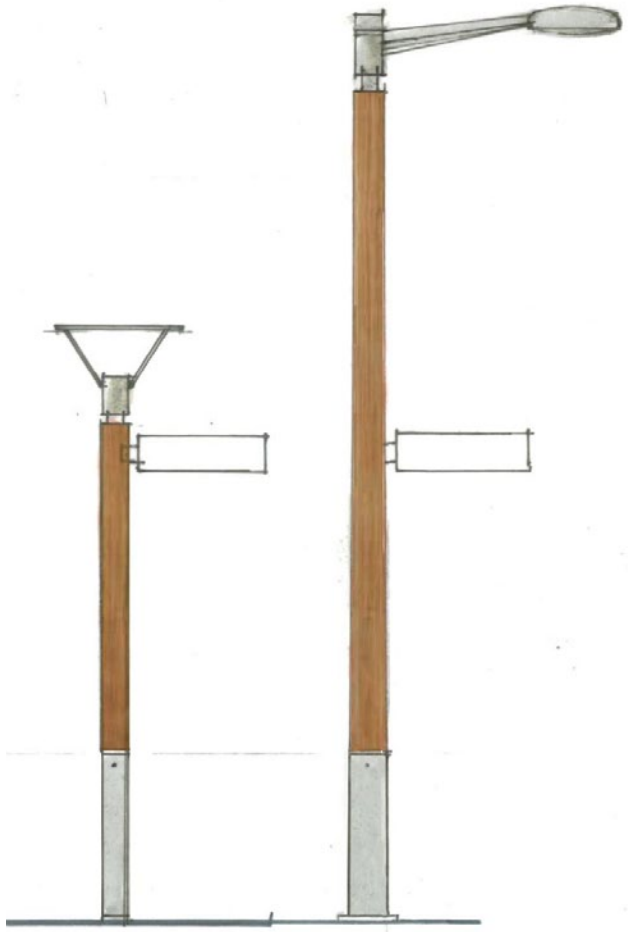
Hiking Trail Markers Character



Discrete hiking trail markers that do not detract from natural beauty of the trails - either as furniture, sculpture, or simple trail markers on trees. Lighting is not recommended on trails.

ROADWAY LIGHTING





Street Light Pole Height Chart

Road Type	Maximum Pole Ht.
Resort Entry Road	25'
Entertainment District/ Resort Core	25'
Resort Roads	20'
Village Commercial Streets	12'-16'
Village Residential Streets	12'-16'
Residential Roads	12'-16'
Service Roads	20'
Parking Areas	30'

4.0 TRAILS NETWORK

CONTEXT

The proposed trail system connects the various areas of the resorts and provides its users with different experience levels.

It also aims to connect the regional bike trail.

Trails for Concord Resort Development are classified as follows:

- Accessible Hiking Trails
- Wilderness Hiking Trails
- Walking Trails
- Shared Use Path (Biking/ Walking/ Running)
- Mountain Biking

Location of the trails systems should meet the following design objectives:

- Safety
- Connectivity to major destinations
- Diversity in Experiences and User types
- Site Attributes, Opportunities and Constraints

LEGEND	
	Accessible Walking Trail
	Accessible Hiking Trail
	Wilderness Hiking Trail/ Mountain Biking Trail
	Shared Use Path
(See Plan for Use)	
	Trail Crossing at Major Road
	Trail Crossing at Minor Road
	Stair Condition at Hiking Trail
	Boardwalk on Wetlands
	Trail Bridges
	Section of Shared Use Path on Neighborhood Roadway

Trails Network Map

TRAIL TYPE MATRIX

	Design Considerations				User Type									
TRAIL TYPE	Surface	Width	Longitudinal Slope	Cross Slope	Hiker	Walker	Runner	Dog Walker	Wheelchair or Electric Mobility Device	Cross Country Skier	Mountain Biker	Road Biker	Maintenance Vehicle	Comments
Accessible Hiking Trail	Compacted soil / Soil cement / Fine gravel on soil cement	36" if single use, 4'-0" if multi-use	0 - 5%	0 - 5%	•	•	•	▫		▫			▫	Vertical Obstacle: 2" high max. (up to 3" high where running and cross slopes are 5% or less)
Wilderness Hiking Trail	Compacted soil / Soil cement / Fine gravel on soil cement / Stone stairs / Timber tread stairs	18" - 30" is single use, 4'-0" if used by Mountain Bikers, too	0 - 15% (short segments steeper than 15%)	2% min., 4% max.	•	•	▫	▫		▫				Provide landings for passing every 1000 feet. Minimum landing size 5'-0" x 5'-0". Hiking trails if used as running trails should meet the following criteria: Running slope (trail grade) meets one or more of the following:- • 5% or less for any distance • Up to 8.33% max for 200 feet max. Resting intervals no more than 200' apart. • Up to 10' for 30' max. Resting intervals 30'. • No more than 30% of the total trail length may exceed a running slope of 8.33%.
Walking Trail	Gravel / Pervious asphalt / Compacted soil cement	6' -8' (8' min., if paved for maintenance vehicles)	0 - 5%	1 - 2%	•	•	•	•	•	•	▫	▫	▫	If loose gravel is used, provide surface that is ADA accessible. For multi -use trails, provide min. 2'-0" gravel or grass shoulder.
Shared Use Path (Biking / Walking / Running)	Pervious asphalt	6' one-way, 10' min. - 12' preferred two-way	0 - 5%	2%		▫	•	▫	•	▫		•		Markers on pavement / pavers to be used to separate bikers from walkers / hikers.
Mountain Biking	Compacted soil / Gravel / Compacted soil cement	18" - 30" if single track, 4'-0" if used by Wilderness Hikers, too	0 - 12%	2 - 5%	▫						•			18" - 30" one-way single track; add width & banking (super elevation) at turns for safety; harden surface with compacted soil / gravel at the banks to prevent erosion.

• Intensive Use ▫ Minimal Use

ACCESSIBLE HIKING TRAIL

Definition

Accessible Hiking Trails are defined as trails with longitudinal slope of less than 1 vertical to 20 horizontal and a cross slope that is less that or equal to 2%. The trail can be used by a wheel chair or a mobility scooter.

Users

The accessible trail users experience the hiking trail some of the Concord site character and wilderness experience. The following are the anticipated users for the Concord Resort Development:

- Resort Guests and Neighborhood residents that are fairly fit. These are usually family-oriented users.
- Wheel chairs and mobility scooters
- Runners
- Dog Walkers

Trail Maintenance

- Maintenance Vehicle - No Access or Minimal Access
- Erosion Control
- Grading and Drainage
- Vegetation Clearing Distances

Width	4'-0" with passing areas every 20'-0"
Surface	Compacted soil / Soil cement / Fine gravel on soil cement / Asphalt. Bridges and Boardwalks to use recycled wood / IPE. Railings to be provided as required.
Longitudinal Slope	0 - 5%
Cross-Slope	0 - 2%
Sight Distance	40' - 80' depending on volume of people and speed of motorized accessibility vehicles.
Side Slope	Varies
Vertical Clearance	Min. 8', clear/prune vegetation on a regular basis to ensure safety of users.
Horizontal Clearance	2' on either side of the trail. Remove woody plants and allow for native herbaceous vegetation to revegetate the cleared slopes.
Signs	Provide signs indicating the length of the accessible trail segment.

Gravel

Porous Asphalt

Porous Asphalt

Soil Cement or Stabilized Soil

Prefabricated Metal Bridge Character (Accessible)

Footbridge

Trail Character

Wilderness Trail Timber Stair

Boardwalk - Timber Plank

Width	18" - 30" if single use, 4'-0" if used by Mountain Bikers too.
Surface	Compacted soil / Soil cement/ Fine gravel on soil cement / Stone stairs / Timber tread stairs. Bridges and Boardwalks to use recycled wood / IPE. Railings to be provided as required.
Longitudinal Slope	0 - 15% (short segments steeper than 15%)
Cross-Slope	2% min. - 4% max.
Radius	N/A - switchbacks
Sight Distance	Limited, consider safety needs as the trail has a shorter sight distance
Side Slope	Varies
Vertical Clearance Zone	Min. 8', clear/prune vegetation on a regular basis to ensure safety of users.
Horizontal Clearance/ Stabilization Zone	2' on either side of the trail. Remove woody plants and allow native herbaceous vegetation to revegetate the cleared slopes. Consider additional stabilization areas for steep trails and steep turns.
Signs	Signs provided at major intersections

Wilderness Bridge Character

Wilderness Stone Stairs Character

Wetland Crossings

WILDERNESS HIKING TRAIL

Definition

Wilderness Hiking Trails are narrow irregular routes, with slopes steeper than 5% to avoid unacceptable impacts to the site. They may include steps, steep slopes, obstacles such as tree roots and rocks. It will allow for a more diverse user experience of nature.

Users

The Wilderness Hiking Trail Users would require a higher physical exertion capacity. Natural stone or rustic wood seats are provided along these trails for users as rest areas. Single file walking and running are the desired uses of this trail. Some of the hiking trails are also used by Mountain Bikers. The following are the anticipated users:

- Resort Guests and Neighborhood residents that are fit. The wilderness hiking trail provides different levels of challenges to its users.
- Runners
- Some Mountain Biking

Trail Maintenance

- Maintenance Vehicle: No Access or Minimal Access
- Erosion Control
- Grading and Drainage
- Vegetation Clearing Distances

Hardwood Boardwalk Character (Accessible)

WALKING TRAIL

Definition

Walking Trails are shorter trails, for leisure, 'walk in the park' trails. They are fully accessible. They are the main circulation system in and around the main activity centers around the Resort Core.

Users:

The walking trail users will experience a more programmed / structured trail system for leisure purposes. The following are the anticipated users:

- Resort Guests.
- Wheel chairs and mobility scooters
- Some Neighborhood Residents

Trail Maintenance

- Maintenance Vehicle: Access allowed
- Erosion Control
- Grading and Drainage
- Vegetation Clearing Distances

Width	6' - 8' (8' minimum if paved for maintenance vehicles)
Surface	Gravel / Pervious asphalt / Compacted soil cement
Longitudinal Slope	0 - 5% (to 12% if needed)
Cross-Slope	2%
Sight Distance	40 - 100' depending on speed / flow
Side Slope	Varies
Vertical Clearance	Min. 8' , clear/prune vegetation on a regular basis to ensure safety of users.
Horizontal Clearance	1'-0" shoulder on either side of the trail
Signs	Shall be provided indicating the length of the accessible trail segment

Wetland Boardwalk Crossing

Porous Asphalt Walking Trail Character

Asphalt Walking Trail

Asphalt Walking Trail

Asphalt Paver at Trail/ Road Intersection (Color contrast)

Shared Use Path Character

Width	6'-0" one way, 10'-0" to 12'-0" min.
Surface	Pevious asphalt
Longitudinal Slope	• 0 - 3% (preferred) to 5% if needed • Up to 10% for 500' for bikers / pedestrians / motorized accessibility vehicles. • Up to 12% for 50' for bikers / pedestrians / motorized accessibility vehicles. • Ramps where needed where route needs to be accessible
Cross-Slope	2%
Sight Distance	150'
Side Slope	Varies
Vertical Clearance	8' (12' + under bridges)
Horizontal Clearance	2' on either side of the bike path with stabilized gravel

SHARED USE PATH

Definition

Shared Use Paths are trails designed to be a part of a transportation network, providing off-road routes for a variety of users. The shared use paths for Concord Development are intended to connect to the regional bike network. The share use path provides for a recreational experience for users accessing the different neighborhoods within the resort .

Users

The primary users of a shared use path are bicyclists and pedestrians, including pedestrians using mobility devices such as manual or motorized wheel chairs.

- Regional Users
- Residential Users
- Resort Guests
- Wheel chairs and mobility scooters
- Pedestrians

Separate Asphalt Shared Use path along Roadway

Off-Road Biking

MOUNTAIN BIKING TRAIL

Definition

Mountain Biking Trails are narrow irregular routes sometimes steep with obstacles such as rocks and roots to increase the diversity of the trail experience.

Users

The Mountain Biking Users would require a higher physical exertion capacity. The following are the anticipated users for the Concord Resort Development:

- Resort Guests and Neighborhood residents that are fit.
- Hikers

Trail Maintenance

- Trail Maintenance: No Access or Minimal Access
- Maintenance Vehicle
- Erosion Control
- Seasonal trail closures may be necessary to prevent soil erosion.

Width	18" (one-way single-track) - 4' (add width & super-elevation at curves as needed)
Surface	Soil & gravel (hardening where needed) Compacted soil / Gravel / Compacted soil cement (use caution with wood). Mix a thin layer of gravel into soil and compact it well where there is high soil moisture. Curves need to be banked and reinforced to resist soil displacement.
Longitudinal Slope	0 - 12% (bridges, boardwalks & railings)
Cross-Slope	2% - 5% (varies on curves)
Sight Distance	4' min., 8' + preferred
Side Slope	Tread + 10' minimum
Vertical Clearance	8' -12'
Horizontal Clearance	4' on either side of the trail. Remove woody plants and allow for native herbaceous vegetation to revegetate the cleared slopes. Consider additional stabilization areas and steep turns.

Trail Character

Mountain Biking Trail Character

Trail Character

Mountain Biking Trail Character

Wood Bench

Wood Bench

TRAILS SITE FURNISHINGS

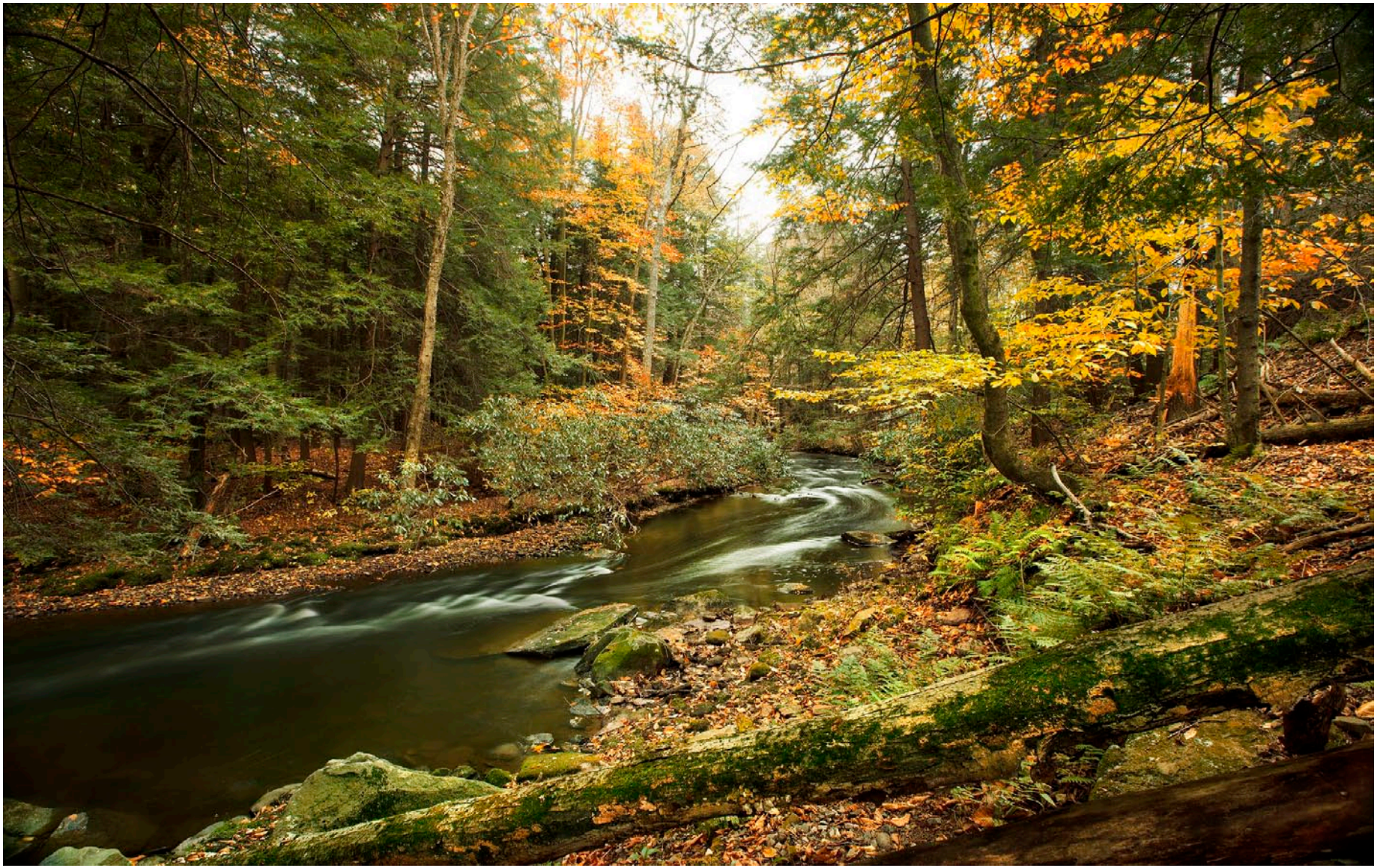
- Organic / earthy
- Minimalist
- Artistic
- Varied (experience)

Stone with Moss

Stone Bench

Plant mosses on rock walls at trails

Recycled Timber Art by Local Artisans



5.0 SITE ART, FURNISHINGS, & STRUCTURES

CONTEXT

LEGEND	
	Wood guardrail at Golf edge (remove fencing)
	New Site Walls at Golf Edge (remove fencing)
	Existing Site Walls to Remain
	Existing Site Walls to be Salvaged (re-use)
★	Core Area Permanent Installations
☆	Core Area Temporary Installations
⬡	Trails and Open Space Site Art
■	Existing Stone Outcrop to be Preserved
●	Existing Rhododendron Forest to be Preserved and Enhanced
	Trails

Site Art, Furnishings, and Structures

RESORT CORE TEMPORARY ART INSTALLATION

Illuminated Spheres

Dance Floor with LED Lighting

Climbing Tree

RESORT CORE SITE FURNISHINGS

- Vibrant
- Artistic
- Playful
- Varied (experience)

Benches

Trash / Recycling

Custom Trash / Recycling

Benches

Trash/ Recycling

Natural Rock Seating

Flexible Grassed area

Bench for Parks/ Shared Use Path

NEIGHBORHOOD SITE FURNISHINGS

- More traditional / clean aesthetic
- Family -oriented
- Fun
- Sense of place (use of stone timber)

Park fire pit

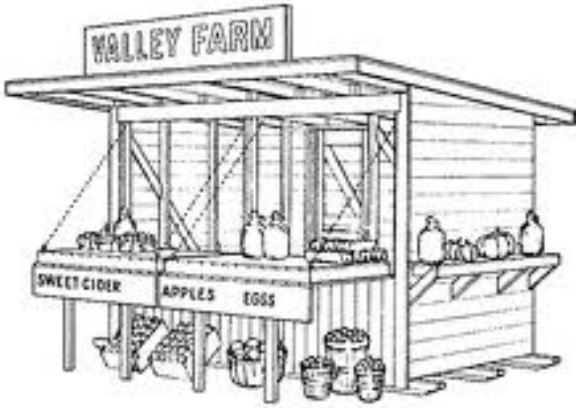
Bench for Parks/ Shared Use Path

SITE STRUCTURES

Warming Hut

Festival or Vendor Kiosk

Precedent Farm Building



Farm Stand

GOLF COURSE
PERIMETER SITE WALL / TIMBER BARRIER

Timber Vehicular Guardrail

Salvaged Site Stone Walls (Barrier at Golf Course Perimeter)

6.0 RESIDENTIAL NEIGHBORHOODS LANDSCAPE CHARACTER

TYPICAL VILLAGE LANDSCAPE CHARACTER

Village Character Standards

- Street Trees: Large scale canopy trees, use single species along individual streets.
- Sidewalks : Concrete with a consistent integral color, exposed or brushed finish.
- Crosswalks: Minimize or eliminate.
- Rain Gardens at planter strips.

Village Street View

LEGEND	
	Open Space
	Circulation
	Park Path
	Site Trail System (See Trails Network Plan for details)
	Architectural Feature
	Park Feature (Amphitheatre)
	Art at Park

Residential Village Site Plan

TYPICAL NEIGHBORHOOD LANDSCAPE CHARACTER

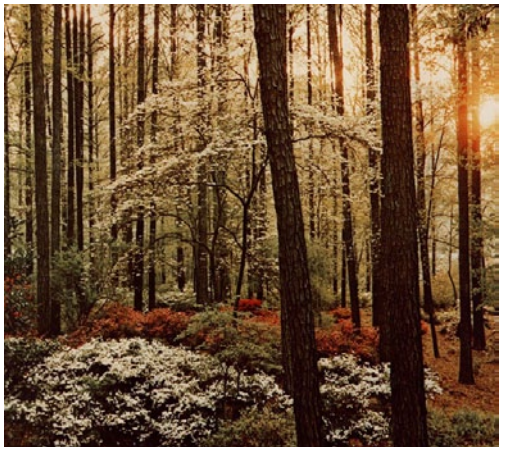
Residential Character Standards
(individual neighborhood, medium density)

- Provide cohesive and distinctive neighborhood landscape character and tie in with the overall natural setting.
- Allow variability of landscape design; use of plant material is encouraged within the individual lots.
- Street Trees: Regular but informal planting of large and medium scale trees, along individual streets, create a cohesive neighborhood character and introduce shade along streets for the neighborhood.
- Walking Paths: Asphalt
- Crosswalks: None, except at major trail crossings, where asphalt pavers with color accent (yellow) would be used for safety.
- Neighborhood road edges would utilize planted bioswales and planter strips that are consistent along a street, such as rain gardens with native ferns and herbaceous plantings.

NEIGHBORHOOD LANDSCAPE PRINCIPLES

As a consequence of development clearing operations, the residential neighborhoods will have the appearance of clearings, with new forest edges that expose trees, formerly located within the middle of a forest and therefore largely devoid of foliage. To restore and enhance a natural forest edge condition, a forest buffer is proposed in the adjacent open space immediately surrounding the neighborhoods. This forest buffer would include a vertically tiered, staggered planting of forest canopy trees, understory trees, and a forest floor of shrubs and a herbaceous layer. Approved plant materials would be selected based on the existing native forest conditions. Refer to the Chapter on Forest Management within this document for further recommendations.

Individual Homeowners will be required to re-establish the natural forest buffer at the edges of individual lots, to create the appearance of a natural forest setting for the individual neighborhoods. Per the proposed Landscape Character, certain minimum tree planting requirements will be provided by design guidelines for individual lots and parcels. Homeowners and Developers will be encouraged to select appropriate native forest trees, shrubs and herbaceous plantings from an Approved Plant List to complement the forest buffer plantings.



Hemlock Forest with Rosebay Rhododendron Buffer Edge

Ferns with Birches

Planting Character at Forest Transition

Garden Character

Garden Edge Character at Forest Transition

Garden Edge Character

Edge Character at Forest Transition

NEIGHBORHOOD PLANTING CHARACTER

Residential planting character is to reinforce the overall plant palette and desired landscape character at Concord as the landscape is a key place-making element, to fulfil these objectives:

- Informal/Natural
- Local/Regional Identity: plantings are to reinforce what is unique about the Catskills
- Seasonal Celebration
- Layered Vertically: Overstory, Understory, Shrubs, Herbaceous Groundcover
- Encourage use of Native species and Naturalistic Woodland Character

NEIGHBORHOOD PARK CHARACTER

The character of the neighborhood parks should meet the following guidelines:

- Siting of built elements so that natural landscape dominates over built form;
- Landscape that is informal, blending with a natural setting, featuring large scale shade trees with understory;
- Shrubs and herbaceous plantings as buffer to functional lawn areas;
- Materials that are appropriate to Concord aesthetic;
- Flecked asphalt pavers and seeded aggregate concrete;
- Boulders and informal dry stack stone site walls;
- Rain garden elements to retain drainage on site;
- Site furnishings with a clean aesthetic and materials close to their natural form/ finish (refer to images).

Stone Stair

Flecked Asphalt

Flecked Asphalt Paver

Timber Play Structures

Boulder Slope with Slide

Rain Garden in Planter Strip at Residential Neighborhood

Rain Garden at Village Residential

Lights and Porch Address Markers on Post

STORMWATER MANAGEMENT GOALS

Stormwater management systems will be provided throughout the developed portions of the project to collect, store, treat and convey runoff, thereby minimizing the risks of flooding and to improve the overall water quality where practicable. Homeowners are encouraged to contribute on-site stormwater management on the residential lots through use of the following: Biofiltration, porous pavement, rain gardens, cisterns and level spreaders are encouraged where practicable.

Refer to the Approved Plant List in the Appendix of this document. Many locally native species are suitable for use in rain gardens.

MISCELLANEOUS

ADDRESS MARKERS

- Addresses are to meet local requirements and use dimensional metal letters or plaques. Illuminated letters are not allowed.

UTILITY SCREENING

- Utilities are to be enclosed behind a screen fence, hedge or evergreen shrub plantings to not be visible from off-site.

TRASH

- Trash is to be kept in approved bear-proof containers if they are located out-of-doors. Trash may also be stored within garages.
- Trash collection protocols will be determined for the neighborhoods to eliminate bear nuisance issues.

SITE LIGHTING

- Dark Sky Standards will apply to the Neighborhoods to protect the dark night-time sky. Minimal, unobtrusive site lighting is encouraged. Use of shielded fixtures is required. Generally, lighting is not to be visible from off-site. Uplighting of trees is generally not allowed.

SUSTAINABLE PRACTICES

SUSTAINABLE PRACTICES

To preserve the site's existing features and actively support the health and diversity of the natural systems, vegetation and wildlife, residents are encouraged to follow these recommendations when designing their landscapes.

LAND

- Soils: whenever possible, use existing on-site soil for planting and balance cut and fill on-site to eliminate importing foreign topsoil or exporting waste soil. Amend soil on-site to compensate for poor organic or physical properties or to improve soil infiltration rate and drainage.
- Tree planting: Where practicable, plant trees in trenches or continuous soil zones. Create continuous soil volumes in trenches or with root paths to provide greater areas for root growth, better air exchange, moisture and nutrient availability.
- Use structural soils in heavily trafficked pedestrian areas or under pavements where planting will occur to maximize plant health, root zones and minimize pavement damage.
- Slopes: avoid construction on slopes exceeding 30%, and preserve existing rock outcroppings. Provide mechanical slope stabilization for planting surfaces exceeding 25% slope.
- Drainage Swales: mechanically stabilize and vegetate drainage swales to serve as natural storm water filters. Provide check dams to slow water velocity to promote sediment filtration and reduce erosion.

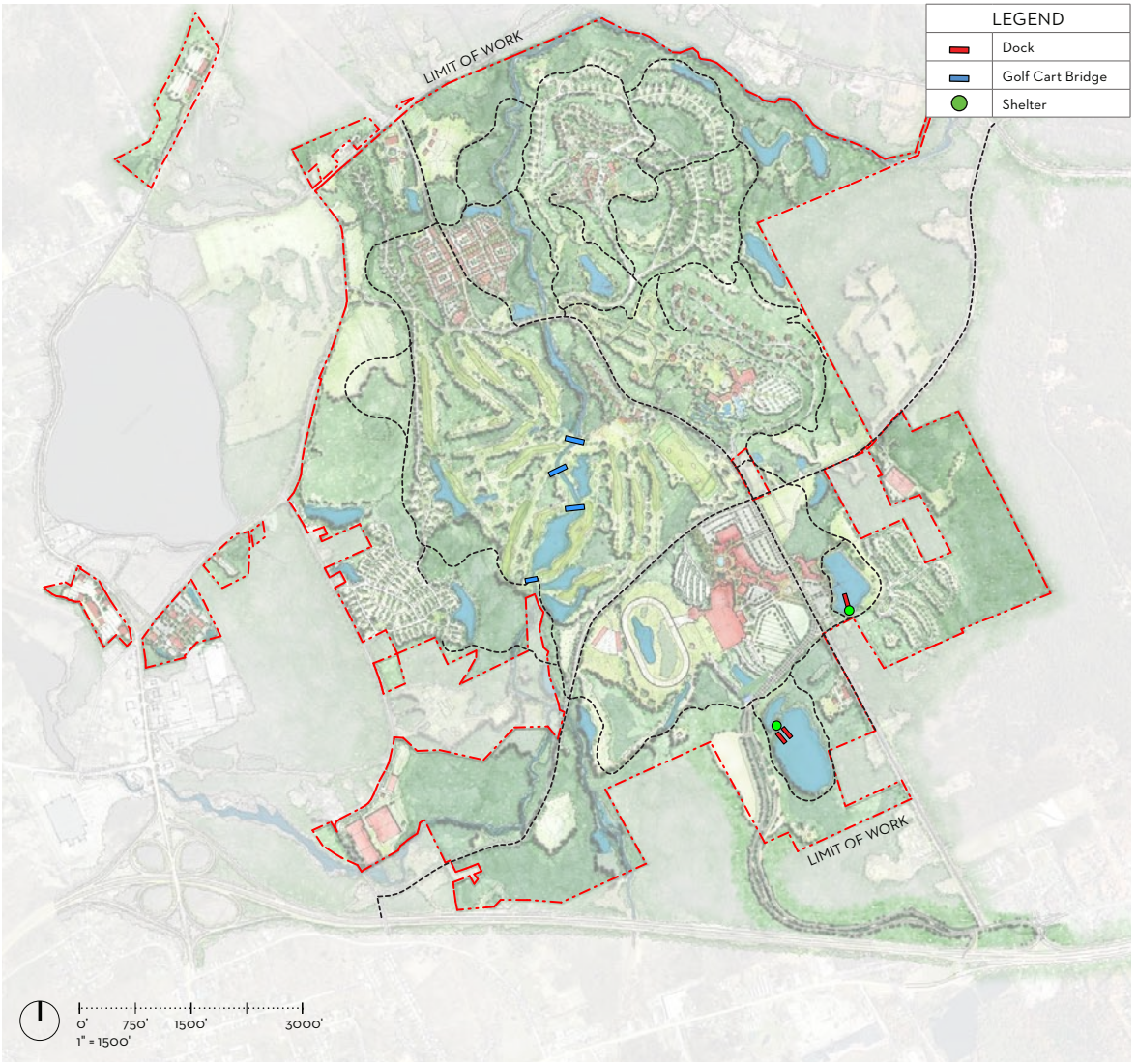
VEGETATION

- Preserve and enhance existing site vegetation and utilize predominantly native plantings. Refer to the Approved Plant List at the end of this document.
- Restore disturbed existing woodland environments through reforestation techniques where practicable.
- Develop new forest edge and meadow environments where practicable to encourage greater diversity of flora and fauna to the site.
- Increase the density and stratification of the tree canopy using multiple species of native or naturalized trees to encourage habitat generation and food resources for foraging birds and animals.
- Increase tree species diversity to minimize the spread of disease and pests. Select species that are resistant to local pest infestations.
- Use healthy plants and planting techniques. Use trees that have been grown within a 250 mile radius to the extent possible. Trees that are grown within the same or similar environmental conditions as the site have the greatest chance for success.

7.0 OPEN SPACE TREATMENTS

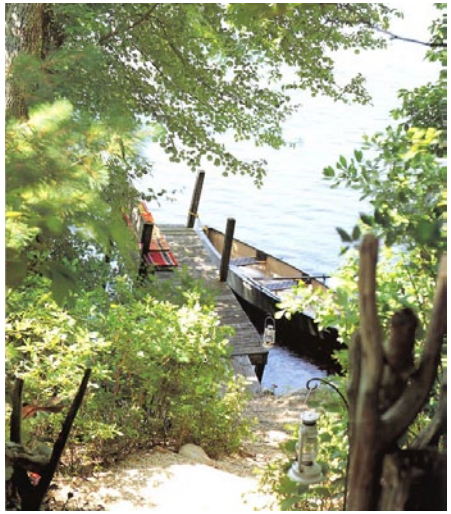
OPEN SPACE TREATMENT MAP

Note: Golf Cart Bridge locations to be coordinated with Golf Course Architect.



OPEN SPACE HARDSCAPE ELEMENTS

Fishing Pier



Fishing Pier/ Boat Dock

Shelter at Pier

Viewing Dock/ Fishing Pier

FORESTRY MANAGEMENT

Contributors:

New York State Department of Environmental Conservation
Michael Callan, *Senior Forester*

AKRF, Inc.
James Nash, *Technical Director - Natural Resource Planning*

The Forest Management Plan has been developed by Michael Callan with the New York State Department of Environmental Conservation. The plan is based on the following objectives.

Aesthetics

A. Manage growth of forest setting for Old Growth characteristics: clearings, multi layered (understory, mid-story and overstory), large specimens, snags and forest floor debris to encourage a rich and varied nature experience and increase the visual appeal of the site.

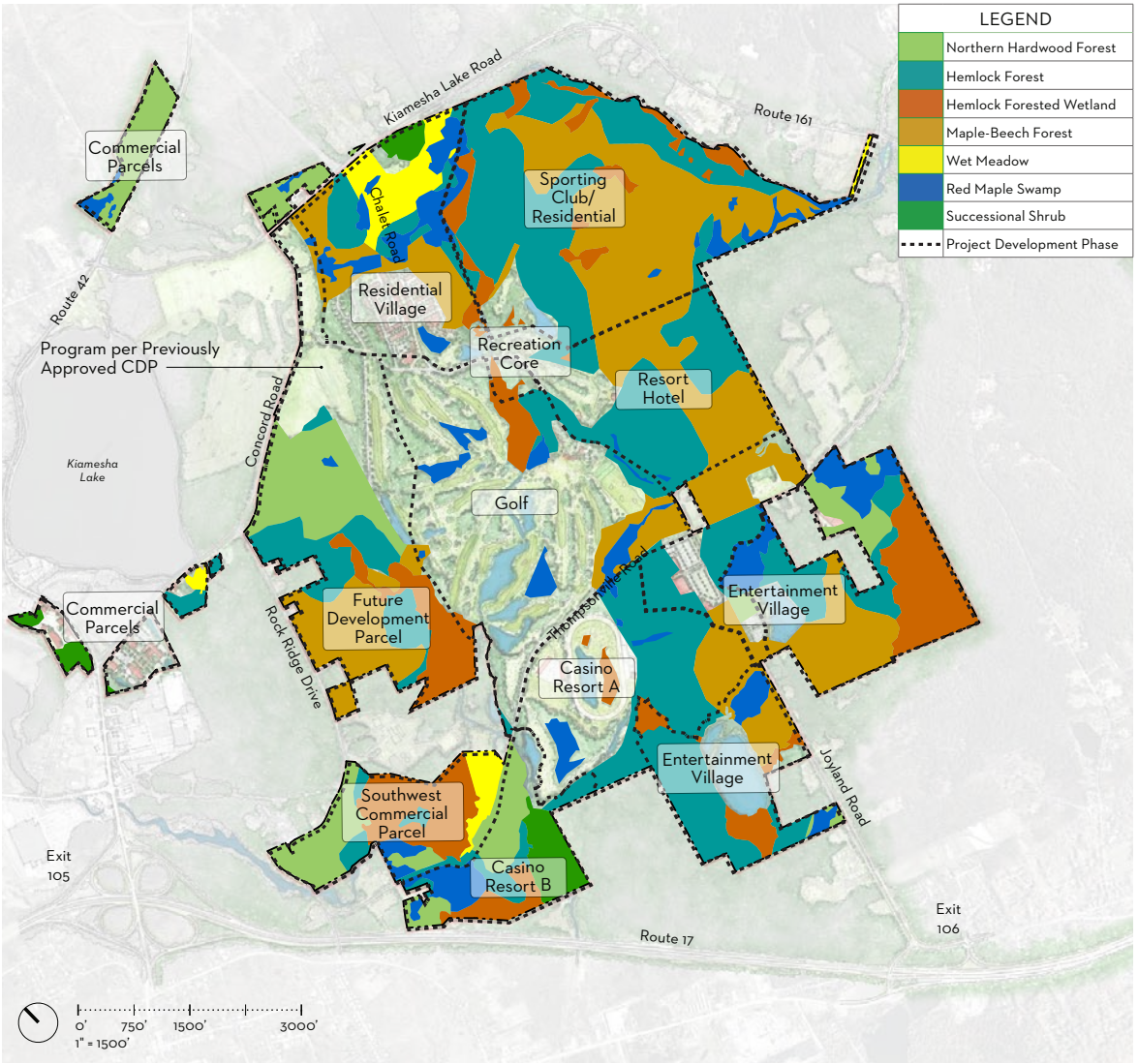
B. Increase tree species diversity but utilize species that will survive in densely shaded existing environment.

C. Manage dense stands with a release treatment to reduce competition for the better tree individuals. Remove Beech trees infected with beech bark disease and Hemlock trees with small, weak crowns and poor health.

D. Shaping the edges of newly cleared stands during the development process along roads, parcels, and trails to create a more natural, undulating forest edge to the stands. Diversify plantings with multi-layered qualities and seasonal interest at edge conditions. Increase forest species diversity and habitat heterogeneity though selective tree removal and supplemental planting to encourage development additional strata – i.e. canopy, sub-canopy, shrub, herbaceous.

E. Restoration of existing dry-stack stone walls and related wall plantings with mosses and lycopodium species associated with hiking trails.

F. Identify specific species of trees, shrubs, herbaceous species, ferns and grasses that are natural communities suited to site conditions but that also provide a rich and diverse viewing experience for hiker/recreational user. Native Landscape character should maintain the overall regional identity of the site and create unique experiences within the property. Refer to Suggested Plant Palettes by Designated Area of the Development Plan and Site Conditions.



*These areas are conceptual per the development schedule

Forestry Management Phasing Map

Legend	Phase (Subject to change according to the market conditions)	Existing Forest / Landscape Character	General Forest Management / Landscape Recommendations
Hemlock Forested Wetland Red Maple Swamp	Area: Casino Resort A	• Extensive site cover is in the forest of North Hardwood type: with Second Growth character. • Forest has potential for management to enhance Old Growth Character and promote aesthetics and biodiversity. • Typical stands, although varying in species composition throughout the site, are typically very dense, with relatively uniform age and relatively few species within stands. • Certain areas of the site in early successional stages, often dominated by maple/birch, have high stem density which restricts individual tree growth. To speed the process of succession, it is suggested that tree thinning be undertaken to release select trees for rapid growth and to encourage understory development. Also, invasive species removal is necessary in places that exhibit dense stands of Japanese barberry or similar non-native shrubs. • There are smaller or poorly formed trees in some locales due to the natural growth pattern during the stem-exclusion stage of forest stand development • Site Specific constraints such as high water table and underlying rock are limiting factors to re-introducing a broader plant palette, although there are likely many suitably adapted natives not currently found on site that could be reintroduced to site specific settings. • Quality of hiker experience is not high quality in terms of limited vews, light penetration, and vegetation which could be more diverse.	• Thinning of Forest: Thin forest from below removing unthrifty, weak crowned trees from the intermediate and co-dominant crown classes. No more than 1/3 of the basal area (a measure of density) should be removed. Since hemlock is shade tolerant, care must be taken when looking at the suppressed crown class, only declining trees should be removed from this class. Do not use trunk diameter as the metric for removal due to this issue. Retain all white pine and black spruce for seed. The cut trees can be left on site to increase the amount of downed woody debris if this is not an aesthetic concern. • Removal of invasive species: Japanese Barberry and Japanese Stilt grass has been detected on site. Herbicide applications for removal of invasive species is recommended for the site during the growing season, due to the stony soils that make root extraction difficult and the scattered nature of the infestations. No conflict with the rattlesnake population will occur with herbicide applications during the growing season on the scattered infestations. Control methods should focus on preventing the grass from producing seed. Mowing or herbicide applications before the seeds mature will break the cycle and over time reduce the numbers of plants. This will open up these areas for seedling growth. • Remove beech infected with beech bark disease but retain beech with clear unblemished bark. • Encourage deer hunting with the expectation of doe harvest. • Forester site visit recommended once every 5 years is recommended to review the health of the forest and recommend future management plans as the diversity of the forest changes over time.
Hemlock Forest Hemlock Forested Wetland Maple-Beech Forest Red Maple Swamp	Area: Golf Course, Golf Maintenance, Golf Clubhouse & Cottages		
Northern Hardwood Forest Hemlock Forest Hemlock Forested Wetland Red Maple Swamp Successional Shrub	Area: Casino Resort B		
Hemlock Forested Wetland Maple-Beech Forest	Area: Entertainment Village, Golf Course, Golf Clubhouse& Cottages		
Northern Hardwood Forest Hemlock Forest Hemlock Forested Wetland Maple-Beech Forest Wet Meadow Red Maple Swamp Successional Shrub	Area: Entertainment Village, Resort Hotel, Residential Village, Recreation Core		
Northern Hardwood Forest Hemlock Forest Hemlock Forested Wetland Maple-Beech Forest Wet Meadow Red Maple Swamp Successional Shrub	Area: Sporting Club / Residential, Future Development Parcel, Southwest parcel, Commercial Parcels		

Wildlife Benefit

G Increased Biodiversity to support wildlife management forest to support wildlife through creation of small to moderate scale canopy gaps, development of larger trees and forest floor debris.

H. Manage deer population.

I. Fell trees during dormant season, treat small areas of 5-10 acres as annual projects.

J. Provide more evergreen tree cover for wildlife and diversify site (plant spruce and fir species to supplement Eastern Hemlock, which have associated risk of aphelgid disease now present in Sullivan County). Evergreen are used by animals to shelter from storms.

K. Retain special trees within 300 yards of water sources (turkeys use these for nesting).

L. Plant native Oaks. Black Cherry is already present on site while Oaks are largely absent.

M. A NYSDEC Forest Stewardship Plan would be prepared for the site to maximize wildlife, forest health, and aesthetic goals.

Manage Forest within open space to achieve development needs:

N. Screening: Anticipate areas where visual buffers are needed for the Development and plant natural forest screening materials in advance of phased improvements. Utilize natural massing of native White Pine, eastern hemlock and possibly other (limited) evergreen species to provide necessary screening that will integrate visually with the overall setting.

O. Manage Old Growth Characteristic (more mature specimen trees, more species richness and diversity, clearings and multi-layered canopy, species diversity on forest floor enhancing trails experience).

Existing Forest Cover

MEADOW ESTABLISHMENT

Sources:
Fiely, Mark. Technical Memorandum. "Establishment of native meadow mix." Ernst Conservation Seed. June 9, 2013.

Diboll, Neil. Undated. "Five Steps to Successful Prairie Meadow Establishment." Prairie Nursery. 8 pages.

Prairie Nursery. "Prairie Establishment Guide." Available: http://www.prairienursery.com/store/index.php?main_page=page&id=18 (viewed on April 26, 2012).

- Successful establishment of your meadow comes down to a few basic points: site prep, good seed to soil contact, and trimming the meadow to a height not lower than 8 inches when canopy height reaches 18 to 20 inches during the year of establishment.

- The optimal seeding window for your mix is late October through May. If you plant in late fall/early winter, your wildflower seeds will experience conditions that will reduce dormancy levels in the seed, and thus should have very good germination of flowering species in the first growing season. If you plant in the spring, the native grasses and some of the flowers will germinate the first year, with some of the wildflowers germinating the second year.

- When selecting the site to plant, avoid choosing an area where pre-emergent herbicides were used in 2012. Their residues may prevent successful establishment of your meadow.

- For all of your plantings, it will be necessary to kill all existing undesirable vegetation. Glyphosate (Round-Up®) is a product that is commonly used. Wait two weeks between spraying prior to a respray of areas that escaped the first application. Observe for two additional weeks for additional escapes and, if necessary, spray again.

- If your site has the problem of soil compaction, we recommend you incorporate, through roto-tilling, 1" - 2" of well decomposed compost (no recognizable parent material (i.e leaves, wood chips)).

- Your soil should not need to be limed unless the pH is below 5.5. If for some reason the pH is greater than 7.0, the soil should be acidified to drop it below that point. Do not apply any nitrogen fertilizer to your wildflower/grass meadow mix. The nitrogen will only encourage weeds.

- Your meadow can be planted by hand broadcasting, mechanical broadcasting, drilling, or hydroseeding. For broadcast seeding (by hand or machine) you might do well to mix with your seed 50 lbs of kitty litter/acre (43,560 sq ft.) to be seeded prior to broadcasting, then divide this product and spread 1/2 in one direction of passes, and then spread 1/2 in a series of passes that are perpendicular to the first passes. You may use a garden rake to help incorporate the seed following broadcasting. The seedbed should then be firmed by rolling over the site with a lawnroller, ATV tires, or by walking over the site with your feet. The point of firming the seedbed is to ensure good seed to soil contact, which, in turn, leads to greater success of establishment. Alternate methods to hand broadcasting include broadcasting by 3 point hitch spreader (add kitty litter as described above), drilling with a no-till drill that is adapted to native seeds (i.e. Truax), or hydroseeding. Hydroseeding is typically not followed by a firming of the seed bed. When hydroseeding we typically recommend application of 500 lbs of mulch with the seed and 1000 lbs of mulch over top.

- You may mulch a broadcast seeded plot with wheat or oats straw at a rate that covers approximately half of the soil (approximately 500 lbs/acre).

- During the first growing season after planting, all vegetation should be cut back to 8" height whenever growth reaches 18-20" height. Typically, a planting will need to be trimmed three to five times. A weed-eater or three point hitch brush hog would typically be used for this mowing. Mowing lower than 8" can kill seedlings of some of the species in your mix. After the first killing frost, and before the new growing season begins, vegetation may be mowed close to the ground. The purpose of trimming back the growth during the first season is to decapitate weeds so that they do not produce seed. You must not cut lower than 4" or you will harm the development of the native grass seedlings. During the growing season warm season grass seedlings store part of their energy in the first 4" of growth above the soil line. We suggest mowing no lower than 8" so that, in a worst case scenario, the crew does not touch this critical 4" point. Mowing between first killing frost and onset of the new growing season allows for maximum heating of the soil by the sun at the start of the new growing season. This benefits the natives to the detriment of the non-natives. Some of our customers have succumbed to the temptation not to mow when black-eyed susans are blooming in mixes that contain it. Do not succumb to this. The black-eyed susans will produce some blossoms below the mow line. Further, failure to mow will allow weeds (ragweed in particular) to develop and take over your site. Also, crews should periodically rogue any problematic weeds by mechanical or chemical means. In my area of Pennsylvania, the problem weeds would be Canada thistle and curly dock.

- In the second and subsequent growing seasons, the wildflower/grass meadow should be checked for problematic weeds which would be removed by spot spraying or mechanical means (hoeing). Following a killing frost and prior to the onset of the new growing season, the landscape should be mowed close to the ground. Dormant season mowing is often done just before spring green-up so that birds and small mammals can take advantage of the meadow for winter food and cover.

- Your mix will change with time. Some species are annuals, biennials, or short lived perennials that will be present for one to a few years. Others may take their time to establish, but are long-lived perennials. Some species have lived more than a decade in our production fields.

LAWN ESTABLISHMENT

Source:
Ernst Conservation Seeds "Planting Guide for Lawn Sites." http://www.ernstseed.com/products/planting-guide/lawn-sites/ (accessed April 24, 2012).

- Soil type will dictate the methods used for seeding preparation. If soil is dark brown or nearly black, it likely contains sufficient levels of organics, and amendments may not be necessary. A soil test is an economical way to determine if your soil requires any amendments for the development of a quality lawn. If soil is extremely rich with clay, such as the red clay soils found in the southeast, organic matter amendments may be necessary. If so, organic sources, such as hay or straw, leaf material, or grass clippings, can be distributed evenly over the area to be planted and incorporated into the soil with a rototiller, or it can be done manually with a steel rake by loosening the upper soil layer and mixing organics within.

- Areas containing sufficient levels of soil organics will likely not need amendments for grass establishment; however, rototilling the site will benefit seed germination, speeding up the process of "greening up" the site. If a rototiller is unavailable or logistically impractical, scratching the soil surface with a steel rake will suffice.

- If the site is not bare ground but overgrown with weeds, mowing and an herbicide application may be necessary. Mow the site within 3" of the ground with a rotary mower or other means. Excess debris from mowing should be raked up and removed or incorporated into the soil with a rototiller. If weedy species populated the area, wait two weeks after close mowing so re-growth is beginning to occur before applying Roundup®, following directions on the label. Wait one week to allow weedy species time to absorb the chemicals and for the active ingredients to degrade. After spraying, remove dead plant material from the site by raking it up or tilling it into the soil. This should provide mostly bare ground ideal for grass establishment, as it allows good seed-to-soil contact and sunlight penetration.

- Plant the selected grass seed using whatever planting method best suites your application: Hand seed, broadcast, hydroseed, or drill seed. Cover the seed with a light (1"-2") layer of clean straw by distributing it by hand or with a strawblowing machine. This will protect the seeds from wind and intense sunlight, and will aid in moisture retention. Clean straw shall be used to avoid the inadvertent addition of broadleaf weed seeds through the use of baled hay or other straw/hay sources. When seedlings emerge, they shall be kept hydrated or they may perish. Most grass seeding or re-seeding projects require some irrigation; however, if soil moisture remains sufficient due to frequent rain events, irrigation may not be necessary. Patches of damaged or missing grass can be repaired using the methods described above. Till the soil surface, re-seed, and monitor growth and soil moisture.

GRASSED SWALE ESTABLISHMENT

Source:
Ernst Conservation Seeds. 2012. "Planting Guide for Stormwater Management Facility Sites." Available: http://www.ernstseed.com/products/planting-guide/storm-water-management-facility-sites/ (accessed on April 25, 2012).

- Invasive species, particularly those that will adapt to wet conditions, should be removed or sprayed before they become incorporated into the site. With the engineer's specifications and dimensions in hand, on-site construction of the berm and outlets shall be executed carefully in order to maintain structural integrity. The infiltration and plant growth areas should be loose and friable, high in organic matter, and completed without compactions from heavy equipment. By using the "dig and drop" method, one can use an excavator to dig and drop each area of the bottom soil in a loose manner. At this point, one can incorporate lime, composted leaves, and/or grass clippings. The excavation machine should not move over the finished surface, thus avoiding unnecessary compaction. Native vegetation can be planted or seeded over this uneven, absorbent surface.

- Seeding and planting should begin immediately upon completion of the structure while the soil is still friable and before invasive weeds emerge. Plan seeding and planting before the swale is flooded, or allow the basin to drain to a few inches before seeding. Barley, oats, or rye can provide temporary vegetation to protect the soil until permanent vegetation can be established. The use of native species; i.e., Virginia Wild Rye (Elymus virginicus), can create an intermediate vegetative cover that succeeds to native long-term vegetation. Straw mulch or straw coconut mats are frequently used to control erosion and protect emerging seedlings from extreme temperatures and drying out. Mulch should be sparse to allow sunlight to reach the ground. Irrigation of seeded areas is of value until seedlings become established.

FOREST ESTABLISHMENT

The eastern hemlock-dominated forests on the project site are a climax forest, meaning they will not progress through natural succession to a forest type exhibiting a different assemblage of canopy tree species. Both hemlock and beech are very shade tolerant and therefore "late successional" species. Hemlock tends to grow in till soils exhibiting coarse rocky material, often in moist valleys. Beech too is a more lowland, moist slope species. On the project site, the canopy of the hemlock-dominated areas is dense which limits the diversity of understory vegetation. However, in the growing season a number of understory ferns and wildflowers occur which would offer a true "north woods" experience for visitors and residents. As such, no specific supplementation may be necessary.

Creating breaks in the uniform canopy to increase cover type heterogeneity is an appropriate goal. Simply clearing small or large patches of hemlock forest would likely result in the regeneration of a deciduous forest of black and yellow birch, red and sugar maple, white ash, and white pine. These are generally shade intolerant species that are wind-disseminated. Such forest openings could be supplemented by planting oaks (red oak/black oak) and hickories (shagbark, pignut) to increase mast-producing (nut-producing) species. Examination of historic aerials shows that the patches of maple and birch dominated forest located immediately east/west of Joyland Road in the Phase 1 and Phase 2 development areas are the result of past clearing. Similarly, on the south-facing slopes of the primary hill on the project site (large hill east of Kiamesha Creek), deciduous species that dominate there may also be due to more recent clearing or due to the warmer, southern exposure which favors the deciduous species over eastern hemlock.

Source:
Ernst Conservation Seed. Available: http://www.ernstseed.com/products/planting-guide/woodland-openings/ (accessed on April 25, 2012).

- These sites generally involve working around trees and shrubs, while minimizing damage to trunks and roots. Undesirable vegetation shall be controlled by tilling and/or direct spraying with glyphosate. The soil needs to be loosened in order to establish seed-to-soil contact and dense leaf litter should be broken up. This can be accomplished using a rototiller. Seedlings can emerge from light leaf litter if planted at the proper depth. Light mulch or hydromulch can protect the seeds and soil until germination.

- Broadcast seed. Drag or roll the surface to incorporate the seed 1/4" -1/2" into the soil. A seed drill can be used when sufficient room exists for operation.

WETLAND AND POND ESTABLISHMENT

Source:
Ernst Conservation Seeds Wet Meadow and Wetland Sites. http://www.ernstseed.com/products/planting-guide/wet-meadow-and-wetland-sites/

- Eradicate existing vegetation by having a licensed spray technician apply an approved herbicide, such as glyphosate or other aquatic herbicide formulation, to control undesirable vegetation. Some persistent species, such as purple loosestrife, phragmites, or reed canary grass, may need multiple applications of glyphosate.

- Due to the potential for water contamination, the use of lime or fertilizer in wetlands is not recommended. We do recommend the addition of organic materials when topsoil has been depleted or removed. Check your soil pH and select species adapted to that pH.

- Seeding Method: Hand seed, broadcast, hydroseed, or drill seed when the water table is drawn down. It is not practical to seed any wetland or pond where the water is more than 2" deep or where severe flooding is likely to occur before germination. The same caution applies to mulching. Often, natural seed banks (seeds in wetland soil) will establish part of the vegetation cover.

- In terms of maintenance, very little can be done the first year. Spot treat invasive species with appropriate herbicides. Burning (by experienced professionals) every three years is an alternative to mowing if woody species are unwanted.

GUIDANCE FOR BANK STABILIZATION USING VEGETATION

Vegetation can often be an effective strategy for stabilizing streambanks. Streambank plantings, used alone, or in combination, can provide significant reinforcement of soil structure, increasing the shear strength of the soil and hence it's resistance to the erosive forces associated with streamflow. Vegetation also provides a physical barrier that protects soil surface from coming into direct contact with erosive stream flow. Vegetation can also reduce soil moisture in streambank soils by increasing rates of evapotranspiration, which can result in a reduced likelihood of structural bank failure. Finally, streambank vegetation provides other important ecosystem functions including inputs of organic matter that form the basis of aquatic food webs, reducing stream temperature through shading, and removing nutrients and other pollutants from stormwater runoff.

The use of vegetation as the primary streambank stabilization method is not appropriate in all cases, particularly in situations associated with highly-erosive stream flows, heavy shading, poor soil quality (e.g., excessively rocky soils, soils with low fertility or inappropriate pH, etc.), excessively steep slopes that cannot be regraded, heavy pressure from animal browsing, public access locations that are prone to heavy foot traffic, banks that are structurally unstable, and areas where bank failure could lead to significant loss of life or property. Before moving forward with a streambank planting, designers should conduct a thorough assessment of existing conditions to determine the cause of bank erosion, its severity, and to document physical, social, and environmental site conditions that impact plant establishment and survivorship.

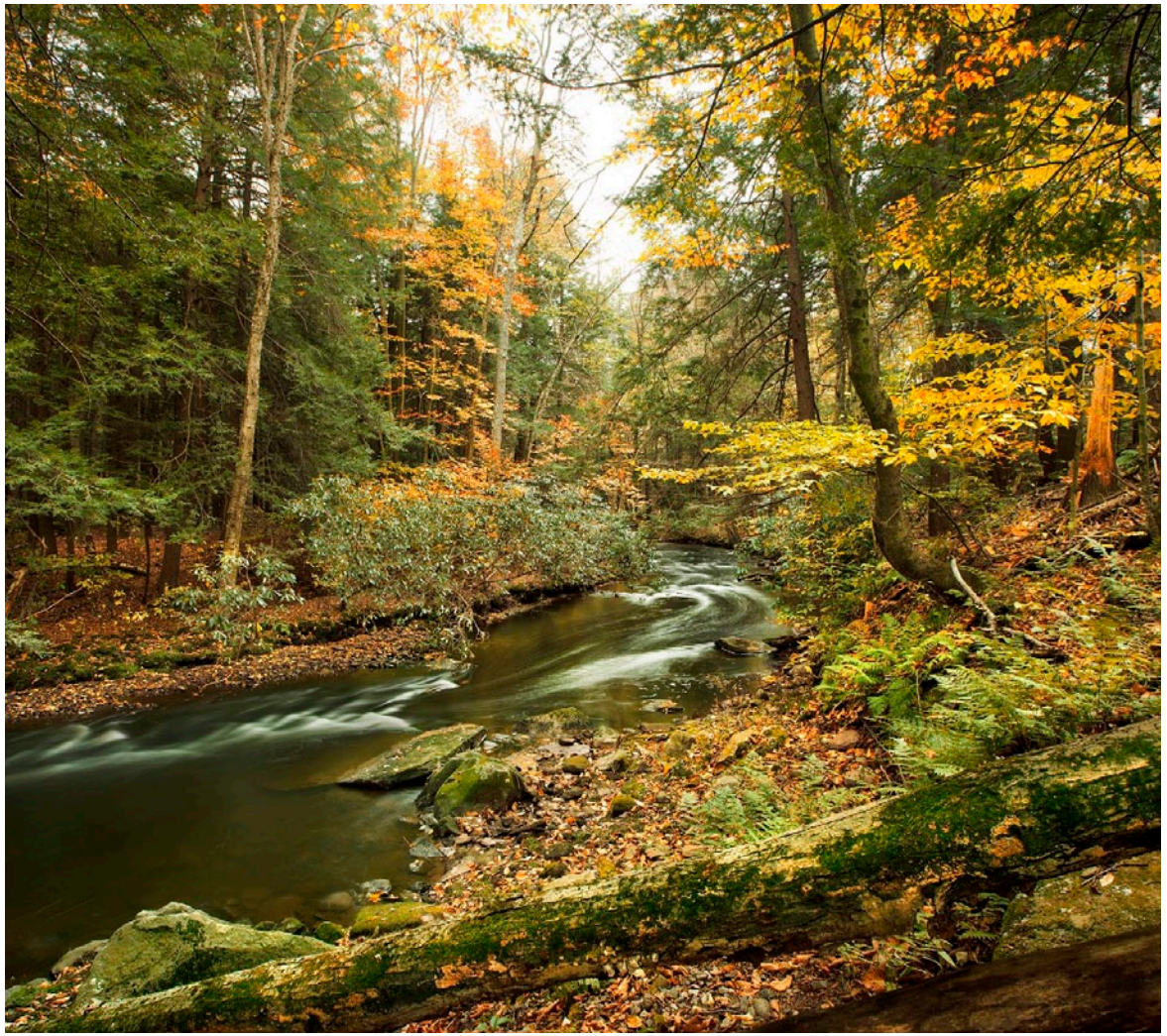
In many cases, supplementary work including bank regrading, soil amendments, and fencing can create a more appropriate environment for vegetative streambank plantings and increase their chance of success. In high stress situations, structural measures, such as rip-rap, can be effectively combined with streambank vegetation to achieve bank stability. In other cases, "biostructural techniques" such as soil encapsulation (wrapping lifts of soil in erosion or geotextile and cribwalls (log structures that can be filled with soil and planted) can provide additional structure within the soil matrix. Structural measures are particularly effective and often needed at the bank toe (the base or bottom of the bank) where the majority of flow energy is directed and where fluctuating stream flows can make vegetation establishment difficult. Finally, redirective measures such as rock or log vanes placed in the stream channel upstream of planting areas can redirect stream flow away from these areas during vegetation establishment.

Proper plant selection is critical to an effective streambank planting design. Plantings should be well adapted to environmental conditions associated with the site, most importantly soil texture and quality, light, and soil moisture. In most cases, native species should be used in plantings, although non-native plants may be appropriate in highly-manicured settings provided the species choices are not invasive. The use of large trees in streambank plantings is generally discouraged, particularly on high banks where tree fall can destabilize stream banks. Because moisture levels often vary dramatically from bank toe to top of bank, multiple planting zones are often needed along the vertical bank axis. The habitat and aesthetic value of plantings can be enhanced by selecting individual species with known habitat value (e.g., common elder,

etc.), by planting a diverse mix of species, and by selecting plantings that provide visual interest (e.g., berries, colored stems or leaves, and flowers, etc.) throughout the year. A list of commonly used and effective native plant species for streambank plantings is provided in the Appendix.

The choice of planting method is also critical to an effective streambank planting. In most cases, plugs or small container plants are an effective choice particularly when higher stress conditions or aesthetic concerns require rapid establishment. Planting density for plugs and container plants will depend on the individual site requirements and species choices. For herbaceous material, a planting density of approximately one plant per 3 square feet is appropriate for most streambank applications. Seeding is a much more economical plant establishment method that can be used for planting larger areas, low stress situations, and where aesthetic concerns do not require rapid establishment. Seed can be hand sowed or mechanically drilled for large installations with gentle slopes. Seeding rates of 10-15 lb. per acre are generally appropriate. Regardless of plant establishment method, erosion fabric should be applied to planting slopes greater than 3(H):1(V) to protect bare soil between individual plantings from erosion during establishment. The use of a cover crop, such as annual rye grass, should also be used in most cases to provide rapid cover following planting and to discourage the establishment of weed species.

The use of live cuttings, including whips (long, thin, flexible cuttings), live stakes (short, stout, moderate-diameter cuttings), and posts (large diameter, tree-like cuttings), are often used in streambank plantings because of their low cost and the ability to be installed with minimal soil disruption. Cuttings can be used alone or in combination with seeding and/or planting. Plantings that grow well from cuttings include a number of native shrub willow and dogwood species. Typically cuttings work best in full sun, high moisture environments. A wide variety of live material installation techniques have been successfully used in streambank plantings, including live fascines (rows of shallow trenches laid parallel to stream flow and filled with live cuttings), live staking or posting (individual live material stakes or posts inserted into the streambank), and live soil lifts (live whips laid between vertically-stacked soil encapsulated lifts). Live fascines are particularly useful as a gully prevention technique for long slopes, while soil encapsulated lifts are effective choices for steep profile banks. Large willow posts have been effectively used, sometimes in combination with rip-rap, for bank toe stabilization.



LARGE AND MEDIUM DECIDUOUS CANOPY TREES

Acer rubrum 'October Glory'

Acer saccharum

Betula papyrifera

Platanus occidentalis

Liriodendron tulipifera

Liriodendron tulipifera fall color

Quercus bicolor

Quercus palustris

Quercus rubra


Betula alleghaniensis


Fraxinus americana


Juniperus virginiana


Tilia americana 'Redmond'


Nyssa sylvatica


Pinus nigra


Pinus strobus


Prunus serotina

LARGE AND MEDIUM DECIDUOUS CANOPY TREES

Abies concolor

Picea glauca

Ulmus americana 'Princeton' (or other disease resistant cultivar)

UNDERSTORY ACCENT TREES

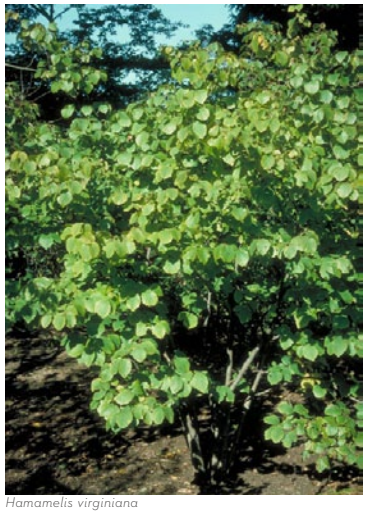
Amelanchier arborea

Amelanchier canadensis

Cornus kousa

Cercis canadensis

UNDERSTORY ACCENT TREES



Hamamelis virginiana

Ilex verticillata

Lindera benzoin

Oxydendrum arboreum

SHRUBS

Aesculus parviflora

Azalea species

SHRUBS

Ilex x 'Lydia Morris'

Leucothoe fontanesiana

Myrica pennsylvanica

Fothergilla major

Hamemelis vernalis

Hydrangea quercifolia

Ilex glabra 'Densa', 'Nigra', and 'Shamrock'

Vaccinium corymbosum

Cornus alba

Philadelphus species

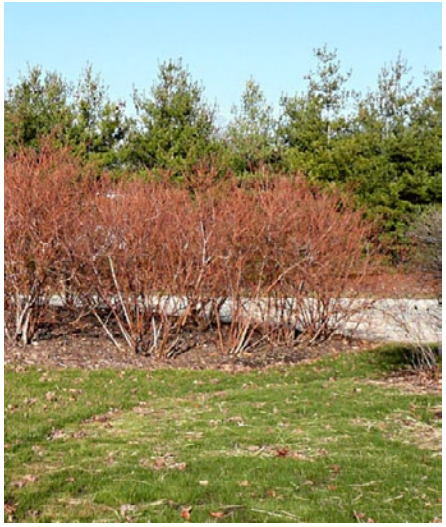
Rhododendron maximum

Rubus allegheniensis

SHRUBS

Potentilla fruticosa 'Coronation Triumph'

Aesculus parviflora



Cornus sericea

Sumac aromatica gro-lo

Potentilla fruticosa 'Abbotswood'

Viburnum dentatum

Kalmia latifolia

Helleborus Sp 'Native'

Rhododendron arborescens

Forsythia x intermedia

Clethra alnifolia

Viburnum cassinoides

SHRUBS

Rubus idaeaus

Spiraea tomentosa

ORNAMENTAL GRASSES

Pennisetum alopecuroides 'Hameln'

Calamagrostis 'Karl Foerster'

Carex species

Anemone spp.

Caulophyllum thalictroides

Rudbeckia species

Trillium spp.

Cimicifuga (Black Cohosh)

Native Bluebells

LOCAL NATIVE FERNS

Dennstaedtia punctilobula

Matteuccia struthiopteris

Osmunda cinnamomea

GROUNDCOVERS AND HERBACEOUS LOW WOODY PLANTS

Liriope spicata

Galium odoratum

Pachysandra terminalis

8.0 APPENDIX - PLANT LIST

PLANT LIST - GENERAL LANDSCAPE PLANTING

Botanical Name	*Common Name*	*Location*	*Notes*	*Native*	*Ornamental*	*Deer Resistant*	*Entry Landscape*	*Core Area*	*Neighborhood*	*Trails/ Open Space*	*Residential Lots*
LARGE AND MEDIUM DECIDUOUS CANOPY TREES											
Acer rubrum	Red Maple	forest		x						x	
Acer rubrum 'October Glory'		rain garden/parking	best orange fall color, holds foliage late	x				x	x		
Acer rubrum 'Red Sunset', 'Scarlet Sentinel', and 'Schlesingeri'		rain garden/parking	best red fall color, colors early	x				x	x	x	x
Acer saccharum 'Green Mtn' 'Legacy'	Sugar Maple	forest, street		x				x	x	x	x
Betula alleghaniensis	Yellow Birch	parks, naturalized areas	prefers moist/cool conditions, golden fall color	x				x	x	x	x
Betula lenta	Black Birch	parks, naturalized areas	golden bark, nice branching/ fall color	x				x	x	x	x
Betula papyrifera	Paper Birch		winter accent, frame w/ evergreens, also 'Chickadee' cultivar, prominent on site	x	x			x	x	x	x
Betula populifolia	Gray Birch	road edges	adaptable wet or dry, naturalizes		x					x	
Carya ovata	Shagbark Hickory										
Fraxinus americana	White Ash										
Gleditsia triacanthos	Honey Locust	outdoor dining areas	tolerant urban conditions					x			
Liriodendron tulipifera	Tulip Tree	forest edge filler	fast growing, wet tolerant, do not use in medians		x			x	x	x	
Nyssa sylivatica	Black Gum	forest edge	red fall color		x			x	x	x	
Platanus occidentailis	American Sycamore							x		x	
Prunus serotina	Black Cherry										
Quercus alba	White Oak										
Quercus bicolor	Swamp White Oak	open landscape specimen			x			x	x	x	
Quercus coccinea	Scarlet Oak	wet lands			x					x	
Quercus palustris	Pin Oak	parks, golf course	prefers wet soils, full sun, fast growing, readily available		x			x	x	x	
Quercus rubra	Northern Red Oak	golf course accent	tolerant urban conditions, fast growing, well-drained soils only	x				x	x	x	
Salix nigra	Black Willow	riparian		x						x	
Ulmus americana	American Elm	Valley Forge, Liberty, 'Princeton' cultivars		x				x		x	
EVERGREEN TREES											
Abies balsamea	Balsam Fir	Specimen, grouping	needs good drainage, shade tolerant		x			x	x		x
Abies concolor	Concolor Fir	Specimen, grouping						x	x		x
Abies fraseri	Fraser Fir	Specimen, grouping						x	x		x
Juniperus virginiana	Eastern Red Cedar	along highway	use as screen in NYDOT highway areas	x							

Botanical Name	*Common Name*	*Location*	*Notes*	*Native*	*Ornamental*	*Deer Resistant*	*Entry Landscape*	*Core Area*	*Neighborhood*	*Trails/ Open Space*	*Residential Lots*
EVERGREEN TREES											
Picea glauca	White Spruce		prefers sun, avoid salts, limit use	x				x	x		x
Picea pungens	Blue Spruce						x	x			
Pinus strobus	White Pine	screen w/ P. nigra		x			x	x			
Pinus nigra	Austrian Pine	best screen pine	dark/dense in youth, tolerant of urban conditions		x					x	
Pinus sylvestris	Scotch Pine				x			x	x		
Picea rubens	Red spruce										
UNDERSTORY ACCENT TREES											
Amelanchier arborea	Serviceberry	naturalistic forest or streamside	four season interest, edible berries	x	x						
Amelanchier lamarkii	Lamark Shadblow	naturalistic forest or streamside	delicious berries	x	x						
Cercis canadensis	Eastern Redbud	ornamental use		x							
Cornus florida 'Rutgers Hybrids'	Flowering Dogwood	naturalistic forest or streamside		x							
Cornus kousa	Korean Dogwood	ornamental use		x							
Cornus mas	Cornelian Cherry Dogwood	blends with forest setting			x						
Magnolia spp.	Saucer Magnolia	ornamental use			x						
Ostrya virginiana	Hop Hornbeam	blends with forest setting		x							
Oxydendrum arboreum	Sourwood or Sorrel Tree	ornamental use									
LARGE SCREENS											
Rhododendron maximum	Rosebay Rhododendron		partly deer-resistant, prevalent on site	x							
Pinus spp.	Pines	hedge or large screen at bldgs.	use in massings	x							
SHRUBS											
Acer pensylvanicum	Striped Maple			x						x	
Aesculus parviflora	Bottlebrush buckeye	shade, lowland, slopes	use in massings	x						x	
Alnus incana	Speckled Alder	riparian		x						x	
Amelanchier canadensis	Serviceberry			x		x			x	x	x
Amelanchier stolonifera	Ground-running Amelanchier			x					x	x	x
Aronia arbutifolia	Chokecherry			x						x	

PLANT LIST - GENERAL LANDSCAPE PLANTING

Botanical Name	*Common Name*	*Location*	*Notes*	*Native*	*Ornamental*	*Deer Resistant*	*Entry Landscape*	*Core Area*	*Neighborhood*	*Trails/ Open Space*	*Residential Lots*
SHRUBS											
Azalea spp.	Azalea			x	x		x	x			x
Buddleia	Butterfly bush				x	x					x
Buxus spp.	Boxwood	public areas			x	x		x	x		x
Calluna spp.	Heather				x	x		x	x		x
Cephalotaxus procumbens 'prostrata'	Prostrate Japanese Yew				x	x		x	x		x
Clethra alnifolia	Summersweet			x		x				x	
Cornus alba	Red Twig Dogwood			x			x	x	x		x
Cornus amomum	Silky Dogwood			x				x	x	x	
Cornus sericea	Redosier Dogwood				x			x	x	x	x
Cornus sericea Variegata	Variegated Dogwood				x			x	x		x
Erica spp.					x			x	x		x
Forsythia					x	x					
Fothergilla major	Fothergilla				x	x		x	x	x	x
Fothergilla minor	Dwarf Fothergilla			x		x		x	x	x	x
Hamemelis vernalis	Witchhazel			x				x	x	x	x
Hydrangea quercifolia	Oakleaf Hydrangea			x				x	x		x
Ilex glabra 'Shamrock', 'Nigra', 'Densa'	'Shamrock', 'Nigra', 'Densa' Inkberry			x				x	x		x
Ilex nigra	Dark Leaved Inkberry				x	x					
Ilex montana	Mountain Winterberry				x			x	x		x
Ilex verticillata	Winterberry				x					x	
Ilex x Lydia Morris/ John T. Morris	Lydia Morris/ John T. Morris Holly		deer resistant screen shrub, evergreen, 7'-8' height			x					
Kalmia latifolia	Mountain Laurel			x			x	x	x		x
Pieris japonica	Japanese Pieris				x	x	x	x	x		x
Sambucus canadensis	American Elder			x						x	
Vaccinium corymbosum	Highbush Blueberry			x						x	
Vaccinium angustifolium	Lowbush Blueberry			x						x	x
Leucothoe fontanesiana	Drooping Leucothoe										
Lonicera tatarica	Tatarian Honeysuckle							x	x		x

Botanical Name	*Common Name*	*Location*	*Notes*	*Native*	*Ornamental*	*Deer Resistant*	*Entry Landscape*	*Core Area*	*Neighborhood*	*Trails/ Open Space*	*Residential Lots*
SHRUBS											
Lindera benzoin	Spicebush				x			x	x		x
Myrica pennsylvanica	Northern bayberry		semi-evergreen		x	x		x	x		x
Potentilla fruticosa	Potentilla				x	x		x	x		x
Rhododendron spp.	Rhododendron				x	x					
Rhododendron maximum	Rosebay Rhododendron		prevalent on site	x		x		x	x	x	x
Rhus hirta	Staghorn Sumac			x				x	x		
Rubus allegheniensis	Northern Blackberry			x						x	
Rubus hispidus	Running Blackberry			x						x	
Rubus idaeus	Red Raspberry			x						x	x
Rubus occidentalis	Black Raspberry			x						x	
Salix bebbiana	Beaked Willow			x						x	
Spiraea spp.	Meadowsweet				x	x		x	x		x
Spiraea alba	Meadowsweet			x		x				x	
Spiraea tomentosa	Hardtack			x		x		x	x	x	x
Taxus cuspidata	Japanese Yew				x		x	x	x		x
Viburnum acerifolia	Mapleleaf Viburnum			x	x		x	x	x		x
Viburnum cassinoides	Witherod			x				x	x		x
Viburnum dentatum 'Blue Muffin'	Blue Muffin Arrowwood				x	x		x	x		x
Viburnum lentago	Nannyberry				x			x	x		x
Viburnum trilobum	Cranberrybush			x	x			x	x		x
Viburnum pragense	Prague Vibernum		evergreen	x	x			x	x		x
Viburnum rhytidophyllum 'Willowwood'	Willowwood Vibernum		evergreen		x			x	x		x
Philadelphus	Mock Orange				x			x	x		x
ORNAMENTAL GRASSES: Note: these are not locally native species but are adapted and suited to ornamental use. For wetlands restoration, separate species list provided.											
Acorus gramineus	Sweet Flag							x	x		x
Agrostis perennans	Autumn Bentgrass										
Carex spp.	Sedges			x		x		x	x		x
Danthonia compressa	Northern Oatgrassw					x				x	x

PLANT LIST - GENERAL LANDSCAPE PLANTING

Botanical Name	*Common Name*	*Location*	*Notes*	*Native*	*Ornamental*	*Deer Resistant*	*Entry Landscape*	*Core Area*	*Neighborhood*	*Trails/ Open Space*	*Residential Lots*
ORNAMENTAL GRASSES: Note: these are not locally native species but are adapted and suited to ornamental use. For wetlands restoration, separate species list provided.											
Calamagrostis 'Karl Foerster'	Feather Reed Grass			x		x		x	x		x
Panicum virgatum	Switch Grass			x		x		x	x		x
Pennisetum 'Hameln' and 'Little Bunny'	Fountain Grass 'Hameln' and 'Little Bunny'	not near natural areas			x	x		x	x		x
Sporobolus heterolepis	Prairie Dropseed				x	x		x	x		x
PERENNIALS											
Actaea racemosa	Black Cohosh			x							
Amsonia spp.	Bluestar			x		x		x	x	x	x
Anemone	Rue Anemone			x		x		x	x	x	x
Asarum canadense	Wild Ginger			x				x	x	x	x
Asclepias	Purple Butterflyweed			x		x		x	x	x	x
Aster spp (native) New York and Nye England, Stiff, White Wood, and Purple Stemmed Aster				x		x		x	x	x	x
Stemmed Aster				x		x		x	x	x	x
Aquilegia spp.	Wild Columbine		attracts hummingbirds	x		x		x	x	x	x
Caulophyllum thalictroides	Blue Cohosh			x		x		x	x	x	x
Chelone spp.	Turtlehead			x		x		x	x	x	x
Cimicifuga (Black and Blue Cohosh)	Bugbane			x		x		x	x	x	x
Claytonia	Spring Beauty			x		x		x	x	x	x
Coreropsis spp.	Coreopsis			x				x	x	x	x
Dicentra	Wild Bleeding Heart			x		x		x	x	x	x
Digitalis	Foxglove			x		x		x	x	x	x
Echinacea	Cone Flower			x		x		x	x	x	x
Eupatorium	Purple Joe Pye Weed			x		x		x	x	x	x
Fragaria vesca	Wild Strawberry			x		x		x	x	x	x
Gaultheria procumbens	Wintergreen			x				x	x	x	x
Geranium maculatum	Cranesbill or Wild Geranium (native spp.)			x		x		x	x	x	x
Helianthus spp.	Sunflower			x		x		x	x	x	x

Botanical Name	*Common Name*	*Location*	*Notes*	*Native*	*Ornamental*	*Deer Resistant*	*Entry Landscape*	*Core Area*	*Neighborhood*	*Trails/ Open Space*	*Residential Lots*
PERENNIALS											
Helianthus helianthoides	Ox-eye Sunflower			x		x		x	x	x	x
Lobelia cardinalis	Cardinal Flower		attracts hummingbirds					x	x	x	x
Lupinus spp.	Lupine			x		x		x	x	x	x
Mertensia virginica	Bluebells										
Monarda spp.	Beebalm		attracts hummingbirds	x		x		x	x	x	x
Rudbeckia	Black-eyed Susan			x		x		x	x	x	x
Sedum ternatum	Wild Stonecrop			x				x	x	x	x
Solidago spp.	Goldenrod			x		x		x	x	x	x
Smilacina				x		x		x	x	x	x
Spigelia marilandica				x				x	x	x	x
Trillium spp				x		x		x	x	x	x
LOCAL NATIVE FERNS											
Dennstaedtia punctilobula	Hay-scented Fern			x		x		x	x	x	x
Dryopteris carthusiana	Spinulose Wood Fern			x		x		x	x	x	x
Dryopteris cristata	Crested Wood Fern			x		x		x	x	x	x
Dryopteris intermedia	Common Wood Fern			x		x		x	x	x	x
Dryopteris marginalis	Marginal Wood Fern			x		x		x	x	x	x
Dryopteris x bootii	Boott's Fern			x		x		x	x	x	x
Dryopteris marginalis	Marginal Shield Fern		evergreen, 18-30", prefers moist to dry shade to part shade	x		x					
Matteuccia struthiopteris	Ostrich Fern		24", persistent winter plumes, prefers moist to wet soils, shade to part sun, edible	x		x		x	x	x	x
Onoclea sensibilis	Sensitive Fern		12-36", prefers shade, moist to wet soils	x		x		x	x	x	x
Osmunda cinnamomea	Cinnamon Fern		30-60", prefers shade, moist to wet soils	x		x		x	x	x	x
Osmunda claytoniana	Interrupted Fern		24-48", prefers shade to part shade with moist but well-drained upland sites	x		x		x	x	x	x
Osmunda regalis	Royal Fern			x				x	x	x	x
Polystichum acrostichoides	Christmas Fern			x		x		x	x	x	x
Pteridium aquilinum	Bracken Fern			x		x		x	x	x	x
Thelypterisnoveboracensis	New York Fern			x		x		x	x	x	x
Thelypteris palustris	Marsh Fern			x		x		x	x	x	x

PLANT LIST - GENERAL LANDSCAPE PLANTING

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GROUNDCOVERS AND HERBACEOUS LOW WOODY PLANTS											
Hypericum patulum	St. John's Wort		shade tolerant		x	x		x	x		x
Liriope spicata	Lilyturf	not near natural areas, limit			x	x		x	x		x
Vinca minor	Perriwinkle	not near natural areas, limit	considered moderately invasive in NY state		x	x		x			
Mitchella repens	Partridgeberry			x				x	x		x
Oxalis Montana	Common Wood sorrel			x		x		x	x		x
Galium odoratum	Sweet Woodruff				x			x	x		x
Helleborus spp.	Hellebore				x	x		x	x		x
Pachysandra terminalis	Pachysandra				x			x			
Polygonum pensylvanicum	Pinkweed			x	x	x		x	x		x
Polygonum sagittatum	Tearthumb			x				x	x		x
Rubus pubescens	Dwarf Raspberry			x				x	x		x
MOSSES AND LIVERWORTS											
Bazzania trilobata	Greater Whipwort			x		x				x	x
Climacium dendroides	Tree-moss			x		x				x	x
Mnium spp.	Mnium Calcareous Moss			x		x					
Pleurozium schreberi	Schreber's Moss			x		x					
Polytrichum commune	Common Hair-cap Moss			x		x				x	x
Sphagnum spp.	Peat Mosses			x		x				x	x
Thuidium spp.	Thuidium Moss			x		x				x	x
VINES											
Clematis spp.	Clematis							x			
Lonicera sempervirens	Trumpet Honeysuckle				x	x		x	x		x
Hydrangea anomala subsp. petiolaris	Climbing Hydrangea		attracts hummingbirds		x	x		x	x		x
Parthenocissus quinquefolia	Virginia Creeper							x	x		x

Scientific Name	Common Name	Color(s)	Blooming Period	Light Req.	Height (in feet unless otherwise noted)	pH	Drought	Salt Tolerance	Wildlife Value	Notes
PERENNIALS										
Dicentra cucullaria	Dutchman's Breeches	White to light pink	Early Spring	Part Sun to Shade	3 to 6 inches					
Dicentra eximia	Wild Bleeding Heart	Pink	Early Spring	Part Sun to Shade	8 to 12 inches					
Asarum canadense	Wild Ginger	Yellow to Brown	Spring	Shade	6 to 8 inches		Moderate	N		Needs moist soil; best for shade garden; foliage is attractive.
Actaea pachypoda	Dolls Eyes	White	Spring	Part Sun to Shade	2 to 2.5					Needs moist soil; fruit is the most notable characteristic.
Aquilegia canadensis	Canada Columbine	Red to pale orange/ red	Late Spring	Part Sun to Part Shade	1 to 2				Beneficial to insects and hummingbirds	
Echinacea purpurea	Purple Coneflower	Purple	Early Summer	Full Sun	2 to 3.5	6.0 to 8.0			Beneficial to insects; seed source for finches	
Lupinus perennis	Wild Blue Lupine	Blue, pink, or white	Early Summer	Full Sun to Part Sun	1 to 2				Beneficial to insects	
Caulophyllum thalictroides	Blue Cohosh	White	Early Summer	Shade	2 to 3					Fruit is attractive
Veronicastrum virginicum	Culver's Root	White or Light Pink	Summer	Full Sun to Part Sun	3 to 6				Beneficial to insects	Hardy once established; best for the back of the planting bed; flowers born on vertical spikes.
Monarda fistulosa	Beebalm	Lavender	Summer	Full Sun	< 5	6.0 to 8.0	No Tolerance	N	Pollinators and birds	Often used as an ornamental
Monarda didyma	Oswego Tea	Red	Summer	Full Sun to Part Shade	3 to 4				Beneficial to insects and hummingbirds	
Rudbeckia hirta	Blackeyed Susan	Yellow	Summer	Full Sun	1 to 3	6.0 to 7.0	Moderate	N	Beneficial to insects; seed source for songbirds	
Asclepias tuberosa	Butterfly Weed	Red to Orange	Summer	Full Sun to Part Sun	1 to 3	4.8 to 6.8	High	N	Beneficial to insects, specifically the Monarch butterfly	
Cimicifuga racemosa	Black Cohosh	White	Summer	Part Sun to Shade	3 to 5		No Tolerance	N	Beneficial to insects	Great for border, screening, background, and massing in a shade garden. Note that the flowers have a foul odor--not for planting in public areas
Allium cernuum	Nodding Onion	Medium Pink	Summer	Full Sun to Part Sun	1.5					Nodding flower head
Heliopsis helianthoides	Oxeye Sunflower	Yellow to orange	Summer	Full Sun to Part Sun	3 to 5				Beneficial to insects and seed source for songbirds	Best as background plant in landscaped areas.
Verbena stricta	Hoary Vervain	Strong Violet	Summer	Full Sun	2 to 3		High		Beneficial to insects	Flowers born on all vertical spikes in upper axils

Assumptions: (1) Plants are selected for well-drained to slightly moist sites. (2) All plants were selected on the assumption that they would be planted in landscaped areas, therefore plants with a weedy growth habit were avoided as much as possible and those species with more of a refined look were selected. However, all of these species are appropriate for naturalized/unmaintained areas (i.e., forest edge, meadow, forest, etc.). (3) Where possible, species were not only selected for their flowering interest, but for the foliage and/or fruit interest and notes on these characteristics were made. (4) The list includes species for early, middle, and late parts of the growing season so that there is floristic interest in all landscaped areas. (5) This list is sorted by the blooming period.

PLANT LIST - GRASS SEED MIXES

Scientific Name	Common Name	Percentage
Roadside edge, low maintenance (Note: Grass mix & percentages may vary)		
Festuca ovina 'Whisper'	Sheep Fescue 'Whisper'	30
Festuca ovina var. duriuscula (F. longifolia), 'Heron'	Hard Fescue 'Heron'	15
Lolium multiflorum (L. perenne var. italicum)	Annual Ryegrass	10
Festuca brevipila, 'Chariot'	Hard Fescue, 'Chariot'	7.5
Festuca brevipila, 'Matterhorn'	Hard Fescue, 'Matterhorn'	7.5
Rate: Seed at 6 lbs/1,000 sq ft.	Total	100
Swale: Retention Basin Floor Mix - Low Maintenance (Note: Grass mix & percentages may vary)		
Elymus virginicus, PA Ecotype	Virginia Wildrye	20
Puccinellia distans, 'Fults'	Alkaligrass, 'Fults'	20
Agrostis alba (A. gigantea))	Redtop	20
Carex vulpinoidea, PA Ecotype	Fox Sedge	15
Agrostis stolonifera	Creeping Bentgrass	10
Poa palustris	Fowl Bluegrass	10
Agrostis scabra, PA Ecotype	Ticklegrass	2
Agrostis perennans, PA Ecotype	Autumn Bentgrass, PA Ecotype	2
Juncus tenuis, PA Ecotype	Path Rush, PA Ecotype	1
Rate: Seed at 20 to 40 lbs/acre (the higher end of the range is recommended)	Total	100
Creeping Red Fescue		
Creeping Bentgrass- Moderate Salt Tolerance 8 to 20" tall		
Alkaligrass, 'Fults'		
Temporary Erosion Control: Quick Erosion Control Cover Mix (Note: Grass mix & percentages may vary)		
Lolium multiflorum	Annual Ryegrass	50
Lolium perenne 'Saint'	Perenial Ryegrass	50
Rate: Seed at 50 lbs per acre	Total	100
Shaded Roadside Mix (Note: Grass mix & percentages may vary)		
Schizachyrium scoparium 'Camper'	Little Bluestem 'Camper'	25
Elymus virginicus , PA Ecotype	Virginia Wildrye, PA Ecotype	20
Panicum clandestinum 'Tioga'	Deertongue, 'Tioga'	18
Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	5
Rudbeckia hirta, Coastal Plain NC Ecotype	Blackeyed Susan, Coastal Plain NC Ecotype	4
Aster prenanthoides, PA Ecotype	Zigzag Aster, PA Ecotype	4
Penstemon digitalis	Tall White Beardtongue	3
Liatris spicata, PA Ecotype	Marsh Blazing Star, PA Ecotype	3
Heliopsis helianthoides, PA Ecotype	Oxeye Sunflower, PA Ecotype	3
Zizia aurea, PA Ecotype	Golden Alexanders, PA Ecotype	3
Echinacea purpurea	Purple Coneflower	3
Tradescantia ohiensis, PA Ecotype	Ohio Spiderwort, PA Ecotype	2
Anemone virginiana, PA Ecotype	Thimbleweed, PA Ecotype	2
Agrostis perennans, NY Ecotype	Autumn Bentgrass, Albany Pine Bush - NY Ecotype	2
Lespedeza virginica, VA Ecotype	Slender Lespedeza, VA Ecotype	1
Baptisia australis, Southern WA Ecotype	Blue False Indigo, Southern WV Ecotype	1
Monarda fistulosa, PA Ecotype	Wild Bergamot, PA Ecotype	1

Scientific Name	Common Name
Native Wildflower & Grass Mix for Upland & Meadow Sites	
Schizachyrium scoparium 'Camper'	Little Bluestem, 'Camper'
Bouteloua curtipendula 'Butte'	Sideoats Grama, 'Butte'
Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype
Sorghastrum nutans, NC Ecotype	Indiangrass, NC Ecotype
Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype
Rudbeckia hirta, Coastal Plain NC Ecotype	Blackeyed Susan, Coastal Plain NC Ecotype
Tradescantia ohiensis, PA Ecotype	Ohio Spiderwort, PA Ecotype
Penstemon digitalis	Tall White Beardtongue
Liatris spicata, PA Ecotype	Marsh Blazing Star, PA Ecotype
Aster prenanthoides, PA Ecotype	Zigzag Aster, PA Ecotype
Penstemon hirsutus	Hairy Beardtongue
Agrostis perennans, NY Ecotype	Autumn Bentgrass, NY Ecotype
Aster novae-angliae, PA Ecotype	New England Aster, PA Ecotype
Heliopsis helianthoides, PA Ecotype	Oxeye Sunflower, PA Ecotype
Senna hebecarpa, VA & WV Ecotype	Wild Senna, VA & WV Ecotype
Baptisia australis, Southern WV Ecotype	Blue False Indigo, Southern WV Ecotype
Asclepias tuberosa	Butterfly Milkweed
Senna marilandica	Maryland Senna
Solidago juncea, PA Ecotype	Early Goldenrod, PA Ecotype
Monarda fistulosa, PA Ecotype	Wild Bergamot, PA Ecotype
Rudbeckia fulgida, Norhtern VA Ecotype	Orange Cornflower, Northern VA Ecotype
Seed at 20 lbs/acre with 30 lbs/acre cover crop (grain oats, Jan 1 to Aug 1; grain rye Aug 1 to Jan 1)	

PLANT LIST - STORMWATER POND & BIO-RETENTION AREAS

Scientific Name	Common Name	Percentage
Stormwater Pond - Embankment (Note: Grass mix & percentages may vary)		
Sorghastrum nutans	Indiangrass	22
Lolium multiflorum	Annual Ryegrass	20
Schizachyrium scoparium	Little Bluestem	17
Elymus riparius	Riverbank Wildrye	15
Elymus virginicus	Virginia Wildrye	5
Agrostis scabra	Ticklegrass (Rough Bentgrass)	4
Tridens flavus	Purpletop	4
Agrostis perennans	Autumn Bentgrass	4
Echinacea purpurea	Purple Coneflower	3
Chamaecrista fasciculata	Partridge Pea	2
Coreopsis lanceolata	Lanceleaf Coreopsis	1
Penstemon digitalis	Tall White Beardtongue	1
Liatris spicata	Marsh Blazing Star (Spiked Gayfeather)	1
Monarda fistulosa	Wild Bergamot	1
Stormwater Pond - Sides (Note: Grass mix & percentages may vary)		
Carex lurida	Lurid Sedge	8
Carex vulpinoidea	Fox Sedge	25
Elymus virginicus	Virginia Wildrye	20
Carex gynandra	Nodding Sedge	12
Carex squarrosa	Squarrose Sedge	8
Sparganium eurycarpum	Giant Bur Reed	5
Sparganium americanum	Eastern Bur Reed	4
Carex intumescens	Bladder (Star) Sedge	3
Carex lupulina	Hop Sedge	3
Carex comosa	Cosmos (Bristly) Sedge	3
Carex crinita	Fringed (Nodding) Sedge	2
Juncus effusus	Soft Rush	2
Scirpus polyphyllus	Many Leaved Bulrush	2
Cinna arundacea	Wood Reedgrass	2
Scirpis cyperinus	Woolgrass	1
Scientific Name	Common Name	Percentage
Bio-Retention Area (Note: Grass mix & percentages may vary)		
Carex vulpinoidea	Fox Sedge	23
Poa palustris	Fowl Bluegrass	20
Elymus virginicus	Virginia Wildrye	20
Dichanthelium 'Tioga'	Deertongue 'Tioga'	10
Carex lurida	Lurid Sedge	8
Verbena hastat	Blue Vervain	4
Scirpus atrovirens	Green Bulrush	4
Juncus Effusus	Soft Rush	3
Agrostis perennans	Autumn Bentgrass	2
Symphyotrichum puniceum	Purplestem Aster	2
Scirpus cyperinus	Woolgrass	2
Agrostis scabra	Ticklegrass	2

Scientific Name	Common Name
UPPER BANK ZONE - Shrubs	
Agrostis perennans	Upland bent grass
Andropogon gerardii	Big bluestem
Asclepias syriaca	Common milkweed
Asclepias tuberosa	Butterfly weed
Aster laevis	Blue aster
Carex vulpinoidea	Fox sedge
Echinacea purpurea	Purple coneflower
Elymus canadensis	Canada wildrye
Eupatorium purpureum	Sweetscented joe pye weed
Glyceria striata	Fowl mannagrass
Helianthus divaricatus	Woodland Sunflower
Sorghastrum nutans	Indian grass
Panicum virgatum	Switchgrass
Pycnanthemum virginianum	Common mountainmint
Phlox paniculata	Fall phlox
Physostegia virginiana	Obedient plant
Rudbeckia fulgida	Orange coneflower
Rudbeckia hirta	Black-eyed susan
Rudbeckia laciniata	Green-headed coneflower
Schizachyrium scoparium	Little bluestem
Solidago gigantea	Giant goldenrod
Solidago speciosa	Showy goldenrod
Symphyotrichum novae-angliae	New England aster
Tridens flavus	Purple top
Vernonia noveboracensis	New York Ironweed
Zizia aurea	Golden alexanders
UPPER BANK ZONE - Shrubs	
Cornus alternifolia	Alternateleaf dogwood
Corylus americana	American hazelnut
Hamamelis virginiana	Witch hazel
Lindera benzoin	Spicebush
Rhus aromatica	Fragrant sumac
Sambucus canadensis	Common elderberry
Viburnum acerifolium	Maple leaved viburnum
Viburnum prunifolium	Blackhaw viburnum
UPPER BANK ZONE - Small Trees	
Amelanchier canadensis	Shadblow serviceberry
Cercis canadensis	Eastern redbud

Scientific Name	Common Name
BANK TOE ZONE - Herbaceous	
Asclepias incarnata	Swamp milkweed
Calamagrostis canadensis	Bluejoint grass
Elymus riparius	Riverbank wild rye
Eupatorium maculatum	Spotted joe pye weed
Eupatorium purpureum	Sweetscented joe pye weed
Carex vulpinoidea	Fox sedge
Carex lurida	Shallow sedge
Geranium maculatum	Wild geranium
Glyceria striata	Fowl mannagrass
Iris versicolor	Blue flag iris
Lobelia cardinalis	Red cardinal flower
Lobelia siphilitica	Great blue lobelia
Panicum clandestinum	Deer Tongue
Penstemon digitalis	Foxglove beardtongue
Physostegia virginiana	Obedient plant
Rudbeckia laciniata	Green headed coneflower
Solidago canadensis	Tall goldenrod
Solidago rugosa	Rough-leaved goldenrod
Symphyotrichum lanceolatum	Swamp aster
Symphyotrichum novae-angliae	New England Aster
Verbena hastata	Blue Vervain
Vernonia gigantea	Giant ironweed
Vernonia noveboracensis	New York Ironweed
BANK TOE ZONE - Shrubs	
Alnus serrulata	Smooth alder
Cephalanthus occidentalis	Buttonbush
Cornus amomum	Silky dogwood
Cornus sericea	Redosier dogwood
Cornus racemosa	Gray-stemmed dogwood
Ilex verticillata	Winterberry holly
Photinia melanocarpa	Black chokeberry
Salix discolor	Pussy willow
Salix interior	Sandbar willow
Salix sericea	Silky willow
Sambucus canadensis	Common elderberry
Spirea alba var. latifolia	Meadowsweet
Vaccinium corymbosum	Highbush blueberry
Viburnum dentatum	Arrowwood viburnum
Viburnum nudum	Possumhaw

PLANT LIST - POND EDGE PLANTS

Scientific Name	Common Name
Grasses, Sedges, & Rushes	
Agrostis alba	Redtop
Agrostis perennans	Autumn Bentgrass
Caltha palustris	Yellow Marsh Marigold
Carex lacustris	Hairy Sedge
Carex lanuginosa	Wolly Sedge
Carex lurida	Lurid Sedge
Carex stricta	Tussock Sedge
Carex vulpinoidea	Fox Sedge
Cyperus esculentus	Yellownut Sedge
Dulichium arundinaceum	Threeway Sedge
Eleocharis palustris	Common Spike Rush
Glyceria pallida	Pale False Mannagrass
Juncus effusus	Soft Rush
Leersia oryzoides	Rice Cut Grass
Panicum clandestinum	Deer Tongue
Sagittaria graminea	Grassy Arrowhead
Scirpus cyperinus	Woolgrass
Scirpus pungens	Common Threesquare
Sparganium americanum	American Bur-Reed
Sparganium eruycarpum	Broadfruit Bur-Reed
Panicum virgatum	Switchgrass
Shrubs	
Aronia arbutifolia	Red Chokeberry
Cephalanthus occidentalis	Buttonbush
Clethra alnifolia	Sweet Pepperbush
Cornus amomum	Silky Dogwood
Cornus racemosa	Gray Dogwood
Ilex verticillata	Winterberry
Lyonia ligustrina	Maleberry
Salix discolor	Pussy Willow
Spirea alba	Meadowsweet
Spirea tomentosa	Steeplebush
Rhododendron maximum	Great Rhododendron
Rhododendron nudiflorum	Pink Azalea
Rhododendron viscosum	Swamp Azalea
Vaccinium corymbosum	Highbush Blueberry
Viburnum lentago	Nannyberry

Scientific Name	Common Name
Rooted Aquatic Species	
Nuphar lutea	Yellow Water Lily
Potemogeton nodasus	Longleaf Pondweed
Nymphaea odorata	White Water Lily
Polygonum amphibium	Water Knotweed
Acorus calamus	Sweet Flag
Herbaceous Plants	
Asclepias incarnata	Swamp Milkweed
Aster novae-angliae	New England Aster
Iris versicolor	Blueflag Iris
Lobelia cardinalis	Cardinal Flower
Lobelia siphilitica	Great Blue Lobelia
Vernonia noveboracensis	New York Ironweed
Eupatorium perfoliatum	Common Boneset
Eupatorium maculatum	Joe-Pye Weed
Liatris spicata	Dense Blazing Star
Chelone glabra	White Turtlehead
Ferns	
Osmunda cinnamomea	Cinnamon Fern
Onoclea sensibilis	Sensitive Fern

Scientific Name	Common Name
Hemlock-northern hardwood forest- Understory:	
Trees	
Tilia Americana	Basswood
Quercus rubra	Red oak
Acer saccharum	Sugar maple
Shrubs	
Viburnum lantanoides	Hobblebush
Viburnum acerifolium	Maple leaf viburnum
Herbaceous	
Dryopteris intermedia	Common wood fern
Dryopteris campyloptera	Mountain wood fern
Oxalis acetosella	Common wood sorrel
Mitchella repens	Partridge berry
Tiarella cordifolia	Foamflower
Viola rotundifolia	Round-leaf violet
Streptopus roseus	Twisted stalk
Epifagus virginiana	Beech drops
Mianthemum canadense	Canada mayflower
Trientalis borealis	Starflower
Beech-maple mesic forest – Understory:	
Trees	
Fraxinus americana	White Ash
Acer rubrum	Red Maple
Ostrya virginiana	Eastern Hop Hornbeam
Carya ovata	Shagbark hickory
Carya tomentosa	Mockernut hickory
Carya glabra	Pignut hickory
Shrubs	
Carpinus caroliniana	American Hornbeam
Acer pensylvanicum	Striped Maple
Hamamelis virginiana	Witch Hazel
Cornus alternifolia	Alternate leaved Dogwood
Herbaceous	
Trillium undulatum	Painted trillium
Trillium erectum	Purple trillium
Polystichum acrostichoides	Christmas fern
Smilacina racemosa	False Solomon's seal
Cornus florida	Flowering dogwood
Ostrya virginiana	Hop hornbeam

PROHIBITED PLANT LIST - GENERAL LANDSCAPE PLANTING

Botanical Name	*Common Name*
PROHIBITED SPECIES	
Acer platanoides	Norway Maple
Achillea spp.	Common Yarrow
Aegopodium	Bishop's Weed
Ampelopsis brevipedunculata	Porcelain Berry
Berberis thunbergii	Japanese Barberry
Celastrus orbiculatus	Oriental Bitterweed
Elaeagnus pungens	Russian Olive
Elaeagnus	Autumn Olive
Frangula alnus	Glossy Buckthorn
Hedera helix	English Ivy
Genistra	Common Broom
Iris pseudacrous	Yellow Iris
Lonicera japonica	Japanese Honeysuckle
Lonicera maackii	Amur Honeysuckle
Lonicera morrowii/tartarica/x bella	Shrub Honeysuckles
Lythrum salicaria	Purple Loosestrife
Polygonum capitatum/ cuspidatum	Japanese Knotweed
Pyrus calleryana	Bradford Pear
Rhamnus cathartica/ frangula	Common Buckthorn/ Smooth Buckthorn
Robinia pseudoacacia	Black Locust
Rosa multiflora	Multiflora Rose

Note: Refer to Department of Environmental Conservation Interim Invasive Plant List for New York for floating and submerged Aquatics, Emergent Wetland and Littoral spp. and Terrestrial Herbaceous spp. not listed here.