

The **VIEW** *from the* **ROAD**

Patterns, Principles & Guidelines
for Roadscape Design

prepared for

The Champlain Valley Greenbelt Alliance
www.cvga.org

prepared by

LandWorks



211 Maple Street, MW 26
Middlebury, VT 05753
www.landworksvt.com

Aerial photos by Alex MacLean, Landslides Aerial Photography

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INTRODUCTION to the PROJECT

As we look at the views while traveling along a road we may note that our surroundings look pleasant, or not, but we probably don't understand what makes a scene look that way, what changes will impact that view and how various sections along a road together form the larger landscape. This manual has been developed to help provide that understanding.

The roadside landscape is made up of a series of patterns. Recognizing those patterns is an essential first step to understanding how changes can impact the landscape. With an understanding of the patterns and some underlying design principles, better decisions can be made for development that fits well into the landscape.

This manual grew out of an interest in a section of the Route 7 corridor in western Vermont that is typical of roadways everywhere. This rural setting has evolved over time into a mixture of agricultural, commercial and residential uses. The changes have been gradual. A barn was converted to a retail establishment, commercial storage facilities were added to another small retail building, homes became businesses and slowly but surely a stretch of agricultural land became something much different.

Some of the changes in this road section have been benign, some have had more of an impact, but there is still much to enjoy, including open fields and views to distant mountains. Studying the landscape patterns of this area provided insight into the principles and guidelines that can help retain those desirable features and integrate new development successfully into the mix.

This manual is a brief introduction to some of the principles and guidelines for a particular road corridor. In late 2006 the Champlain Valley Greenbelt Alliance will be publishing *The Roadscape Guide* with more information on conservation and land use planning for scenic road corridors. Included in *The Roadscape Guide* will be sections on conducting a visual analysis of your corridor, putting together a roadscape program, conservation tips and land use and design guidelines for better development. Check the CVGA website at www.cvga.org for more information.

ABOUT the CHAMPLAIN VALLEY GREENBELT ALLIANCE

The Champlain Valley Greenbelt Alliance (CVGA) was founded in April 2000 by a group of local citizens committed to the creation of greenbelts of open space along major road corridors as a way to preserve Vermont's scenic resources. The Route 7 corridor from Shelburne to Middlebury is CVGA's first focus area.

Roads are the way that most of us experience our landscape. When the landscape we traverse is beautiful, road corridors become our parks and our lives are enriched. But far too often roads represent something far less pleasant as the encroachment of poorly planned development creeps out from our villages into the surrounding countryside.

CVGA recognizes that a tool kit of options is necessary to preserve our most treasured landscapes. Our conservation program conserves lands with the highest scenic values. Our outreach and education program works with landowners, local regulatory groups and other interested citizens on better land use planning in rural areas and villages along the corridor. Our roadscape program demonstrates how landscaping and site design can help development fit in more harmoniously with its surroundings.

All of CVGA's programs are geared to creating a model that can be transferred to other road corridors in Vermont and beyond. To learn more about the organization, our programs and how they can be used in other corridors, visit www.cvga.org.



The mission of the Champlain Valley Greenbelt Alliance is to create greenbelts along major road corridors in Vermont, with an initial focus on the Route 7 corridor from Shelburne to Middlebury.

Our goals are to:

Preserve and encourage a respect for Vermont's natural and working landscapes, especially the viewsheds from our major roadways.

Create greenbelts along major roadways in Vermont, with an initial focus on the Route 7 corridor from Shelburne to Middlebury, as a model for viewshed preservation and clustered development and growth.

Encourage and assist in the conservation of lands with significant agricultural, natural and scenic resources in the focus area.

Educate decision makers and the general public in the focus area about tools and techniques that preserve open space and the delineation between rural and more developed lands.

Foster programs that preserve and enhance the scenic, historic and recreational resources and values of the corridor.



from a 1936 Texaco road map

A BRIEF HISTORY of the HIGHWAY

When Samuel D. Champlain set his eyes on the land which now famously bears his name, he saw an area rich with natural resources and scenic beauty. At the time, the Abenaki in Vermont were the only regular travelers, and their trailways provided access to the various navigable lakes and streams of the region. These footpaths, once littered with crushed leaves and the hoofprints of Vermont wildlife, were no doubt the beginnings of today's scenic highways - among them Route 7. History had a use for these paths, and eventually gradual widening "occurred to accommodate dog-drawn sleds, then for riding horses, and finally ox-drawn sledges and carts as the country filled with settlers." (Wilgus, 45)

Settlers, however, were not quick to inhabit the region. Indeed, further use of the area by Europeans did not occur until many years after Champlain's visit in 1609. It was not until the middle of the 17th century that the French, who maintained the region north of Vermont, began making sporadic forays into the valley. Though they had no interest in colonization, they continually maintained a small presence - a presence meant to lay claim to, and control, the fur trade with the Abenaki.

The 1730's saw the Champlain Valley increase substantially in value as it provided comparatively easy means of communication - and thus *confrontation* - between New York, New England and New France. The French began increasing their presence as the British started their northward push from the southern reaches of Vermont. It was only a matter of time before interest in the fur trade was replaced by a desire to tame the fertile soil and settle the scenic landscape.

Thus, the first roads built and refined by the area's new residents were military in nature. And by the fall of Quebec in 1759 the region was opened to settlement by British colonists, and soon rough, narrow roads began dotting the countryside. One such road, "cut by the Allens between Castleton and Colchester via Vergennes and Shelburne Falls in 1772" (Wilgus, 46), transformed a tree-shaded footpath used by the early settlers into what we now call Route 7.

By 1791, the year Vermont became the 14th state, this crude pathway now claimed the proud title of highway, and connected, among many others, the townships of Middlebury, New Haven, Vergennes, Ferrisburgh, Charlotte and Shelburne. Transportation had changed little since 1609 and the visit of Champlain - but the turn of the century brought a rapid advancement in growth and technology.

The early military roads in the region were maintained by their creators, the military. Townships were therefore required to build and maintain their own roads. The result was often poorly planned travelways in less than good condition. As Vermont became integrated with larger agricultural markets, the need for better roads intensified. The initial solution came in 1799 with the introduction of privately operated turnpikes. Established in 1802, the Middlebury to Vergennes turnpike provided access to connecting roads to the north. With its improvement came heavier traffic, and more responsibility. The turnpikes were never popular, due mostly to the heavy tolls, and most were taken over by the surrounding towns by the middle of the 19th century.

The introduction of the railroad in 1848 brought more changes to the region. In 1855, five hundred miles of tracks had been laid in Vermont. Towns with rail stations quickly grew in population, while roads connecting these stations grew in importance. Vermont's oldest railroad station, built in New Haven, is still in existence today. It was built, appropriately, along the old Middlebury to Vergennes turnpike, and connected the communities of Addison County with the rest of the state, and even the country.

Addison County residents of the mid 19th Century began shaping the views and aesthetics that are now so largely associated with region, and are the same views and aesthetics we are fighting to preserve today. The New Haven of the 21st Century remains largely similar to that of the 1850's - at least in generalities. It is "still a small New England town. Agriculture remains a primary component of the local economy. The community is still bisected by the same north-south road" (Gutfreund, 2). This road was designated U.S. Route 7 in 1925.



A postcard captures travelers awaiting the afternoon train at the New Haven station, circa 1900



Joseph Battell enjoyed collecting Morgan horses, fine sleighs and buggies as well as tinkering with photography focusing on landscapes. This picture was taken by Battell in the early 1900's along what is now Route 7.

The centrality of Route 7 in the life of the state can be traced as far back as Timothy Dwight's famous travels in Vermont (Travels in New England and New York [1821], republished by the Belknap Press, Cambridge, 1969) in which it is posited that he traveled along the present day route of the highway, sections of which he described in this fashion:

"...we passed through the Townships of Weybridge and New Haven, both settled in scattered plantations. The soil is clay of good quality, and the inhabitants are in comfortable thriving, circumstances. A part of the road is...good, the remainder is hilly and rough."



Old Route 7, through Ferrisburgh.

As the war began and ended, Route 7 gained importance in the accessibility of Vermont towns. The "onslaught of postwar automobility" (Gutfreund, 157) brought with it new problems. The condition of Route 7 in those days could no longer stand up to decline of hoofs and increase in tires. Along with many other roads in Vermont, Route 7 was paved. Maintenance of highways were forced upon towns and cities, who could only struggle to keep up with the ever increasing traffic. Highways were no longer merely connections to rail lines. Route 7 soon became Vermont's busiest north-south artery. A report in 1945 quoted "the need for relief from traffic congestion" along Route 7 was one of the state's most "troublesome problems." (Gutfreund, 158)

For a better part of the century, Route 7, as part of the National Highway System, has served as the principal north-south artery in Western Vermont. In the 21st Century this corridor and the road running through it has experienced increased traffic and incremental development, which threatens its efficiency, its safety and its visibility as the primary travel route for visitors to the western half of Vermont. In more recent times, Route 7 has suffered from scattered development which threatens to erode its scenic and agricultural values. From 1988 to 2003 traffic on the highway segment in New Haven has gone from an average of 7000 vehicles per day to over 8100, an increase of 15% in 15 years. Indications are that this trend will not abate.

With its sweeping views, agricultural landscape, small villages and historic settlement, the highway and its environs have as much to do with the history, economy and life of this part of the state as perhaps any other man-made element. It thus has to serve, in a sense, several masters: it must continue to provide efficient movement of goods and services; it must continue to allow for safe travel and the orderly development of lands within its corridor, and it must also allow visitors and residents alike access to an experience that reflects high expectations for scenic quality and quality of life.

Gutfreund, Owen D. *20th Century Sprawl: Highways and the Reshaping of the American Landscape*. Oxford: Oxford University Press, 2004.

Wilgus, William J. *The Role of Transportation in the Development of Vermont*. Montpelier: VT Historical Society, 1945.

HEDGEROWS

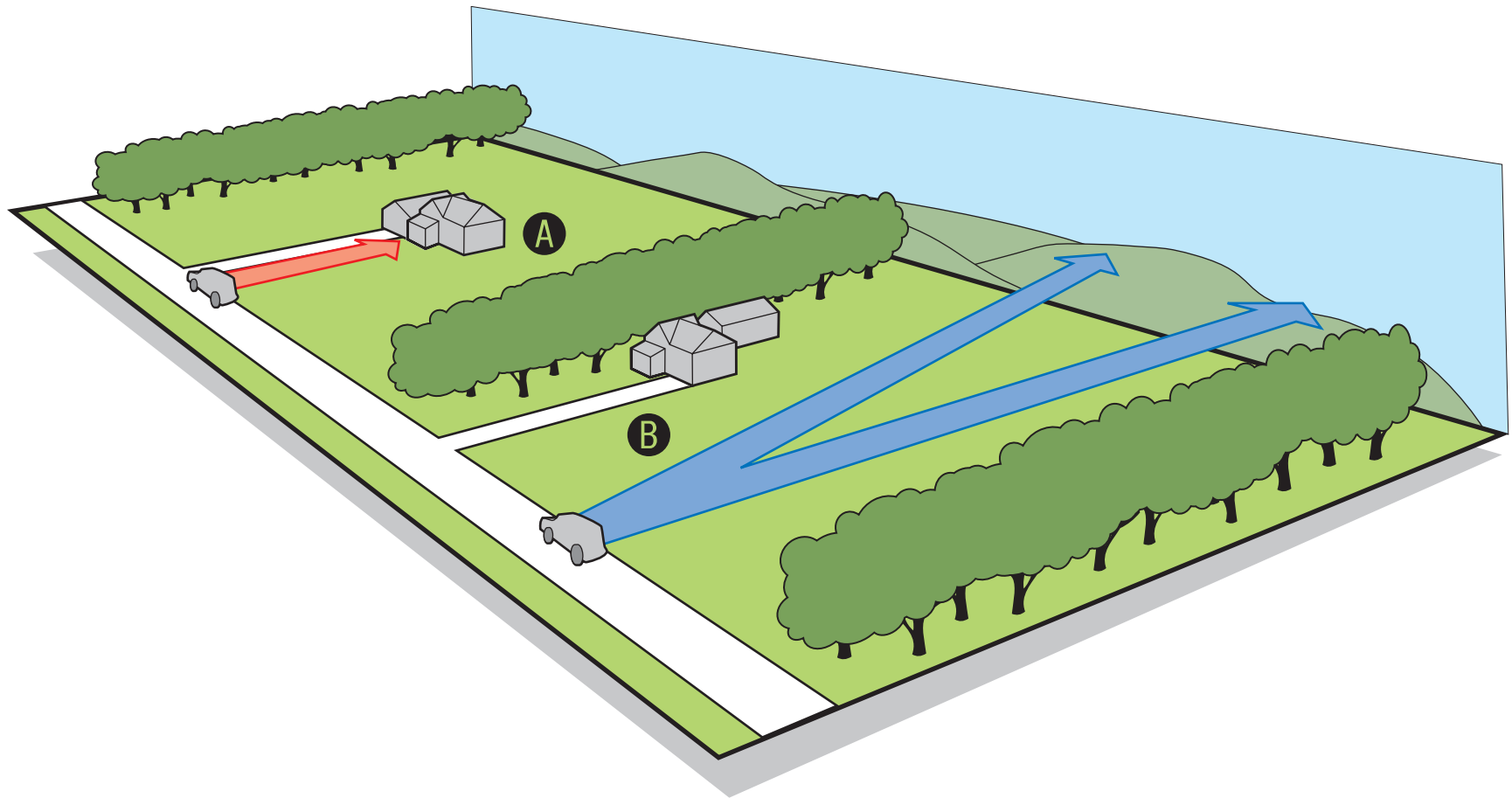
The presence of hedgerows along the Route 7 corridor is an historic pattern intrinsically linked to the Champlain Valley's agricultural heritage. Hedgerows are typically comprised of a range of native species of shrubs and trees. This pattern of hedgerows is an important one insofar as it is an effective and valuable landscape element that serves multiple purposes:

- 1) Hedgerows sustain an historic agricultural land use tradition;
- 2) They provide habitat and ecological value as “ecotones” - edges which promote biodiversity in an open landscape;
- 3) They act as climate control elements by buffering cold winds and drifting snow;
- 4) Effective linear plantings provide screening and mitigate visual impacts from development;
- 5) As living fences that create good neighbors and delineate property lines; and
- 6) Hedgerows act as landscape organizers and can become important elements in site design.

In this principle hedgerows serve to address a number of desired outcomes, including acting as a site design element along which roads and buildings can be sited so as to maintain the integrity of the open space along with the roadside viewshed.

See Appendix for Trees for the Highway.





EXISTING PATTERN:

Buildings are often sited in the middle of the open space which (A) blocks views of the distant panorama, leaves the open space less desirable for future use (agricultural) and draws attention to the development. This type of siting also prevents the building and its occupants from benefits of the climate moderators offered by the hedgerows.

PRINCIPLE:

Siting roads and buildings along hedgerow (B) keeps meadow and views open; takes advantage of the shading and windbreak capabilities of the vegetation.

ROADSIDE TREES

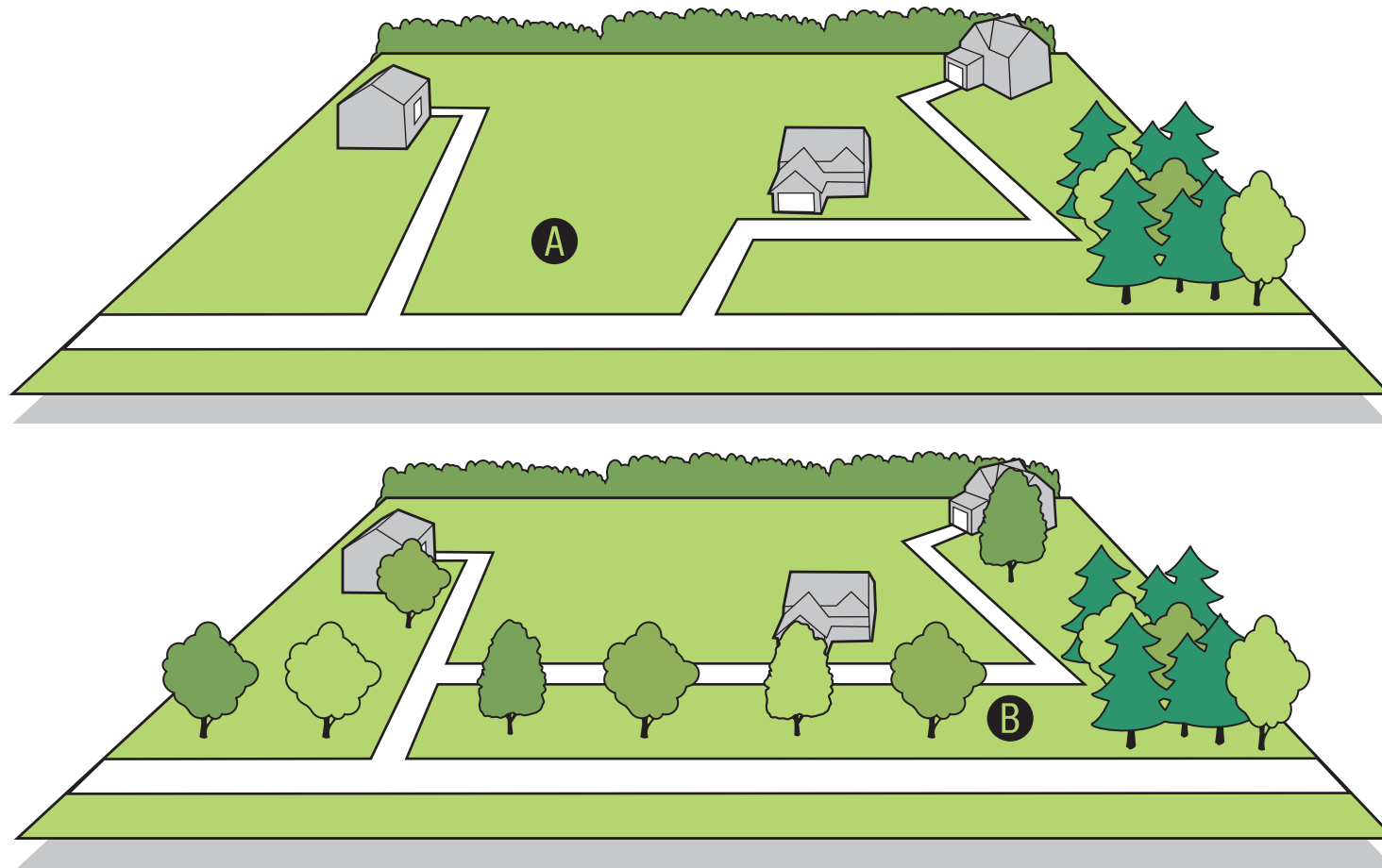
The classic image of sugar maple lined roadsides in Vermont reminds us that these types of plantings serve not only aesthetic purposes but functional ones as well. Roadside trees provide continuity along a highway and can separate the busy route from individual properties, dampening vehicle noise, shading and cooling asphalt which otherwise heats and buckles, and even providing a traffic calming effect by narrowing the perceived width of the route and thus serving to slow down travel speeds.

The aesthetic benefits are multiple as well, with foliage providing interest through the seasons, from the brilliant colors of deciduous trees in the fall to the welcome green of conifers through the long Vermont winters.

Continuous plantings of the same species are desirable, but should be limited in length, set back from the road in a appropriate planting environment and interspersed with other varieties for a healthier roadside treebelt that will endure for many generations, just like the sugar maples we see along our historic dirt roads.

See Appendix for Trees for the Highway.





EXISTING PATTERN:

Buildings scattered within a large open lot (A) undermine the integrity of that open space and create a sense of unplanned clutter.

PRINCIPLE:

Continuous roadside tree plantings (B) link/buffer disparate structures on an open lot, provide shade and an aesthetically pleasing landscape.

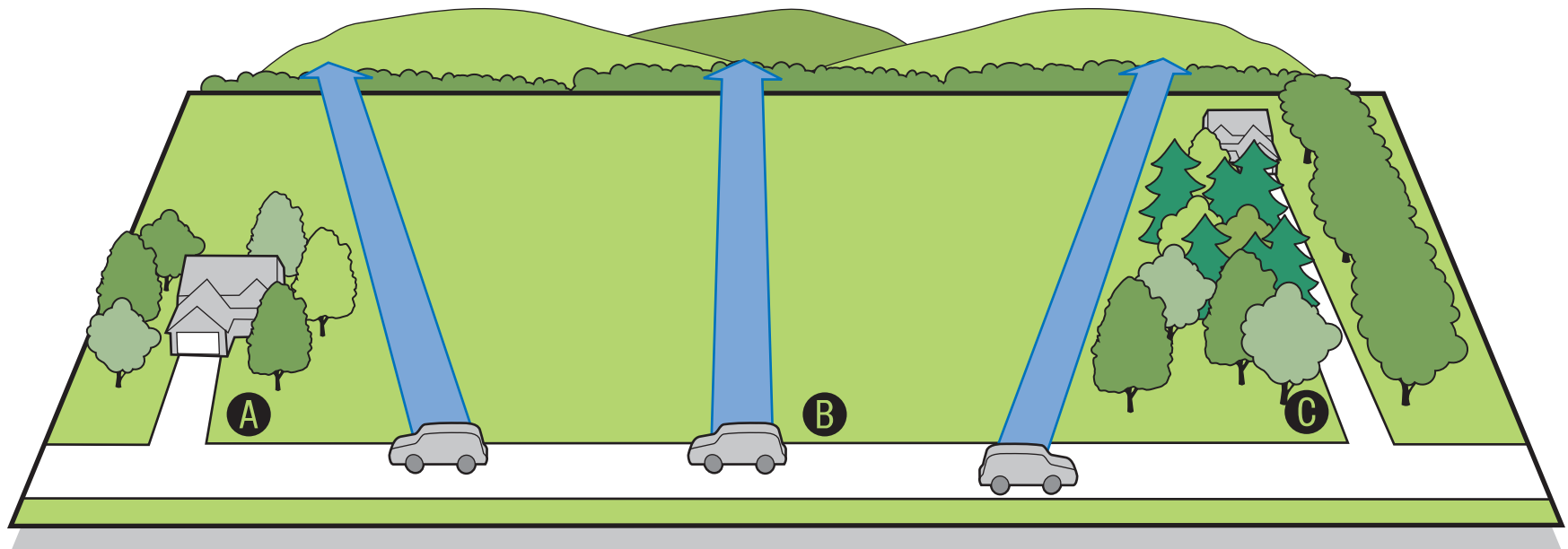
VIEWSHEDS

Viewsheds encompass those areas of the landscape that one can see from any one point or series of points, such as along a road. The highly scenic landscapes visible from sections of Route 7 are an integral part of the highway experience, whether you are driving to work or visiting Vermont on vacation. The midground views of Vermont's pastoral landscape and the long distant views of both the Adirondack and Green Mountains provide a unique and engaging experience that should be carefully preserved and managed for the present and future generations.

Preserving the Viewsheds along the Route 7 corridor is essential to protect scenic resources for the aesthetic and economic values they provide. Indeed, the uncluttered and scenic landscape of Vermont supports the tourism industry - it is one of the principal assets that draw visitors to our state. Less clutter along the roadside does not distract the traveler, and provides a high quality driving experience. Driving for pleasure is the nation's most popular "recreational" activity.

Clustering or placing buildings and structures at edges of a viewshed can maintain the open field as an intact landscape for current and future agricultural use.





EXISTING PATTERN:

Open spaces with distant views to the east and west are present all along Route 7. It is critical to maintain these views as part of the character of the corridor.

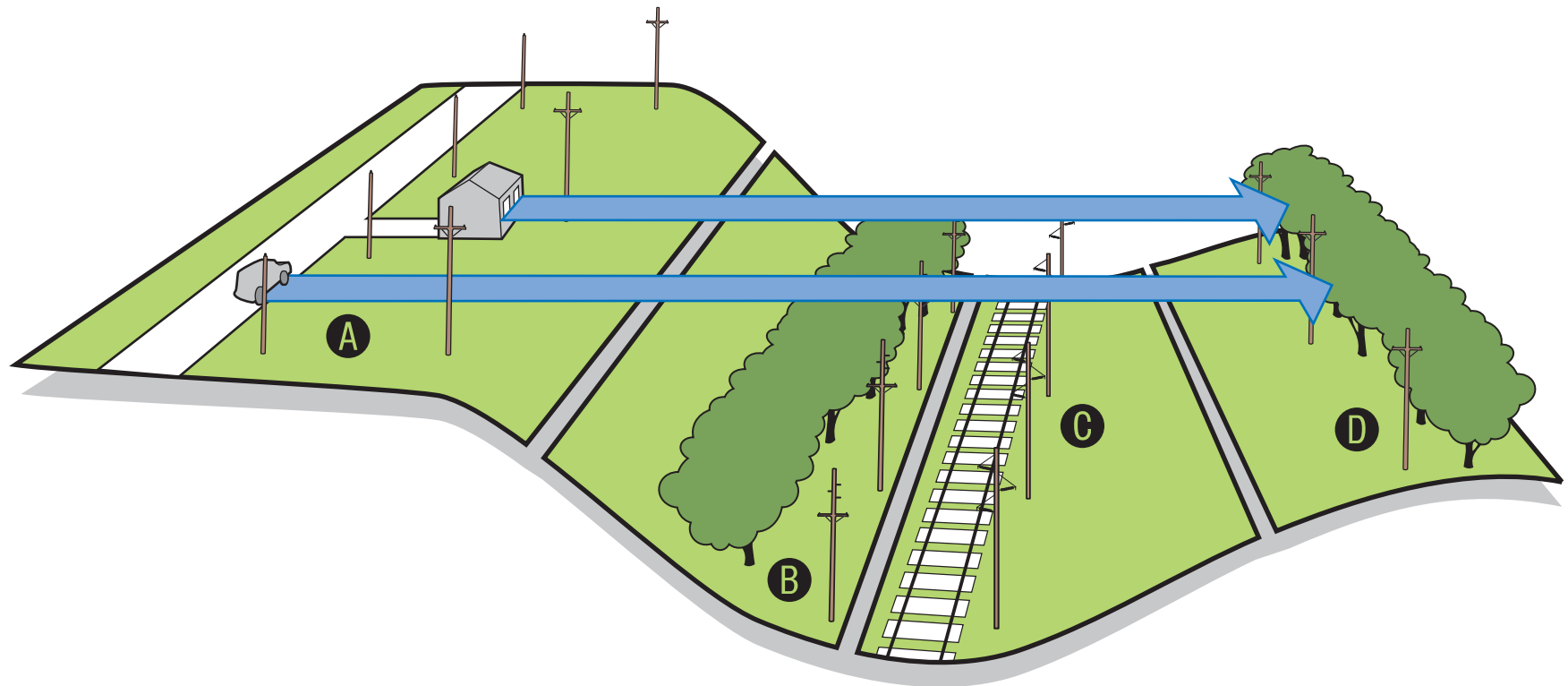
PRINCIPLE:

Existing or proposed homes (A) can be sited to maintain the view, even help frame it. It is desirable to extend open views along the road for as long as possible (B). Screen and buffer plantings can also hide an existing structure and access road (C) while directing the view to the distant panorama.

TRANSMISSION CORRIDORS

Transmission corridors are part of the everyday landscape of Vermont but their presence near the roadside or within the corridor viewshed can undermine the scenic beauty of certain sections of the highway. Open expanses with great views are what people love about Vermont, and there are many such opportunities along Route 7. Route 7 carries more resident and visitor traffic than any other route in the Champlain Valley, aside from the Interstate north of Burlington. Thus it is important to maintain sufficient screening along existing transmission line corridors and to carefully site and construct new corridors or corridor upgrades.





EXISTING PATTERN:

In many instances transmission lines and corridors (A) are visible adjacent to highways. When distribution lines are also present, this creates visual clutter and can impact scenic qualities or undermine scenic views. The view from passing cars - as well as residences, public/historic buildings - should be considered.

PRINCIPLE:

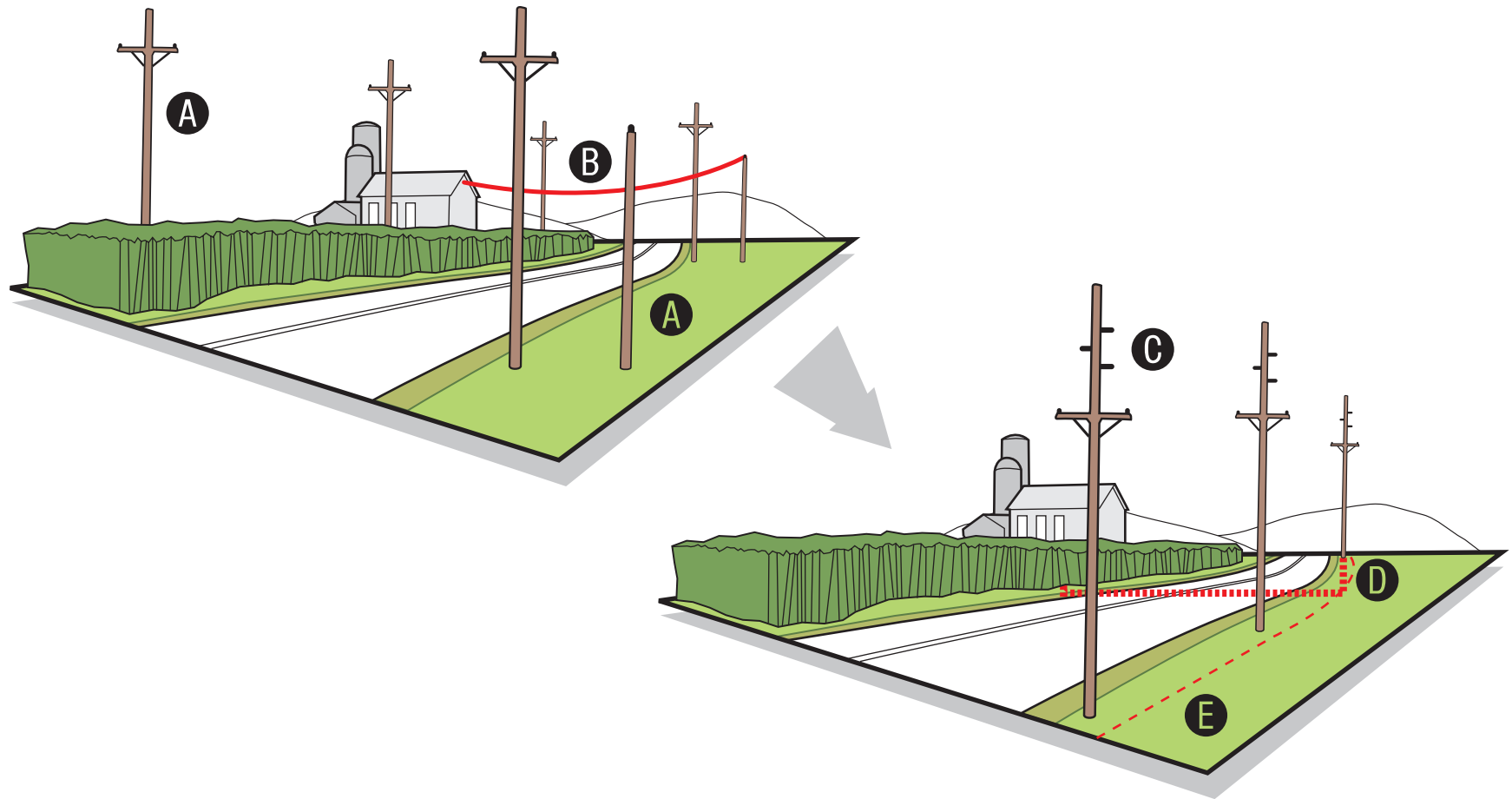
Relocated or new lines/corridors can take advantage of an area lower than the principal view from the highway (B) and/or rely on existing vegetation/topography to screen them, while location along existing infrastructure corridors such as rail lines (C) can reduce their visual impact. It is important wherever feasible (D) to use pole heights that do not exceed the height of existing background vegetation, so as to avoid "skylining." Some areas may warrant line burial to protect or enhance views.

UTILITY INFRASTRUCTURE

A challenging pattern that exists along Route 7 (as well as most major routes in the state) is the presence and visibility of electrical service, distribution and transmission lines as well as other utilities (phone/cable) which are typically present within or at the edge of the right of way. Along Route 7 in several sections there are also transmission corridors adjacent to or within the viewshed of the road corridor. In this principle the pattern of roadside utility is addressed with three primary principles:

1. Reduce roadside utility clutter by co-locating lines on single pole structures. Where possible locate the line on the road side without the long distant views.
2. Minimize road crossing of service lines, and the “criss-crossing” of utility lines.. Where possible and appropriate, underground with directional boring below the roadbed.
3. When upgrades to new electrical (distribution or transmission) lines are proposed, consider locations outside of the road’s scenic viewshed via either undergrounding or siting well away from roadside and below or outside of the primary view. Visibility of poles and conductors should be eliminated or designed in such a manner so as to limit the visual impact of such structures and related facilities. This is accomplished by relying on screening, the “backgrounding” of the lines and conductors against a backdrop of vegetation, and pole placement and pole heights to mitigate the visual impact.





EXISTING PATTERN:

Poles, lines, conductors (A) and service crossings (B) create visual clutter and undermine aesthetic values

PRINCIPLE:

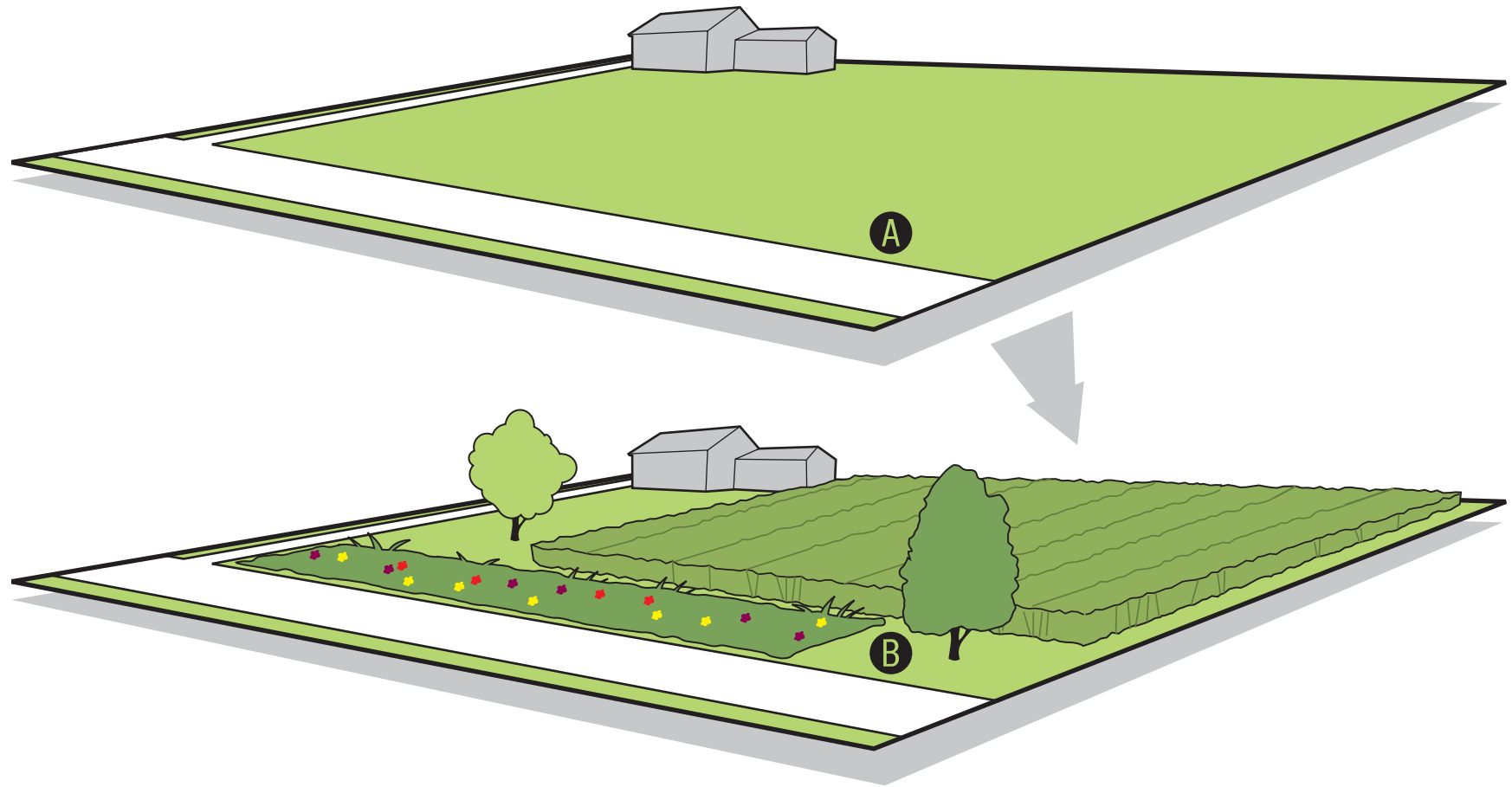
Collocate utilities on the same pole (C) and provide underground service connections (D) to new and existing buildings to reduce/eliminate the aesthetic impacts of utility lines. When the cost benefit is appropriate, and the opportunity is in place, underground lines should be considered (E).

LAWN ALTERNATIVES

Suburban style lawns that are expansive and overly manicured seem out of place in a rural agricultural landscape, even one that has elements of residential and commercial development. Too much lawn means too much fossil fuel to take care of it, along with the pollutants lawn machines produce. Lawn areas do not slow or absorb runoff effectively and stormwater is becoming a serious problem affecting water quality in our lakes and streams.

There are a wide range of lawn alternatives which include wildflowers, native shrubs and cover crops. Even hayfields or other feed crops provide a better filter than mowed lawns for rainwater and improve groundwater absorption after storms, while providing useful products with a variety of applications. Lawn alternatives also provide aesthetic benefits by adding color and interest to the roadside landscape.





EXISTING PATTERN:

Along Route 7 there are locations where large expanses of lawn exist (A) requiring maintenance and creating a contrast with the rural agricultural/residential patterns.

PRINCIPLE:

Limiting lawn areas (B) along the highway reduces stormwater runoff and avoids a suburban “look.” Lawn alternatives include wildflowers, forage and hay crops, and numerous low ground covers such as vetch, ornamental grasses and native evergreens (lowbush bluegrass, dogwood, etc). Expansive lawns can negatively accentuate the visual impact of housing and other structures isolated in large areas.

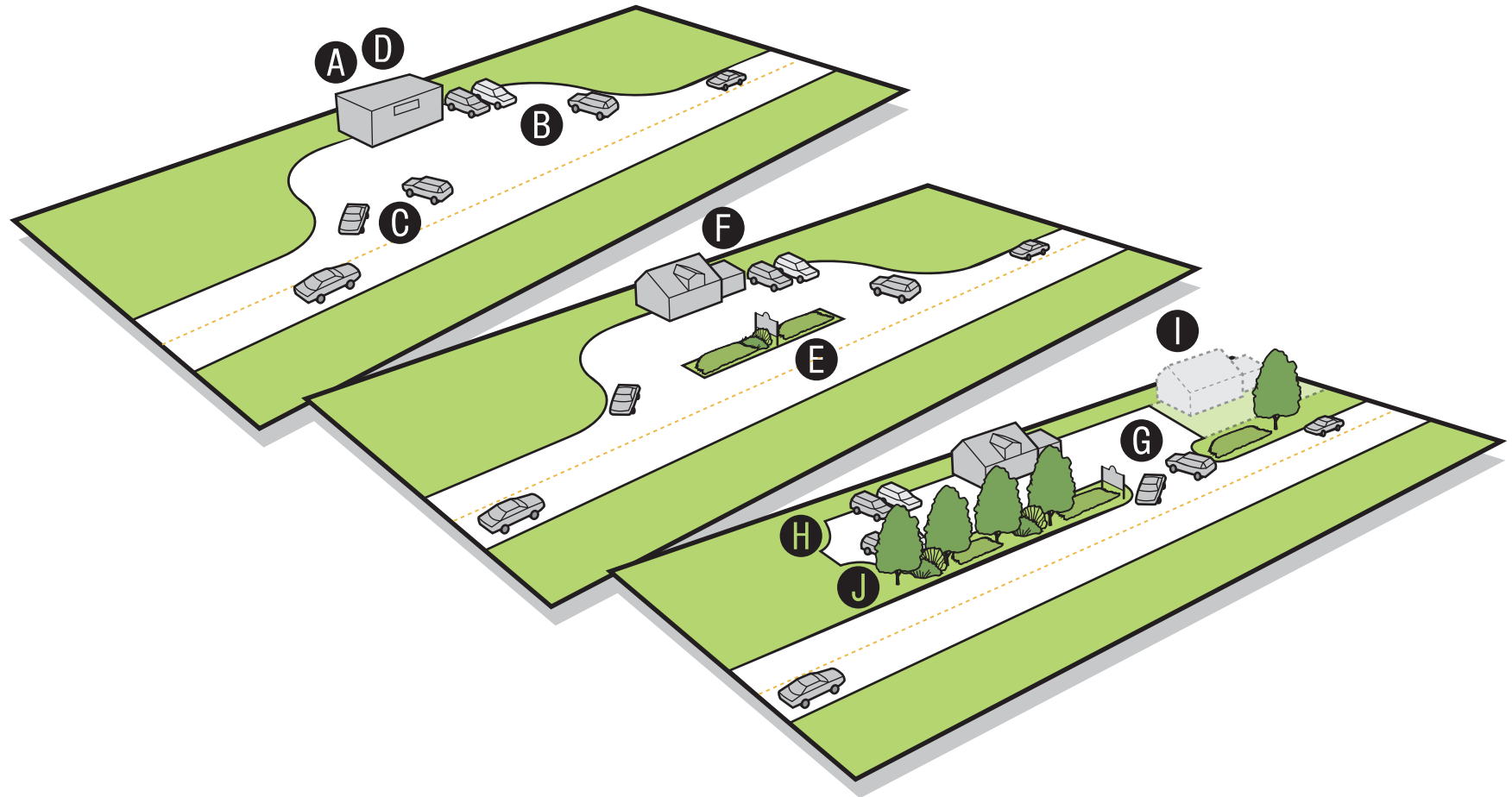
ACCESS MANAGEMENT

Access management is a transportation planning method that addresses access in and out of any given property along a road. The goal is to control, coordinate and limit curb cuts along busy thoroughfares. As businesses and intersections increase along the highway, so does the potential for accidents and congestion.

Access management rules and guidelines encourage development where it is safest, and where it does not impede free-flowing traffic on major roadways. This can be accomplished by promoting location and access through existing access points, in some cases along secondary roadways, in both residential and commercial capacities. Visual intrusions and roadside elements that often accompany curb cuts (such as poles with electrical service, signs, mailboxes and culverts) are also minimized.

Managing access in and out of properties along Route 7 - and highways all over VT - is an important consideration for highway safety, site access and circulation. It provides aesthetic benefits as well. One of the most common problems or challenges is the long, open, poorly defined “curb cut” (which defines how a vehicle moves in and out of any given site). These guidelines encourage development where it is safest, where it does not impede free-flowing traffic on major roadways and provides some examples on how to treat common access challenges.





EXISTING PATTERN:

Many typical curb cuts along Route 7 have single large buildings (A) with unlimited access and poorly organized parking (B). This results in conflicting in & out traffic (C) and a lack of predictability for oncoming drivers, which creates hazards. Signage on building (D) is difficult to see.

PRINCIPLE:

A landscaped island (E) provides two access points (minimizing traffic confusion), offers a more visible place for signage and buffers parking. Vernacular architecture with design features (F) becomes an easy to see landmark and reinforces the quality of the business. One point of access (G) is the safest, offers the ability for better organized parking (H) and can be designed to serve two commercial buildings (I). Strong landscape plantings (J) screens parking while trees enhance site, shade lot and add property value.

SITE PLANNING

As both development and traffic increase along a major highway such as Route 7, access management coordinated with site planning becomes an important tool for guiding growth, preserving views and promoting traffic safety. Clustered siting of residences, business or other building development preserves open space and promotes efficient site structuring. This efficiency is achieved by reducing overall road lengths, required utility infrastructure (i.e. utility service to individual buildings collocated above or below ground) and land disturbance which not only saves on initial investment, but in long term site management costs as well.

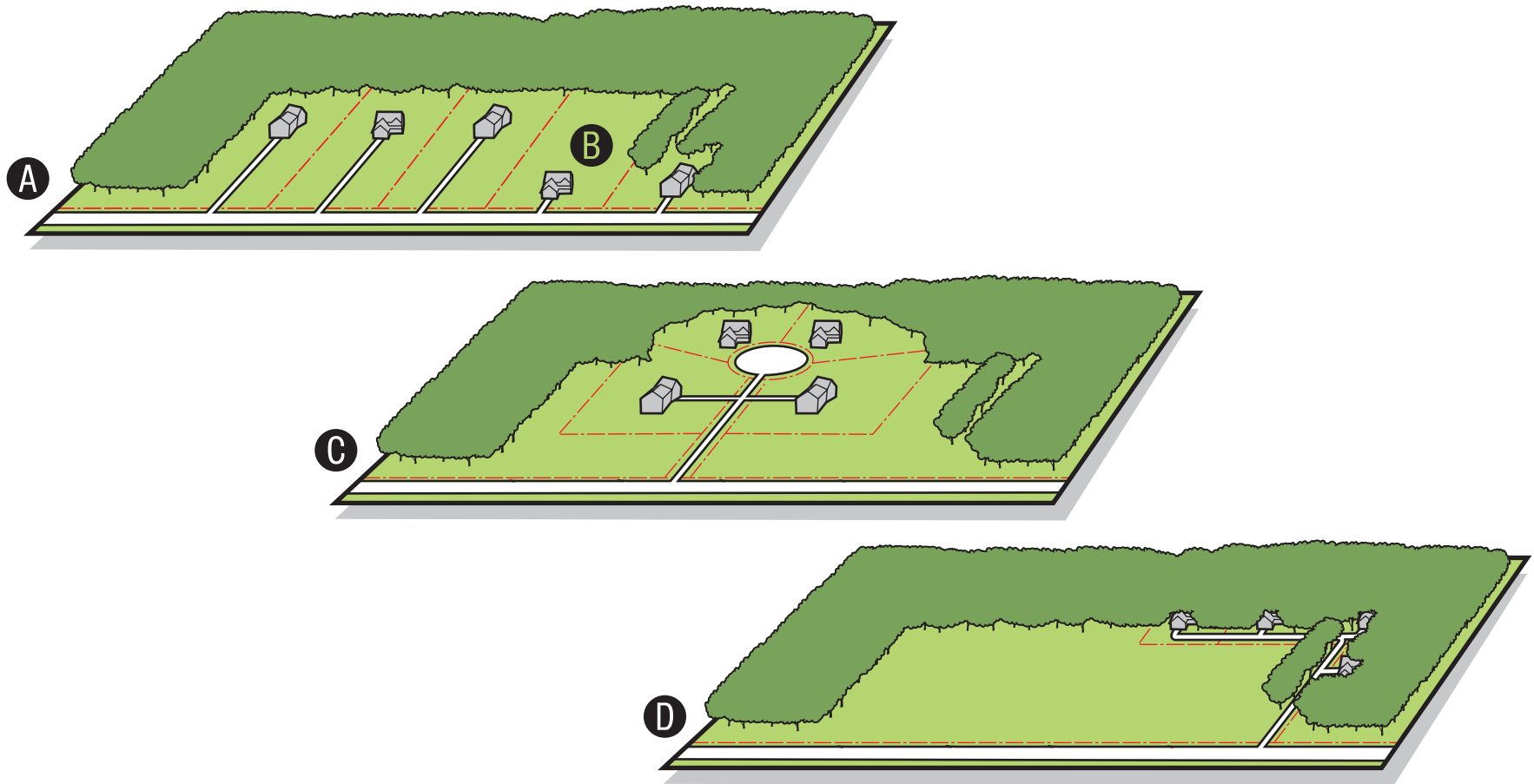
For roadside development, residential structures should be set back, buffered from the road and placed along edges of open spaces. Orientation can take advantage of views and access to the sun, while not focusing on the frontage area. Subdivisions of smaller lots and clustered home sites can be designed to maintain open spaces and viewsheds along the corridor.

New developments should not be massive in scale and out of context with traditional residential or agricultural forms of building and architecture. Large, box-like buildings with unbroken facades may detract from the pleasing architectural scale and pattern of historic structures in the area. Inspiration and guidance can be derived from the well designed buildings along the route.

Commercial developments should be focused around existing areas where commercial activity exists, including redevelopment and infill along crossroads and junctions. Continuous and linear commercial development is not desirable along the rural and semi-rural stretches of highway in particular. Existing buildings and complexes of buildings can be added to, renovated and appropriate architectural design employed. Commercial and office space clustered together can create a critical mass for commercial activity. New Haven Junction is a good example of where this has happened and areas such as this should continue to be developed with additions or renovations to existing structures.

1. Vernacular architecture and native plants benefit sites, 2. Clustering leaves open space and wetlands intact, 3. Long roads, visual impacts and loss of agricultural land can result from "sprawl" planning.





EXISTING PATTERN:

Typical linear site development (A) along the road takes the form of single lots in the open landscape, each with individual access points or curb cuts. Sometimes homes are too close to the highway (B). Layouts based on suburban style cul-de-sacs have the advantage of a single curb cut (C), and thus shared access, but may impact the scenic quality of the roadscape.

PRINCIPLE:

A clustered plan within the wooded area (D) provides privacy for individual lots, buffers the residences from the highway, relies on one access point, and successfully preserves the integrity of the open space and thus the scenic view. Sharing driveway access reduces maintenance and provides safer access to the highway.

SIGNS and ROADSIDE ELEMENTS

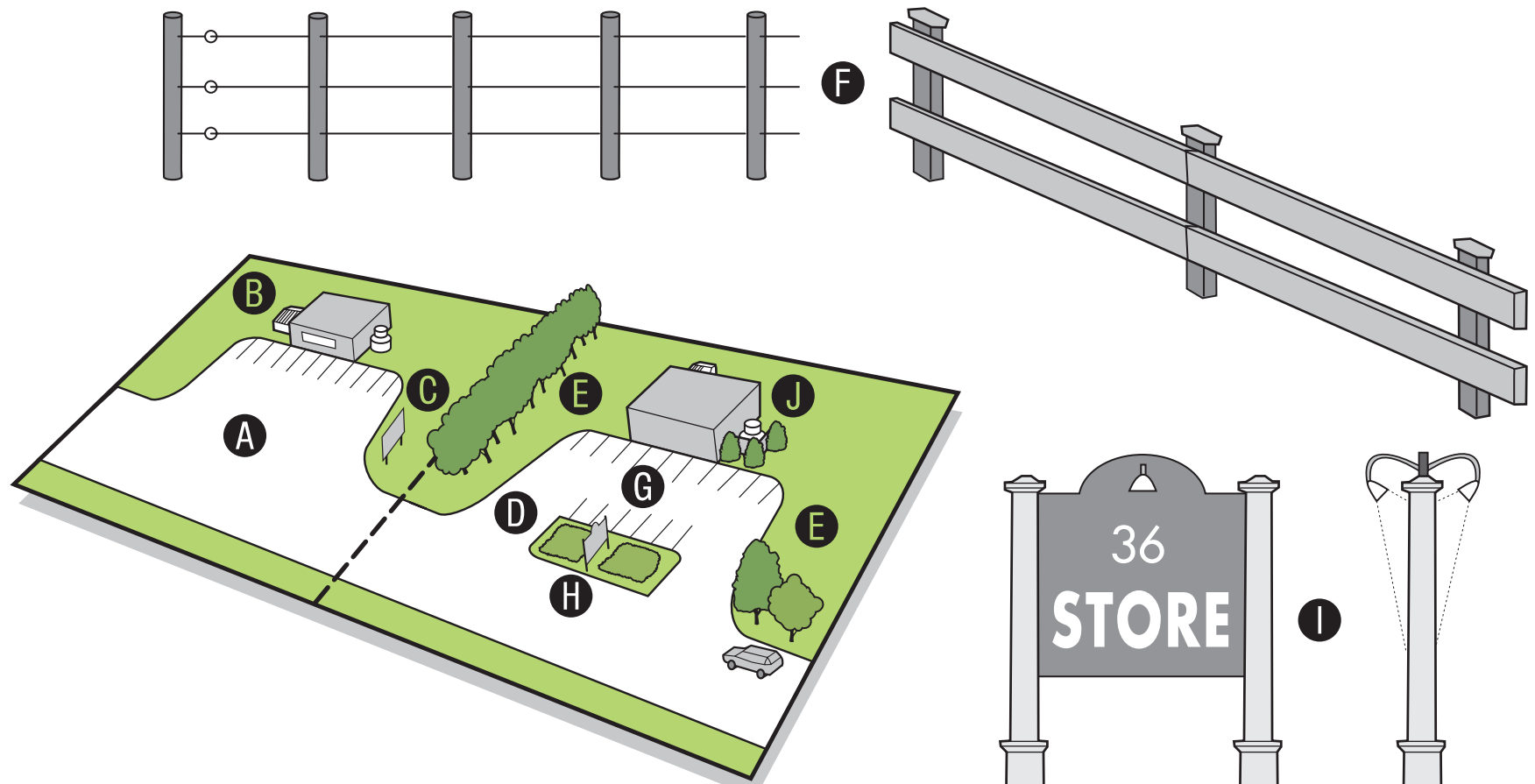
The details along a highway truly make a difference; consistent fencing, legible signing and clearly identifiable entries and exits all promote vehicular safety and are integral components of a properly functioning site. Additionally, well designed sites are aesthetically more engaging, reflect an owner's commitment to the business and invite the customer to patronize that business. For residential properties, sharing well designed mailboxes and fencing styles often add value to the property and can translate into easier maintenance over time.

Signs should be placed perpendicular to the road to take advantage of both sides and at the edge of the right of way where possible. Signs are best lit from above rather than below, with carefully shielded light fixtures. Glare along a highway from poor sign and site lighting can create dangerous conditions for a driver. Signs need to be legible and simply designed with the appropriate amount of information - no more than is necessary. Travelers driving at 50 miles an hour are only able to safely read two to three short lines of information and the type size needs to be at a minimum of 3 -4 " high.

Fencing which belongs in Vermont and has been employed historically here is encouraged. Split rail western style stockade fencing has no historic precedent along Route 7- it is used because lumber yards and fencing companies sell it inexpensively. Mailbox placement and height is subject to Post Office standards. Same, but well designed, well-supported group mailboxes are encouraged, as they reduce roadside clutter and make mail delivery safer and more efficient. Legible numbering with the new 9-1-1 address system helps motorists find their destination and is essential for fire and rescue access to a site should there be an emergency.

Roadside clutter and suburban style lawn ornaments should be kept to a minimum in a "large scale" landscape such as that experienced along Route 7 as they are potentially distracting and thus dangerous to a driver. In addition, such items detract from and undermine the experience of the natural, scenic, aesthetic and historic qualities which make a highway such as Route 7 an important part of the visitor's experience of our local sense of place and quality of life.





EXISTING PATTERN:

Open curb cuts (A) are unsafe, allowing for unpredictable turning, exit and entry. Ingress and egress are not controlled. Signage on buildings (B) is less visible, while gas storage tanks and dumpsters are highly visible. Signage on one side (C) only serves a single direction of travelers.

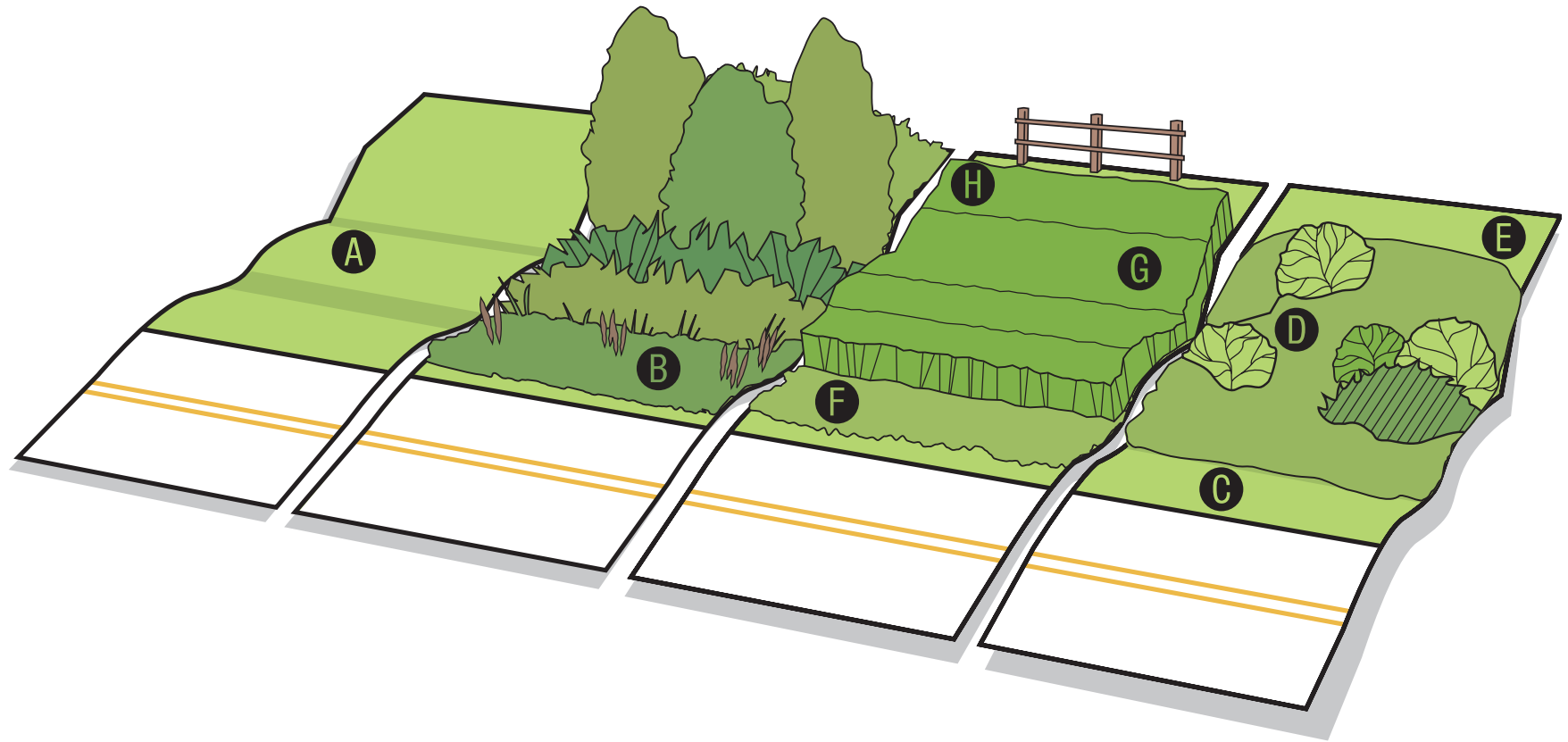
PRINCIPLES:

Curbed islands (D), roadside landscapes/hedgerows (E) and vernacular fencing (F) provide functional, aesthetic and safety benefits. Islands offer extra parking (G) and an ideal location for supported signage (H). Signage with top mounted lights (I) create less glare, while high contrast, legible typography has maximum readability at 50mph. Gas storage tanks and dumpsters (J) should be appropriately screened and/or placed behind buildings.

SWALES and SHOULDERS

Swales and shoulders are a fact of life along highways and may require maintenance or management to provide both aesthetically pleasing edges to the highways and the functional means to address runoff and drainage. Too much lawn and mowing does not slow and filter stormwater sufficiently, with unsafe road surfaces or even flooding resulting. In Vermont, the Agency of Transportation mows roadside edges for safety and functional purposes. Some stretches of Route 7 in the Central Champlain Valley have extensive banks of crown vetch, providing a colorful, effective, although non-native planting edge. Natural landscapes such as wetlands should be protected with buffers of native herbaceous and woody plants. Sumac and dogwood shrub massings should be maintained as screening and habitat. Simple post and wire fencing retains the agricultural landscape and defines the shoulder's edge.





EXISTING PATTERN:

Large scale mowed areas (A) that continue right to the edge of the highway are discouraged. Invasive species (B) such as loosestrife, buckthorn and many Norway Maples should be removed and replaced with native varieties.

PRINCIPLE:

VTrans generally wishes to maintain a mowed shoulder, creating a roadside buffer that meets more natural vegetation (C). Native shrubs, groundcovers and natural landscapes (D) slow runoff, filter sediments/other pollutants and require little maintenance. Large expanses of lawns (E) should be avoided, extent of mowed area kept to a minimum. Continue to maintain existing crown vetch cover for stabilizing soils (F) and keep drainageways (G) vegetated. Maintain fencelines and hayfields (H).

HISTORIC ARCHITECTURE and LANDSCAPE

The older farmsteads, residences and traditional structures along the highway are part of the Valley's history, culture, vernacular and visual character. They present an array of architectural styles that reflect the region's settlement pattern, and offer a contrast to typical highway commercial buildings. Often they are landmark buildings and "postcard quality." The New Haven Railroad Station (see photo on right), the oldest station in the state, is one such building.

Historic patterns need to be respected and protected. New commercial uses for old barns and buildings can integrate with the building's architectural features and established site plan, incorporating traditional details, and patterns of use. Older residential structures that may not be ideal for living on a busy highway lend themselves to a change in use that can be cost-effective and ultimately help the owner and business.

The front yards, specimen trees and green spaces around farmsteads and homesteads are also important to preserve. They provide climate control, noise attenuation, "ground" the building and can help frame the open valley landscape.

1. An older roadside building translates into an effective Bed & Breakfast, 2. Offices and antiques fit nicely into this railroad station owned by the State, 3. An historic building becomes a quaint restaurant.





EXISTING PATTERN:

The historic architectural styles along the roadside range from classic barns and extended farmhouses to more elegant residences and 19th century churches. These landmark structures are an integral part of the state's heritage and provide a sense of scale and sense of place along the highway landscape.

PRINCIPLE:

Historic buildings must be preserved or carefully restored and adapted to new and appropriate uses. New structures can be sensitively sited within historic settlement clusters and employ appropriate architectural designs which relate to the patterns present in the older buildings. Remodeling projects and building additions can also use materials and forms to relate well to the original structure.



CASE STUDY 1

Corridor Management and Enhancements The New Haven Roadscape

1. OVERVIEW

The Lake Champlain Basin is one of the most spectacular landscapes in the Eastern United States. The traveler on Route 7 has access to impressive views of the Green Mountains, the Adirondacks and Lake Champlain. Maintaining and enhancing access to these views contributes to our quality of life and continues to provide visitors with an engaging visual experience - often what attracted them to Vermont in the first place.

The visual experience along the Route 7 Roadscape is only part of the equation - there are multiple economic benefits which result from roadscape and site improvements that address architecture, site design, access and aesthetics. These include, for example, reduced maintenance costs by limiting lawns and designing effective stormwater management strategies. A well designed building and site layout, as well as practical and thoughtful signage, can increase business by effectively attracting the roadside traveler.

The Route 7 Roadscape* is defined as the environmental form and function of the highway corridor. It includes the right of ways, as well as the landscape and land uses adjacent to the highway.

The four primary benefits of roadscape planning include:

Economic Vitality which can result from, for example, more attractive, visible and legible signage which increases sales or improved aesthetics and highway access which draws customers and supports tourism;

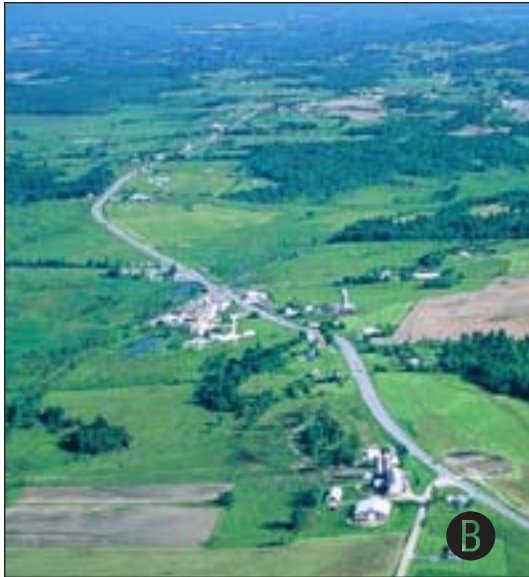
*ROAD + SCAPE (from the Dutch word *skap* - meaning "shape").

Safety with the improved roadside conditions, sight lines and speed control and maintaining highway function by promoting better drainage and reducing heat loads which in turn prolongs the wear of roadside surfacing and counters frost heaves and/or reduces roadside flooding;

Property Value increases from investments in site, landscape and architectural improvements as well as the benefits which accrue from more concentrated development;

and the retention of **Community Character** through sensitive planning and design which celebrates our heritage, our scenic landscape and reinforces and enhances the quality of life which we all cherish.





2. ANALYSIS

The analysis portion of this case study looked at existing patterns along a stretch of Route 7 in New Haven, from which a series of recommendations for specific sites and sections were developed. These recommendations represent simple, straightforward options designed to address management and enhancement opportunities.

See aerial photo below for a demarcation of the study area.

3. THE ROADScape PLANS

See the following pages.















CASE STUDY 2

Aesthetics and Agriculture: Viewshed Management and Building Envelopes

1. THE PURPOSE

The purpose of this undertaking is to protect the view corridor or viewshed that exists along Route 7 in New Haven looking east, and in the vicinity of the junction with Town Hill Road and to the south of that junction. The road is oriented in a manner that allows travelers access to a high quality scenic panorama of the foothills and main ridge of the Green Mountains. This view begins before the crest of the highway and extends almost to the junction, where existing barns are part of an agricultural complex. This initiative is undertaken as part of the effort to preserve the viewshed and agricultural open space while at the same time supporting the needs of the farming operation to continue and expand. As a result, the establishment of a building envelope is necessary to allow for expansion while at the same time protecting the integrity of the view, as documented. At the crest of the hill a future scenic pull-out is being considered.

2. THE ANALYSIS

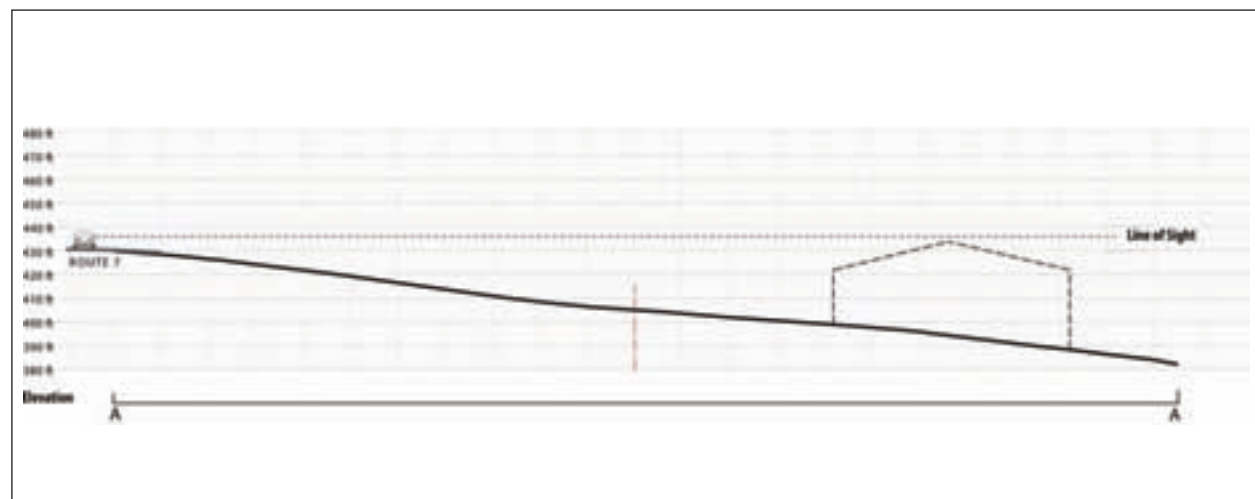
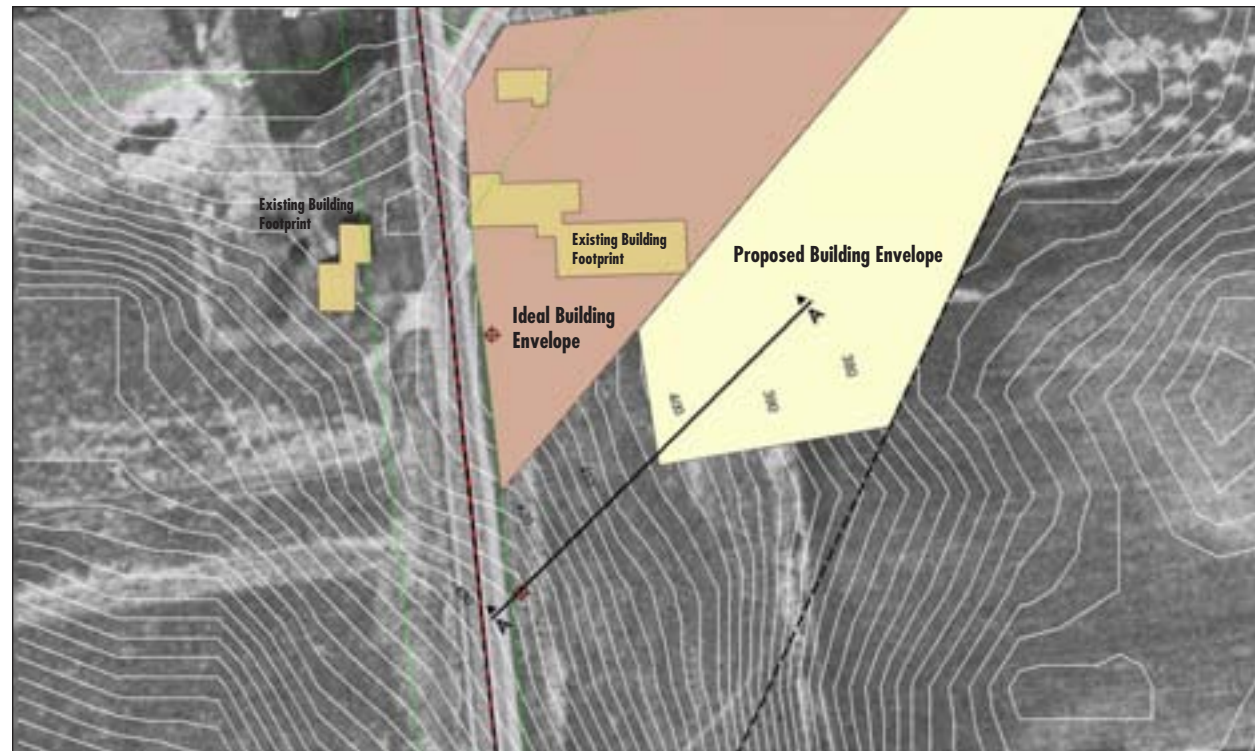
The analysis to establish an appropriate building envelope involved photography and on-site documentation, as well as GIS information including topography, elevation data and aerial photography. The range of the view was examined, the context was documented, and elevation differences were analyzed to determine whether or not placement of a new barn structure would be possible without undermining or detracting from the view. The photos and maps accompanying this narrative document both the existing conditions and the proposed building envelope.

3. THE GUIDELINES

3.1 It was determined that an ideal building envelope (the area within which a 35 feet high structure could be located) would be in the “view shadow” of the existing farm complex (shown in brown on the GIS map). This concept of a “view shadow” implies that the area behind and beyond the existing buildings

would be a suitable area for future construction as new structures would extend or add to the existing built form and not intrude upon the defined viewshed area. The existing buildings would also help to screen new construction, and the area within this “view shadow” is further below the typical viewing angle of the traveler, due to the slope of the land down from the highway.

3.2 The farm operators indicated a more level area to the south of the existing farm complex as the preferred location for a new barn, which was estimated to have a “footprint” of 80 by 150 feet and a building height of 35 feet. A structure of this size and height would affect the quality of the view to some extent – although it would not be totally out of context insofar as it is an agricultural use in an agricultural landscape. The proposed building would be located in what is identified on the GIS map as the “foreground view.” The





foreground view is that area immediately adjacent to the roadside where building construction 35' or greater in height might effect the overall view.

3.3 The elevation difference from the highway to the barn site is approximately 20 to 30 feet, depending upon the location of the viewer along the road. Thus, at 35 feet high, the barn's roof would be within the viewer's cone of vision, so this is a factor to consider. A secondary envelope (shown in yellow on the GIS map) is extended to accommodate the proposed barn, but it is recommended that the barn height not exceed 30 feet, and that the barn be designed in a manner to reflect traditional Vermont agricultural architecture, in both color and form.



4. THE CONCLUSION

This exercise demonstrates that basic planning techniques can help us protect, or preserve, views along the highway. By building within a cluster, we can minimise the visual impact of new construction.



TREES FOR THE HIGHWAY

SCIENTIFIC NAME	COMMON NAME	FUNCTION & FORM	MATURE HEIGHT & SPREAD	NOTES
<i>Acer campestre</i>	Hedge Maple	Hedgerow, Roadway Round	25 – 30' h 25 – 30' s	Tolerates dry sites.
<i>Acer x freemanii</i>	Freeman Maple	Roadway Depends on Cultivar	50 – 75' h 40 – 60' s	Fast growth rate. Orange to red flowers in spring and yellow to red foliage in fall. Tolerates wet sites.
<i>Acer rubrum</i>	Red Maple	Hedgerow Upright Oval	50 – 70' h 40 – 50' s	One of the showiest native maples in flower, orange to crimson fall foliage. Tolerates wet sites.
<i>Acer saccharum</i>	Sugar Maple	Hedgerow Upright Oval to Round	70 – 80' h 40 – 60' s	Performs poorly as a street tree because of intolerance to salt, compaction, and air pollution. Red, yellow, and/or orange fall foliage.
<i>Amelanchier arborea</i>	Downy Serviceberry	Hedgerow Upright Oval	25 – 40' h 15 – 30' s	Attractive yellow or red fall foliage.
<i>Amelanchier laevis</i>	Allegheny Serviceberry	Hedgerow Upright Oval	15 – 25' h 8 – 12' s	Most common Amelanchier in Vermont.
<i>Carpinus caroliniana</i>	American Hornbeam, Musclewood	Roadway, Hedgerow Upright Oval	20 – 30' h 15 – 20' s	Performs well as a small (dense, round form) street tree in full sun. Red or yellow fall foliage. Interesting tree in all seasons. Prefers moist soil.
<i>Celtis occidentalis</i>	Hackberry	Roadway Vase, Round	50 – 70' h 40 – 50' s	Tolerates wet sites as well as difficult sites with compacted, dry soils that are alkaline.

<i>Fraxinus americana</i>	White Ash	Roadway Upright Oval	50 – 60' h 30 – 50' s	Purple to reddish-yellow foliage in fall. Fast growth rate. Tolerates wet and dry sites.
<i>Fraxinus pennsylvanica</i>	Green Ash	Roadway Upright oval	50 – 60' h 30 – 50' s	Tolerates wet and dry sites.
<i>Fraxinus pennsylvanica</i> 'Cimmaron'	Cimmaron Green Ash	Roadway Upright oval	55 – 65' h 25 – 35' s	Rich dark green leaves turning brick red in fall. Tolerates wet and dry sites.
<i>Fraxinus pennsylvanica</i> 'Cimmaron' 'Patmore'	Patmore Green Ash	Roadway Upright Oval to Pyramidal	50 – 60' h 40 – 50' s	Tolerates wet and dry sites. Seedless.
<i>Ilex verticillata</i>	Winterberry, Black Alder	Hedgerow Round	6 – 10' h 6 – 10' s	Red berry-like fruit persists until mid- to late winter. Tolerates wet and dry sites.
<i>Ostrya virginiana</i>	American Hophornbeam Ironwood	Roadway Upright Oval	40 – 50' h 30 – 40' s	Tolerates most sites.
<i>Prunus virginiana</i>	Chokecherry	Hedgerow Oval to Round	15 – 25' h 12 – 15' s	
<i>Quercus rubra</i>	Red Oak	Roadway Round	50 – 70 ' h 40 – 60' s	Tolerates dry sites.
<i>Quercus alba</i>	White Oak	Hedgerow Upright Oval to Round	75' + h 60 – 100'	Reddish-purple fall foliage. Slow growing. Acorns attract wildlife. Does not tolerate compacted or too wet soils.
<i>Quercus bicolor</i>	Swamp White Oak	Hedgerow Upright Oval to Round	50 – 70 ' h 40 – 50' s	Bronze to reddish fall foliage. Acorns attract wildlife. Tolerates wet soils.

<i>Quercus macrocarpa</i>	Bur Oak	Hedgerow Round, Irregular	70 – 80' h 60 – 80' s	Grows slowly and tolerates a wide range of sites.
<i>Rhus aromatica</i>	Fragrant Sumac	Hedgerow, Roadway Oval	4 – 6' h 5 – 7' s	Late fall foliage color of yellows, orange and red. Fast growth rate. All sumacs are best used in masses where there is space, because they spread by underground roots. Tolerates most sites.
<i>Rhus copallina</i>	Shining Sumac	Hedgerow, Roadway Round to Broad Oval	15 – 20' h 10 – 20' s	Rich red fall foliage. Tolerates dry soil.
<i>Rhus typhina</i>	Staghorn Sumac	Hedgerow, Roadway Round to Broad Oval	15 – 25' h 15 – 40' s	Most common sumac in Vermont. Yellow-orange to red fall foliage. Long-lasting winter fruit.
<i>Viburnum acerifolium</i>	Mapleleaf Viburnum	Hedgerow Upright Oval	3 – 6' h 3 – 5' s	
<i>Viburnum cassinoides</i>	Witherod Viburnum, Wild Raisin	Hedgerow Upright Oval	8 – 10' h 7 – 10' s	Orange-red to red fall foliage. Tolerates most sites.
<i>Viburnum dentatum</i>	Arrowwood Viburnum	Hedgerow Oval or Round	7 – 9' h 7 – 9' s	Tolerates most sites.
<i>Viburnum lentago</i>	Nannyberry Viburnum	Hedgerow Upright Oval	12 – 15' h 8 – 10' s	Showy white flowers and yellow-red or purplish fall foliage. Tolerates wet and dry sites.
<i>Abies balsamea</i>	Balsam Fir	Screen, Windbreak Pyramidal	50 – 70' h 20 – 30' s	Prefers well-drained but moist upland soils and cool climates. Short-lived in clay soils.

<i>Juniperus virginiana</i>	Eastern Red Cedar	Screen, Hedge Pyramidal	25 – 35' h 15 – 20' s	Somewhat salt tolerant.
<i>Larix laricina</i>	Eastern Larch, Tamarack	Hedgerow Pyramidal	50 – 60' h 30 – 40' s	Grows well in wet soil or average conditions, but not in dry soils.
<i>Picea glauca</i>	White Spruce	Specimen, Screen, Windbreak Pyramidal	40 – 60' h 15 – 25' s	Tolerates wetter sites more than other spruces.
<i>Pinus resinosa</i>	Red Pine	Windbreak, Screen Pyramidal to Irregular	60 – 75' h 25 – 35' s	Grows well in most well-drained soils, even in dry or shallow soils over bedrock. Does not tolerate salt and is short-lived in clay soils.
<i>Pinus strobus</i>	Eastern White Pine	Screen, Windbreak Pyramidal to Broad Oval	80 – 100' h 40 – 50' s	Most common and fastest growing pine in Vermont. Tolerates most sites. Sensitive to roadside salt.
<i>Thuja occidentalis</i>	American Arborvitae	Screen, Hedge Pyramidal	30 – 40' h 10 – 20' s	Tolerates most sites including wet areas.

Notes:

1. Trees from this list will work better in some areas than others, depending on such factors as exposure and location.
2. Property owners and developers should define plant material choices from what has been successful in their environs and are readily available as hardy native trees and their cultivars.