4.4 DESIGNING A COMPLETE PATTERN OF SHAPES

The major drawback of designing only a limited number of units for the next pass of harvesting is that it does not help the future direction of the landscape. Focusing on today’s logging may reduce options for future timber harvesting and hardly begins to consider the fate of the forest left behind unlogged. There is plenty of evidence of the cumulative effects of successive passes of dispersed patch clear cuts which cannot be overcome by individual unit design alone.

From the landscape character analysis, especially the landform analysis, it is a short step to breaking down the landscape into a number of units.

- These may be based on landform structure or vegetation patterns. Each of these units can be subject to logging, other management practice, other use or else be left, perhaps as a component of a forest ecosystem network.
- Different treatment options can be tested for their different balances for example, of timber yields, degrees of water protection, provision of winter range or thermal cover, the best road networks and so on.
- The process in its fullest development can unlock many of the otherwise intractable problems where activities need to be co-ordinated over space or time and fitted to the landscape.

How to design the pattern depends on the type of landscape.

- Where the forest completely covers the landscape and operability is not a problem then the pattern is best started with the convex landforms.
- A series of well scaled caps should be designed. These hold the design together and help to emphasise the landform.
- Next a series of units in the hollows are designed.
- Lastly any areas between the caps and the valleys should be subdivided into smaller scale sections.
- Some of the caps may be permanently retained as may valley units as riparian protection zones if needed. If so they should of course meet minimum requirements for width.
- In landscapes with significant inoperable areas, perhaps steep or high ground, then it is useful to start by designing the major boundary between the operable and inoperable. After that, valley units can be fitted in and the remainder of the operable zone broken down into smaller scale, interlocked shapes.

Establishing the unit shapes is the most critical part of the design, as it will set up a framework in the landscape for a long time to come.

- The shapes should be carefully checked to eliminate symmetry, tension, parallel and geometric effects.
- Interlock, balance, proportion and scale should be incorporated and the pattern tested for operability, accessibility, wind firmness and other practical considerations.

So far, no explicit mention has been made on how the methods described above relate to visual quality objectives (VQOs). The whole process aims to meet the established VQO for a particular area.

- Depending on the VQO, the scale or method of logging a unit can be adjusted as necessary.
- The approach using a comprehensively designed pattern of shapes can be especially useful since percentages of disturbance, rates of visually effective greenup and choices of harvesting systems can all be evaluated now and for future phases to ensure that the established VQO is met.
A landscape where no logging has yet taken place. Slocan Valley, Nelson Forest Region.

Landform analysis

A basic pattern of units is designed based on landform structure. Apart from the areas identified as inoperable, no decisions are yet taken on what action, if any, should take place in each unit. The options are still open. Note that the shapes are rounded and flowing. Each convexity has become a cap, while the main hollows have become units in their own right.

Each unit can now be ascribed a time for the first pass to commence. These are spread around to achieve spatial separation and visual balance. The harvesting systems are also chosen.
Phase 1. Two units in the hollows are cleared. Skylines are maintained and these units reflect the agricultural land so can visually connect with them. Tree height helps to control scale.

Phase 2. The earlier units are replanted and have reached Visually Effective Greenup (VEG). Then the next units are cut according to the phasing and harvesting system previously selected. Note that selection cutting could be introduced before VEG is achieved if no additional visual impact is created.

Phase 3. Five more units are now done. Two are clear cut and one is selectively cut. Earlier selectively cut units have been cut again and are regenerating while the first clear cuts are growing up well. One unit remains uncut to protect a watercourse.

4.5 DESIGN OF FOREGROUND AREAS

Many people travel the roads and waterways (rivers, lakes, coasts) of British Columbia and see the landscape from them as they move along. Increasing numbers of travellers are visitors who come to enjoy the scenery. As well as the middle and background landscapes which have so far been dealt with, there are opportunities to improve the foreground landscapes. The view of the immediate forest edge, incidental details which occur along the roadsides, rivers or lake shores and the short distance effect of operations such as logging should be considered. In landscapes where the landform is lower and more rolling there are often few opportunities to see beyond the immediate edge which can be a monotonous experience.
It has often been a practice to retain a foreground zone along the road or water side and subject it to preservation VQQ. In many cases logging has taken place behind a narrow strip in order to hide it from view. This is not always to be recommended as it can be perceived to be a cynical attempt to pretend that the forest is intact.

4.5.1 SCREENING

Screens or edge belts used for site protection and screening purposes can be an intrusive element themselves. As screening they do not normally work very well unless a generous width is left standing in which case they should be shaped as units in their own right which may be brought into the harvest sequence over time.

- Existing screens can often look better broken into irregular groups at irregular intervals, even if this means revealing a view into a clear cut unit.

- The intrusive quality of belt-like leave strips between patch clear cuts is another example. Parallel shape and narrow scale of many belts seem to separate the forest from the surrounding landscape rather than blending the two.

- It should not be necessary to screen harvesting units if these have been properly designed.

- Overlapping groups are equally effective where screening is desirable and do not disrupt the longer view.
A better way to avoid the problem of intrusive screens where a protective unmylled tree edge is needed along the water, for example, (perhaps to prevent erosion) is to design properly shaped and scaled units which can be retained and managed. They need to be large enough to read as landscape components in their own right. They should respond to landform - perhaps connecting with a riparian zone or occupying a convex feature.

4.5.2 SHORELINE DESIGN

People canoeing or sailing along a river, lake or sea route have plenty of time to observe the landscape. The foreground views may be significant but middle and background areas can also be seen as part of the whole landscape. It is a mistake to design the foreground and ignore the rest of the landscape, although the degree to which the whole landscape is visible depends on the landform, tree height and distance of the observer from the shore. Since one of the chief reasons for canoeing, kayaking or sailing in such landscapes is their wild and remote character, it is important to retain sufficient depth of foreground landscape in its natural state, particularly in those places where shorter views are more common. However, the temptation to put complete faith in screening should be avoided in all areas.
A flat coastline landscape where views do not extend much beyond the edge trees. Vancouver Forest Region.

An illustration of some of the key considerations in the foreground of flat or gently rolling landscapes.

In this landscape there is a shoreline bench with rising ground behind. The background will only be hidden by the shore edge trees from very close range views. Pacific Coast, Vancouver Island, Vancouver Forest Region.

The design factors to be taken into account in landscapes with a shelf and rising ground behind.
This landscape is composed of a number of foreground landforms, receding behind one another. Upper Kennedy Lake, Vancouver Forest Region.

Design considerations when there are smaller foreground landforms.

In this landscape the slope plunges straight down into the water. Apart from extremely short range views the whole slope is constantly visible. As a result a foreground strip is of no use. The whole mountainside must be designed. Gun Lake, Kamloops Forest Region.

The design of even slopes plunging into the water.
4.5.3 ROADSIDE DESIGN

Roadside design is carried out for the benefit of a captive, inattentive, mobile, and sometimes apprehensive audience whose perception of the landscape is strongly affected by the enclosure and motion of the motor vehicle and by the rate and sequence of landscape changes seen while driving. The effect is rather like a three-dimensional film seen through the frame of the windshield and windows. The frequency of change and incident seen by the traveller should be about 4-8 seconds, though care is needed to ensure that rapid changes near the road do not confuse and frustrate the enjoyment of an interesting landscape beyond.

It is better to be positive and to manage the foreground views for greater visual diversity which may have the effect of reducing the boredom drivers may experience for example. Views to landmarks may be opened, detailed features exposed to view and the corridor turned from a boring parallel strip into an interesting sequence of spaces.

Speed, sequence and the sensation of motion affect the traveller’s perception of the landscape. Scale, in particular, is affected: the broad landscape becomes more dominant at greater speeds while fine detail is only appreciated at a more leisurely pace. Natural landscape features, spaces and edges also influence design. Any natural feature which can be seen from the route are a useful contrast to the forest, and should be mapped at an early stage of design. These form the basis for a sequence of events which can be co-ordinated and emphasised by a succession of spaces in the forest. The diversity and sense of motion provided by roadside spaces can be increased further by edge treatment.
The sequence of landscape change also affects the traveller's enjoyment because each sensation is influenced by what precedes it and expectation of what is to come.

- A wide open view will seem more impressive if suddenly revealed after a strongly enclosed stretch of road than if it appears more gradually.
- The entrances and exits of the public road into and out of the forest are, therefore, of particular importance because the openness of the landscape changes so dramatically.
- Change often has to be balanced by a sense of continuity, perhaps created by distant features revealed from within the forest which have previously been seen from outside.

The sequence of a roadside landscape should appear interesting to people travelling in either direction. Vehicles join and leave a route at different points, so road junctions should have a strong sense of place and appear as a logical end to sequences of approach views. The perception of landscape changes as soon as one enters a car, bus or other vehicle, even when it is stationary. Large scale landscapes immediately seem smaller, almost as though our ability to cover the distance by movement affects its apparent size. Perceptions of landscape are also affected by position in the car. Drivers tend to concentrate more on the road ahead while rear seat passengers are forced to look to the side.

The view of the front seat passenger is probably a reasonable compromise on which to base design. Roadside landscapes should be assessed and planned as far as possible from a car. Planning them on foot often results in too small a scale for the motorist to have time to enjoy.

A driver's view is concentrated close to the road and this area has been estimated to receive about two-thirds of the attention of front seat passengers. Though the remaining third of travelling time may be spent looking at more distant views, front seat passengers rarely look at right angles to the road. Acute angles of view, areas close to the road, the outside of bends, and the ends of straight stretches are, thus, particularly sensitive elements, reinforced by the visual impact of the road itself, pointing away from the motorist towards a vanishing point.

In contrast to the general pattern described above, the occasional periods when more attention is given to the wider view usually occur after visibility has been strongly contained for some time. Following such restrictions open views seem a dramatic contrast. These can be provided by stretches of forest close to the road, especially amongst more open agricultural landscapes.

As speed increases, motorists' attention becomes concentrated closer to the road and further ahead. The driver's angle of visual attention of about 100° at 40 km/h will decrease to less than 40° at 105 km/h. Foreground detail is unnoticed and subtle changes appear insignificant.
The motorists' attention also becomes focused closer to the road at points where the driver has to make decisions or where greater driving skill is required. Sight lines necessary for road safety must be kept open, intrusive design avoided and points of interest maintained at a low level in such situations. The landscape should consist of clearly identifiable spaces, preferably quite enclosed, so that no wide view distracts attention from the road.

The same general considerations apply to people on bicycles, hiking, canoeing or sailing where the speeds tend to be slower so that more attention to smaller detail is possible.

Where people move through the landscape at different speeds, for example along a road which cars, cyclists and horseback riders use, then each need to be accommodated. Start by designing for the fastest method of transport to establish the largest scale of variation and progressively work down into the smaller detail needed for the slower users.

Places where people stop, for example, rest stops or viewpoints, need greater care and attention to detail. Strips which may appear dense from a moving vehicle may be more obviously transparent seen from a rest stop. A view seen for a short time while travelling may be contemplated for a longer time at a rest stop.

At this rest area the foreground and background views are seen for a longer time so that detail is more evident and consequently more important. Near Cache Creek, Kamloops Forest Region.

ASSESSMENT AND PLANNING OF FOREGROUND LANDSCAPES

All the factors mentioned which affect the travellers' view of the landscape have to be reconciled with the features of individual sites. A careful appraisal of the landscape identifies problems that the design must overcome and identifies the opportunities to show features of outstanding quality.

- Maps and aerial photographs help to identify and locate features of interest including the ones screened by the forest from the route.

- It may be necessary to draw topographic sections to determine the extent of forest clearance required to reveal a particular feature.

- The sequence of views should be assessed in both directions by a person travelling at normal speed. Subsequent assessment from a vehicle or boat with stops to take notes is often necessary, but points identified when stationary should be verified at travelling speed. This examination of the landscape will show where awkward changes, uninteresting areas, expectation and anticlimax, contrast and continuity, improve or detract from the pleasure of the journey. The traveller should encounter a series of attractive landscapes at spaced, irregular intervals along the road.

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- The assessment should start at a significant settlement, hill pass, road junction or bend in a river or lake, and the impression of the stretch of corridor will depend on what the traveller has seen earlier.

- The general character and quality of different stretches should be identified during assessment. Attractive character can then be maintained and heightened by design, while that of poor landscapes should be improved. The nature of improvements will depend on the need to contrast with or extend adjoining areas in the sequence of changes of view.

- Focal points should be identified, such as outstanding views, places where landscape character changes suddenly, road junctions, bends in a river or wider areas.

- Distant views are a welcome contrast to the enclosed and canopied forest, and the potential for such views should be assessed on gentler downhill sections of roads, at summits and on the outside of bends. If the same view can be seen from different places, the viewpoint with the best quality should be selected, eg over foreground water or in a focal composition. Subsidiary views should also be chosen where they can provide a sense of anticipation.

- In steeper topography, good views of waterfalls or cascades can often be obtained above the road or shoreline where it approaches water courses. Farms and other open space within the forest, which can be seen from the corridor, should also be recorded for the contrast they provide.

- Exciting road alignments, such as steep descents and tight bends, should be recorded with a note that enclosed roadside space may be needed to heighten the traveller's sense of speed. Road summits should also be recorded because a long ascent gives a sense of anticipation to a revealed view. Some screening trees may be necessary at such points so that the view is seen first from the best place, to avoid any anticlimax.

- Landform at the side of the route is an important part of assessment, as edges should rise in hollows and descend on ridges. The assessment should make a record of landform on a contour map, supplemented by field inspection or aerial photographs. Where contours give insufficient detail and the landform is obscured by forest, a site survey will be necessary for logging design. If logging is carried out in stages, the shapes of clearances can be adjusted as landform is revealed.

- The main characteristics of any existing forest stands and edges should be recorded for their present and potential aesthetic qualities, and for the constraints which might be imposed on the design.

The edges of the forest have a profound effect on the route landscape, and areas with unattractive spaces and intrusive edges should be recorded. Edges close to the route are an asset only where they follow a sharply sinuous road alignment; in such places they should be maintained for short distances to increase the sense of movement. Roadside edges which are straight, parallel to the road, equidistant on other side, and too strongly enclosing should be noted for improvement as soon as possible.

The detailed assessment of the route landscape should be amplified by an analysis, and record of the more general features and character of the wider landscape, made after a final trip along the route in each direction. General impressions might be that the landscape is too enclosed, too uniform, or that it is sufficiently diverse in detail, but lacking any memorable features or drama. These impressions should guide the broad planning and design.
Assessment of road corridor - most interest is screened from the road by forest edge.

Design to create a more interesting road.

1. Uniform forest edge on either side of the road appears uninteresting and oppressive, and may disorientate the traveller.

2. More sinuous space, flowing from one side of the road to the other, can create interesting rhythmic shapes; appropriate for fast traffic (90km/h), but still rather too uniform.

3. Greater variation in the roadside space with clumps of trees giving the traveller a greater sense of movement through the forest and providing points of interest (80 - 95km/h).

4. Additional open space used to create 'false' views into the forest to excite the attention of the traveller. Most suitable where there are few good views to the wider landscape (70 - 95km/h).

5. Too small a scale of variation in space for such a sweeping alignment and too repetitive. This scale of design is more suitable for forest drives, but would need to be supplemented by greater detail of edge, natural feature, and individual trees.

6. The scale of the variation has become so small that the overall appearance is highly uniform. Although the texture of the edge is coarser than 1, it is just as monotonous.
DEVELOPMENT OF ROUTE LANDSCAPES

The general statement of problems and features in the landscape assessment indicates broadly how the series of route corridor spaces should be designed. Opportunities for important views suggest suitable locations for open space, while steep twisting road alignments suggest where the forest edge should enclose the road strongly. Steep, forested valleys often feel oppressive and large open spaces may be needed every 3 or 5 kilometres as a relief from the enclosure of the woodland. There may be instances where some less significant views would be better screened, and others given slightly less emphasis, to make the overall sequence appear more interesting.

Views should be visible at a scale large enough for the speed of the traveller, without leaving major features half hidden by trees and with some allowance for subsequent tree growth. It should be clear what is being shown at each point; a good view over the forest should not be confused by trunks of large trees in the foreground since the two can probably be shown separately to greater effect.

The pattern of route-side spaces will be determined partly by potential views identified in the assessment. On featureless stretches of road, the overall design should be developed as a sequence of roadside landscapes in which any natural character should be enhanced. The roadside space should vary in width and extend first on one side of the road, then on the other. The scale and alignment of the space should reflect the speed of traffic. Where an additional incident is required to add interest, an open area extending obliquely into the forest can be introduced to provide a view. The space should be varied in width with occasional clumps of trees to give a sense of depth, and simple enough to be enjoyed instantly by the traveller.

Shape of forest edges should follow landform, once the general distribution of open space along the route has been planned. This may involve some compromise between the two, but intrusive shapes cutting across landform should always be avoided. A curving edge, diagonal to contour, is a prudent standard to adopt.

Roadside spaces are often visible from the surrounding area, especially where they traverse steep slopes. Although a narrow roadside space can be hidden by tall trees, anything that permits a view out will inevitably be a visible gap. These spaces need not appear intrusive in the wide view if their shape and scale are correct in the relevant view. Design is straightforward on lower slopes and in small scale landscapes, where shapes follow landform in the normal way. In large scale landscapes it is more difficult to design a succession of roadside gaps, especially near the skyline where the visual problems are the same as for other small spaces. Closure and rhythm can be used to give the impression of a larger pattern in some situations, but the needs of the wider landscape may require a greater compromise in the traveller's view from the road.

Views from corridors usually fit the landform quite well since spaces below on spurs reveal views to the wider landscape, while streams and other water features are often seen above in small valleys. The general location of these spaces can be identified as part of the corridor landscape first and then marked on a sketch.

A winding road through rolling landform. The small caps of trees near the road are important for creating enclosure and controlling scale. They should be retained while logging can take place behind and in the hollows to emphasise the landform and create space along the road edges.
A group of trees retained on a rocky knoll provide an incident of diversity along the road where the space can flow from roadside into the forest.

4.5.4 TRAILSIDE DESIGN

The detail design of the landscape along hiking, horseback riding or cross country skiing trails requires similar consideration to that of roads. The main differences are the speed of the traveller, allowing every piece of detail to be appreciated, and the general scale of the space, being much narrower.

Often the trail will simply pass beneath the canopy of the forest. At other times there will be viewpoints where the detail of the landscape should avoid distracting attention from the view. The route may follow forest roads or specially cut trails, for example, for cross country skiing. Then the detail of edges exposed to view becomes more important.

If a trail is forced to pass through a logged area, either clear cut or partial cut, then the appearance of the site may be intrusive. Site debris should be kept away from the trail as far as possible or the trail re-routed to avoid the site.

A survey along existing or proposed trails should be carried out, visual problems should be recorded for rehabilitation treatment. Opportunities to create views, access to water edges and different stand types should be identified in order to make the experience along the trail more interesting.