RECOMMENDATIONS OF THE
PARKWAY STANDARD TASK FORCE

JANUARY 1989

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1.0 PARKWAY CONCEPTS

The early parkways in New York City came about primarily to clean up waterways and serve as linear parks for pedestrians and equestrians. Eventually the roadways for motor vehicles were added to facilitate access between State and County parks as well as New York City reservoir lands.

The Bronx River Parkway was probably the first important publicly funded, limited access highway built for motor vehicles. This 15 mile long road from the Bronx to Kensico Dam passes through broad bands of parks and park-like lands for its entire length, where careful attention was given to preservation of existing amenities, elimination of unsightly features and to naturalistic plantings of native materials.

Rapid advances in automobile design and changes in the public's attitudes about mobility soon caused the Bronx River Parkway to become outmoded and inadequate for large volumes of traffic or speeds over 35 miles per hour. However two sections of the parkway, where the northbound and southbound drives are built on independent alignments, became the model for subsequent parkway and even freeway design.

The success of the early parkways was so great that public demand arose for additional parkways to provide pleasant corridors for travel during recreational and utilitarian trips. Also, the easier access made neighborhoods adjacent to parkways more desirable as places to live and, subsequently, increased land and home values.

These concepts were carried forth by later planners and designers who recognized that parkways have an essential identifying character which was embodied in the design philosophy of early parkway planners. This philosophy is derived from that of English naturalistic estate designs that became popular during the 17th and 18th centuries and was subsequently adapted to North American parks.

The major areas unique to parkway designs were the roadway and its associated features: the curvilinear alignment, stone-faced bridges and the naturalistic landscaping along the right-of-way.
Early reports on the construction of the Bronx River Parkway in Westchester County outlined the basic requirements for the roadway construction:

- "That the roadway should conveniently accommodate the large amount of traffic expected and to display to the traveler the principal interesting features without despoiling it. (1)

- Bridges to be carefully designed and built for permanence with architectural treatment in harmony with their natural surroundings. (2)

- Exposed surfaces of bridges, retaining walls, etc., to be of native stone with avoidance of formal cut stone effects. Only long span viaducts to have outside surfaces of concrete." (2)

Landscaping concepts were stated as follows:

- "Preservation of natural features including adequate care of existing trees. (2)

- Reforestation and landscaping treatment along natural lines - avoiding exotics. (2)

- That all objects foreign to or distracting from this naturalness of the valley must be hidden by natural objects where possible. (1)

- In planning the planting, therefore, as in the rest of the design, a humanized naturalness has been aimed at, sufficiently diversified to create woodland groups and vistas of all of the types that belong; broad enough that he who runs (or rides) may see; with intimate bits for those who wish to pause; with material prevailingly indigenous, but always suitable to the situation and its requirements." (3)

The challenge facing parkway designers today is to preserve the essential features and characteristics of the parkways while meeting current safety and traffic needs. At the same time, there is a new climate with respect to funding, environmental restrictions, maintenance capabilities and public reaction.

(1) Report of the Bronx Parkway Commission - 1918 (Bronxville, New York, 1918), p. 52
(2) Report of the Bronx Parkway Commission - 1922 (Bronxville, N.Y. 1922) p. 39
(3) 1918 Report, p. 53, 56
2. GEOMETRICS

2.01 GENERAL PRINCIPLES - Current American Association of State Highway and Transportation officials (AASHTO) Policy (4) governing horizontal and vertical alignment do not necessarily preclude the design of an aesthetically pleasing parkway, if carefully applied. The major effect of high-type standards is on the ability to follow the natural terrain and avoid excessive cuts and fills. The design principles for an aesthetically pleasing alignment are just extensions of what should be considered in the design of all highways. Most of these are already covered in the 1984 AASHTO Policy. For parkways, greater use should be made of curvilinear designs, with special care to avoid long tangents without profile relief and deep scarring of hill sides.

Greater flexibility in following the natural terrain and avoiding excessive cuts and fills could be obtained by allowing steeper grades, sharper curves and lower sight distance standards. However except for grades, there is no technical basis for a general reduction in alignment standards for parkways. The standards for horizontal curvature, sight distance and stopping distance are already based on passenger cars.

2.02 ALIGNMENT

1. HORIZONTAL CURVES - The maximum degree of curve is to be based upon the AASHTO criteria. Once these criteria are met, selection of curvature should be based upon the principles noted above.

Original parkway designs made extensive use of compound curves as transitions to sharp curves, resulting in a pleasing visual effect. However these can create safety problems, particularly where compounding ratios are more than 1.5 to 1. (Designers should carefully check for these situations in rehabilitating sections of the original parkways). The desired effects can better be achieved with spirals, which should be used for all curves greater than 1° or 2°.

2. VERTICAL CURVES - Follow the 1984 AASHTO Policy, keeping in mind the principles previously noted.

3. GRADES - With the absence of trucks, grades are less critical on parkways, except for those permitting buses or recreational vehicles. A review of the AASHTO Policy (5) discussion on this subject indicates that the maximum grades tabulated in Table VIII-1 can be increased by 1% for parkways. However, care must be exercised to avoid long, steep downgrades or compound curves having non-standard compounding ratios followed by sharp horizontal curves. Also in such cases, additional sight distance should be provided as shown in AASHTO (6) Table 111-2.

Critical lengths of grade contained in the AASHTO Policy (7) are not applicable except for parkways containing significant numbers of recreational vehicles.

Ramp grades have little effect on parkway aesthetics and the AASHTO criteria provide sufficient flexibility to meet parkway needs.

2.03 LANE WIDTHS - For new construction or major reconstruction-type projects, 12' travel lanes can normally be provided with no significant difference in rights-of-way, clearing, visual impact or construction costs. While the absence of trucks suggests the possibility of using narrower lanes on parkways, the safety advantages and increased carrying capacity outweigh any benefits from reducing travel lanes under such conditions.

For the rehabilitation of existing parkways, there are often constraints such as existing bridges, walls, slopes, etc., which make it difficult to increase the existing lane widths to 12'. A uniform width of travel way is considered more important than having 12' travel lanes only where space is available. Drastic changes in roadway width can have an adverse effect on traffic flow and overall safety. Lane widths down to 11' may be used without adverse effects on traffic. If existing structures require narrowing the pavement further, the effect would not be so drastic when approaching with 11' lanes.

2.04 CLEARANCES

1. VERTICAL CLEARANCE - The AASHTO Policy (8) recommends that vertical clearances be at least 1' greater than the legal height of permitted vehicles, plus an allowance for resurfacing. The minimum clearance is specified as 12.5', with 15' desirable.
The Department's current standards (9) for parkways call for 14' 6" over the entire roadway not including useable shoulders, but not less than 14' 6" over a single lane in each direction and 13' 0" at the edge of the pavement. Often, on parkways, existing arch-type structures and rigid frames are limiting factors, particularly at the pavement edge and on shoulders. Current Department Standards are consistent with the 1984 AASHTO (10) criteria but are not specific with respect to shoulder clearances. Exceptions are usually necessary for retention of substandard clearances in existing structures, particularly over shoulder areas. Wherever possible, clearances over travel lanes should not be less than 10' 6" to accommodate maintenance vehicles.

Present criteria are considered flexible enough to meet ordinary parkway needs. For parkways with new structures surrounded by existing structures with lower clearances, a uniform clearance of not less than 13' + 6" for resurfacing may be adopted after proper consideration of such factors as:

1. Costs and impacts of tying in to existing cross-road elevations.
2. Expected service life of existing structures to remain and prior experience with reduced clearances.
3. Maximum legal vehicle height permitted under regulations and/or special permit.
4. Prospects of any future change in vehicle height restrictions.

2.05 RECOVERY AREA

2.05.01 ROADSIDE CLEAR AREA - Removal of or protection from man-made fixed objects such as bridge piers is not an aesthetic issue on parkways and should follow the latest criteria applicable to ordinary state highways. However, removal of trees is a very difficult issue because of their aesthetic value, and the general sensitivity of citizens to the loss of trees which border existing parkways. Further, the preservation of trees, and reforestation were important design criteria for the original parkways, and the result has become a special identifying characteristic.

(9) NYC DOT Division of Construction, Policy on Geometrics of Structures - July 1968, (Albany, N.Y., July 8, 1968), Sect. 5.2.

(10) AASHTO Policy - 1984, pp. 921, 922
New or major reconstruction of existing parkways usually requires clearing of trees for a fair distance from the travel-way, just to meet grading requirements for the cut and fill slopes. The 30' minimum clear area should be used for such projects, and any trees within the clear zone either removed, or protected by guide rail. (The clear zones discussed herein assume a flat embankment slope, see discussion in the AASHTO Guide (11) for suggested adjustments based on actual embankment or cut slopes, which may extend the clear zone beyond 30').

Rehabilitation or minor up-grading of existing parkways using a 30' minimum clear zone could result in wholesale removal of bordering trees, or literally lining the roadway with guide rail. In such cases it is possible to make a detailed evaluation of run-off-the-road accidents for the existing alignment. Based on a careful review of the accident record, alignment, embankment geometry and input from interested citizens, trees in some areas may be retained within the 30' clear zone without guide rail. An absolute minimum set-back should be established, preferably not less than 20'. (The General Motors Proving Ground Study (12) found that about 70% of vehicles leaving the pavement did not travel beyond 20'. For a 10' clear zone, this figure drops to 50%).

2.05.02 PREFERRED SLOPE AND DITCH SELECTIONS

1. OPEN DRAINAGE (DITCH) SECTIONS - Parkways which do not include curbing may be designed using the standard highway ditch section and slope criteria as for a comparable mixed-traffic facility. Reference should be made to the NYSDOT Highway Design Manual (HDM) and the AASHTO Guide (13).

2. CLOSED DRAINAGE (CURBED) SECTIONS - Curbed roadway sections, particularly those with the curb at the outside edge of a full width, paved shoulder, will generally not require a roadway ditch. However, the need for interceptor ditches must be carefully evaluated where overland flow is heavy or concentrated. Therefore, providing a traversable cross section amounts to establishing a proper "back slope", or suitable set-back from steeper slopes or rock cuts. The treatments described below should be used for new construction and reconstruction projects. Retrofitting existing facilities as part of a rehabilitation type project should be based on an evaluation of the safety benefits vs. impacts and construction costs.


Earth Cuts - The AASHTO Guide (14) for a Vee type ditch section may be applied using a flat "front slope". This requires a 1 on 3 cut slope to a point at least 20' from the edge of the travel way. Roadside obstacles are permitted to within 20' for a 1 on 3 cut section).

For shallow cut slopes, see discussion under DRAINAGE CHANNELS AND SIDE SLOPES.

Rock Cuts - For major reconstruction projects, rock cut slopes should normally be set back from the required clear zone in order to avoid use of protective guide rail. On R & P types of projects and in restricted areas, rock cuts which are expected to result in a smooth, uniform surface may be constructed or retained within the clear zone without use of guide rail, provided the segment of roadway does not indicate a high potential for accidents that may involve the rock cut. An engineering geologist from the Soil Mechanics Bureau should be consulted during the design phase for a proper rock slope design and to determine whether or not the excavated rock will produce a suitable surface, both initially and after weathering.

Standard Cut Sections - Recommended designs to be compatible with the AASHTO Guidelines for ditch sections are shown in the attached typical sections.

3.0 TYPICAL SECTIONS

3.01 GENERAL PRINCIPLES

The typical roadway section is of primary importance in distinguishing parkways from ordinary highways. Strictly from an aesthetic standpoint, it would be ideal to have grass right next to the travel way, with trees and shrubs in close proximity. Curbing with grass shoulders was used extensively on the early parkways and has long been an identifying characteristic. Curbing provides a neat pavement edge and serves to protect the adjoining turf from erosion, salt, and traffic damage. Curbs help to delineate the roadway edge, particularly at night. Curbing also eliminates the need for ditches, which can be unsightly and difficult to mow.

(14) AASHTO Guide - 1977, Fig. III-A-3
Today's traffic demands call for weighing such considerations against other operational and safety needs. For example, heavy usage by traffic calls for paving the shoulder area, and the nearby roadside should be kept clear of trees as a safety measure for an errant vehicle to recover. Further, the 1984 AASHTO Policy states that, "Neither barrier nor mountable curbs should be used on freeways or other high-speed arterials, but if provided in special cases, the curb should not be closer than the outer edge of the shoulder and a sloped end treatment must be provided" (15).

3.02 CURBS

1. USE - While the 1984 AASHTO Policy discourages designs with curbs on freeways or other high-speed arterials, it recognizes that mountable curbs may be used at the shoulder edge in special cases where they serve a definite purpose. In the interest of safety, it states that curbs should be omitted on rural highways when the same objectives can be attained by other acceptable means. Existing curbs serve a unique function on parkways as a distinguishing element of the roadway section. As such, they should be retained or re-established as a means of preserving the parkways' character consistent with the following guidance. On entirely new parkway facilities, or any which do not presently contain curbs serving this function, curbs should not be introduced.

2. LOCATION - When used, the preferred location for curbing is at the outer edge of a flush, paved shoulder (shoulder curbs). This retains the principal advantages of curbing, without most of the safety, operational and maintenance problems of curbs at the edge of the travel way. Water is free to drain off the travel way, motorists will not be deterred from proper use of the shoulder, maintenance is easier and traffic is not affected by the catch basins or curbing.

Therefore, where reconstruction or major rehabilitation of an existing curbed parkway is called for, flush paved shoulders with shoulder curbs should ordinarily be installed. (See Appendix, Dwg. 2.) This would normally also apply to R & P type projects where existing curbs must be replaced because of deterioration, prior resurfacings, drainage problems, etc. However, if all of the following conditions are met, curbs may be retained or replaced at the edge of the travel way for small-scale R & P type projects:

(15) AASHTO Policy - 1984, p. 376
a. One-Way Design Hour Volume for the facility is less than the service volume for one Freeway Lane at LOS E. (This assumes that one travel lane will be lost due to water accumulation during severe rainstorms.)

b. Where recreational or park-oriented usage is the controlling traffic volume for capacity. (Travel tends to be more discretionary and volumes are generally lower during inclement weather.)

c. Favorable accident history.

d. The costs and impacts of relocating the curb line would be excessive.

3. TYPES - Mountable-type concrete curbing should be used regardless of curb location. To further minimize any effect on an errant vehicle, the standard curb height should be limited to 4". (See Appendix, Dwg. 3, Type AB-P Curb Detail.) Ribbed or special facing materials are not considered worth the added cost, and tend to deteriorate.

The effect on an errant vehicle can be eased further by widening the curb to 12", resulting in a 1 on 3 slope at its face. This would produce a section similar to the Vee Ditch in the "Preferred Ditch Section" of the AASHTO Guide (16). (See Appendix, Dwg. 3, Type AP Curb/Gutter Detail.)

4. NARROW MEDIANS - When narrow (less than or equal to 36' wide) medians contain median barriers, curbs should be avoided for ease of maintenance and greater safety. A flush, paved shoulder without curbs and leading to a shallow swale is the recommended design where space is available. This will provide an aesthetically pleasing section which is easier to mow and provides better drainage. Slopes and swale designs must be limited as specified in the HDM (17).

Under the special conditions previously noted, curbs may be retained or reset at the left edge of the travel lane in combination with steel barriers provided the vaulting criteria are satisfied. Drainage from the median area must be controlled to prevent runoff or snow-melt from reaching the travel way. Curbs are not to be used in front of concrete barriers.

(16) AASHTO Guide - 1977, Fig. III-A-7

(17) Highway Design Manual, Chap. 3
3.04 SHOULDERS

1. FLUSH SHOULDERS - Grass shoulders should not be used against uncurbed travel lanes because of the likelihood of erosion and rutting. Standard shoulder paving items should be specified.

2. RAISED SHOULDERS - Where curbs are permitted at the edge of the travel way, the raised shoulder behind the curb would normally be grass. Paving is preferable from a maintenance and operational standpoint, but eliminates the aesthetic advantage of a curb at the pavement edge. However, existing shoulders which are experiencing severe rutting due to heavy shoulder use may be upgraded as an interim measure by paving behind the curb. This assumes the curb and drainage are otherwise satisfactory, consistent with the previous discussions. Localized paving of soft areas or in front of rock cuts should be considered. Grass shoulders should consist of 3" of topsoil on a 6" foundation of subbase material, to minimize rutting. (See Appendix, Dwg. 2.)

3. WIDTH - The AASHTO Policy (18) states that shoulders should be designed to provide at least 1' but, preferably, 2' clearance from the travel edge to accommodate stopped vehicles. For the parkway design vehicle (7' passenger car), this would call for shoulders 8' to 9' wide on the right. Recognizing also that wide vehicles are generally not permitted on the travel way, 8' shoulders are considered adequate for parkways and should typically be provided. Where congested conditions are common, 10' shoulders may be appropriate to facilitate shoulder use by maintenance or emergency vehicles.

Shoulders on the left should not be reduced below the standards set for mixed-traffic facilities.

Where curbs will be located at the pavement edge, the shoulder width must be increased to 10' at guide rail locations to meet the NYSDOT vaulting criteria (this assumes a curb height in excess of 3").

Ramp shoulder widths should be the same as for comparable mixed-traffic facilities.

(18) AASHTO Policy - 1984, p 365
4. CURB AND GUTTER SECTION - On existing roadways with curbs at the edge of the travel way, a 3' Curb/Gutter section may be used in special cases under an R & P type project where physical constraints make it impractical to provide a full 8' shoulder. The Curb/Gutter section is designed to remove catch basins and water-flow from the travel lanes, without significantly disturbing the existing back slopes or appurtenances (for example, parkway sections where extensive rock cuts, embankments, walls and structures cannot accommodate full-width shoulders).

For parkways where the criteria as set forth herein for curbs at the edge of the travel way are met, (Sect. 3.02.2), a uniform 3' Curb/Gutter section may be used. The area behind the curb should be graded to provide a 5' or preferably an 8' grass shoulder wherever regrading would be minor. (See Appendix, Dwg. 3.)

For such parkways, where enough opportunities are available to introduce full-width shoulders, a variable-width paved shoulder should also be considered. (See This would consist of a 3' Curb/Gutter section in restricted areas, and a full 8' shoulder wherever space is available. A 20 to 1 taper rate is recommended when going from a wider to a narrower shoulder. A 10 to 1 rate may be used in widening out the shoulder. Wherever full-width shoulders cannot be provided, an exception must be requested.

The curb height must be limited to 3" in order to insure that the vaulting criteria will be met in guide rail areas. A curb of this height should not be difficult to mount or straddle as part of a pull-off area. The paved gutter portion should normally be sloped 1/2" to 3/4" per foot away from the travel way. On the high side of super-elevated areas it will have to follow the pavement slope, and the drainage controlled behind the curb. The pavement thickness should be not less than 5 1/2".

3.05 DRAINAGE

1. RAISED SHOULDERS - Catch basin inlets must be placed in front of the curb line. Slots in curbs, and gutters or swales leading to other inlets, cause mowing, maintenance and safety problems. Narrow frames and grates and/or a curb offset should be used to move the grates away from the normal wheel path. Slotted drains quickly fill up with sand and debris, and are not recommended.

Raised shoulders must be sloped away from the travel way to avoid snow-melt and icing problems.
2. **FLUSH SHOULDERS** - Locate inlets in front of the curb line. Shoulder slopes should follow normal practice.

**3.06 SIDE SLOPES, GRADING, DRAINAGE CHANNELS**

"Streamlined" grading of parkway slopes, including drainage channels, is the most important factor in determining how well a parkway relates or fits in with its surroundings. Safety, good appearance, erosion control and economy of maintenance are direct benefits of flat side slopes, broad drainage channels, and liberal slope transitions (or warping) and roundings. These features avoid obsolescence, improve appearances and enhance the likelihood of public acceptance of the finished project.

1. **DRAINAGE CHANNELS** - Normally, unconcentrated overland flow can be handled by a flush paved shoulder and closed drainage system, without the need for parallel roadside ditches. However, large or concentrated flows may require separate channels to divert surface water from the parkway roadway. Such channels should be located and shaped to allow easy maintenance and to avoid creating a potential hazard to errant vehicles. Wherever possible, such channels should be constructed as shallow swales, with slope ratios of 1 on 6 or flatter. These flat slopes are more attractive than usual roadside ditches, and will permit mowing equipment to be used along the swale. Designs based upon the AASHTO Guide (19) set forth minimum slope and shape requirements for drainage channels near the roadway.

Longitudinal slopes at crossovers, transverse ditches, etc., should be designed as discussed therein under Roadside Obstacles. (20)

2. **SIDE SLOPES AND ROADSIDE CLEAR AREA** - Where guide rail is not used, cut and fill slopes should be flattened for greater safety and to present the appearance of a natural land-form. This will also facilitate maintenance and help in controlling erosion. Assuming that guide rail is not warranted, the following side slope ratios should normally be used:


(20) bid. Sec. III-A-2
SUGGESTED SLOPES FOR FULL RECONSTRUCTION OR NEW CONSTRUCTION

<table>
<thead>
<tr>
<th>Fill Slopes</th>
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<tr>
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<td>1 on 6</td>
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<tr>
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<td>1 on 4</td>
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<tr>
<td>6' to 12'</td>
<td>1 on 3</td>
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<tr>
<td>Over 12'</td>
<td>1 on 2**</td>
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See HDM Fig. 17-D

SUGGESTED SLOPES FOR R & P TYPE PROJECTS

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<tr>
<td>7' to 10'</td>
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<td>Over 10'</td>
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<td>1 on 2**</td>
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*Check conditions at toe of slope for guide rail.
**Also see Typical Section Details for Full Reconstruction Projects.
***Guide rail required for all 1 on 2 slopes greater than 6' higher.

Slopes may be flattened beyond the extent shown or made steeper based upon such considerations as:

1. Right-of-Way width available.
2. Earthwork balances.
3. Additional tree clearing required.
4. Consistency with natural ground forms.
5. Conflicts with adjoining features such as streams.

When a project has an excess of excavated material, the material may be used to flatten slopes rather than being wasted. Slopes may also be flattened through the use of unsuitable material, including the burying of tree trunks and rubble as outlined in Chapter 9 of the HDM (21). Such material must be covered with a minimum of 2 feet of suitable material. The designer should designate, on the plans, where flattening of slopes will be permitted. All locations must be field checked to insure against loss of desirable vegetation, or other historic architectural features.

(21) Highway Design Manual, p 20-21
Smooth transitions between cut and fill slopes are required to retard erosion, limit damage caused by mowing machines and to make slope mowing safer. In addition, properly warped slopes appear to blend naturally with existing ground and thus contribute immensely to the aesthetic success of the parkway project.

3. ROUNDING - The intersections of slope planes in the parkway cross section should be well rounded. Natural earth forms, hills and valleys, invariably are well-rounded and the same basic shapes on highway cross sections produce the naturalness which is aesthetically pleasing. A combination of flat slopes and liberal roundings produce a road section over which cross winds sweep, without forming eddies which contribute to wind erosion and drifting snow. Furthermore, liberal roundings will facilitate establishment of vegetative cover, permit easy mowing and reduce slope and turf damage caused by mowing machinery.

Roundings in earth should be as discussed below:

a. **Top of Slope Roundings**

On slopes with ratios of 1 on 2 to 1 on 4, the top of slope rounding should extend approximately four feet either side of the intersection of the side slope and existing ground (8' V. C.) to provide a smooth transition.

Slopes flatter than 1 on 4 should be graded to provide a smooth transition between the slope face and the existing grade. Generally, this transition grading will be equal to or greater than the four feet either side of the slope intersection discussed above.

These top of slope roundings will obviously not be used where there is a ditch at the toe of slope or in the immediate vicinity.

b. **Top of Cut Slope Roundings**

The desirable top of cut slope rounding for slopes over six to eight feet in height should extend approximately eight to ten feet (20' V. C.) either side of the intersection of the slope and existing ground where space is available.

Top of cut slopes under six (6) feet in height should be graded to provide a smooth transition between the slope and the existing grade.

c. **Shoulder Break Roundings**

Normally, a 4' V. C. should be provided, but consideration should also be given to roundings contained in the AASHTO Guide. (22)

(22) AASHTO Guide - 1977, Fig. 111-7-2(a)
4. ROCK CUTS - For shallow, localized rock cuts, consideration may be given to undercutting the rock to a 1 on 2 or flatter slope and covering the rock with a 2' layer of earth. This will eliminate an unnatural projection and provide a safer roadside. Because of the cost involved, this treatment would only be worth considering on a "borrow" job and the sites must be carefully selected.

5. PREFERRED TYPICAL SECTION DESIGNS - The appendix (Dwg. 1) contains recommended Typical Sections for parkways in cut which are based on the concepts for the Preferred Ditch Cross Section in the AASHTO Guide (23). These sections should be used for new construction and major reconstruction projects. For R & P type projects, they should be considered at high-accident locations and where topographic and ROW conditions are favorable.

6. EROSION PROTECTION FOR DITCHES AND STREAMS - Erosion protection for ditches and streams shall be designed in accordance with Soils Design Procedure SDP-2 (24). Preference should be given to use of turf for small ditches where flow is intermittent, where water velocities and/or quantities are low, and where the ditches are visible and within areas that are regularly moved. Turf can be established by use of sod, or by seeding in conjunction with special materials that have been designed for use in establishing turf in ditches.

Stone linings, where used, should be within a specified dark or "earth tone" color range to avoid stone that contrasts with the natural roadside environment in the vicinity.

Asphalt paved gutters should be avoided because of this unnatural appearance and susceptibility to failure.

7. TREATMENT UNDER GUIDE RAIL - Herbicides or growth retardants provide an effective and economical means of controlling vegetative growth under guide rail and avoiding costly hand-mowing. However, maintenance forces must be careful not to overspray and damage adjoining vegetation. Also they must be trained to handle such materials which can pose health and environmental problems.

While paving strips eventually deteriorate and may require herbicide applications to control vegetation, their use is still recommended for most parkway situations. They are particularly needed where spraying with herbicides is not possible because of environmental concerns. Paving strips may not be worthwhile in other areas, particularly rural locations, and for guide rail replacement contracts on roadways with grass shoulders.

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(24) NYSDOT, Bank and Channel Protective Lining Design Procedures - SDP-2, (Albany, N.Y., August 1971)
4.0 SIGNS AND OTHER TRAFFIC CONTROL DEVICES

4.01 COLOR AND MATERIALS

1. SIGN PANELS - Face colors and sign panels shall comply with the requirements of the NYS MUTCD (25). The green color for destination signs is considered aesthetically pleasing and in keeping with the parkway environment. Its better target and recognition value outweigh any advantages from using another color just to make a distinction between parkways and other highways.

The backs of sign panels which are readily visible to opposing traffic or adjoining land uses may be treated to soften their visual impact. Aluminum panels may be painted a suitable brown, bronze, or preferably black color using an appropriate highway paint treatment or polyurethane coating system. Whatever treatment is selected should be uniform throughout a particular section of the parkway. An alternative, which should reduce future maintenance costs, is to specify a non-reflective vinyl sheeting to be bonded on the back of the panels.

Plywood sign panels would come painted in black in accordance with the standard specifications. Dark brown or bronze color may be specified instead of black but black is preferred.

2. POSTS AND STRUCTURES - A color treatment for sign posts and sign structures is considered desirable to soften their appearance relative to natural elements. Bare galvanized steel posts should not be used for sign panels which are to be color treated.

All sign posts should be colored, or wood as specified in Section 710.13 of the Standard Specification (25). Steel posts, after galvanizing, may be painted in accordance with the requirements of Section 740-03, PAINTING GALVANIZED SURFACES. However, alternatives such as the following should be seriously considered to reduce future maintenance costs:

   a. Galvanizing and application of a polyurethane coating system.

   b. Using ASTM A588 Steel. Portions imbedded in the ground should be treated as specified for posts in Section 710-25, GUIDE RAIL AND MEDIAN BARRIER SYSTEMS (RUSTIC) (27). Since A588 steel interferes with the operation of standard slip-impact assemblies, a substitute system would be required.

   c. Electrostatic coatings.

(27) Ibid.
d. Wherever possible, consideration should be given to specifying wood posts, which are economical, aesthetically pleasing and have a fairly long service life. Care must be exercised to insure compliance with the latest safety criteria regarding post sizes, spacing, etc. Larger posts needed for wind loads may be drilled to provide "breakaway" action.

e. Overhead structures should not be treated with ordinary paints because of the cost and difficulty in repainting by maintenance forces. The polyurethane coating system as specified for posts can be used for galvanized or aluminum elements. ASTM A588 steel is not available in tube shapes. Consideration should be given to developing special structures which have cleaner lines and can make use of weathering steel. Alternative designs to replace the 3-plane truss would be particularly desirable.

4.02 LETTER SIZES - GUIDE SIGNS

Letter sizes shall comply with the requirements of the NYS MUTCD (28). On Federal Aid projects, possible exceptions to the National MUTCD (29) definition of major/minor interchanges will be necessary to limit the use of larger signs to the NYS definition of "major".

4.03 LOCATIONS

Special care should be exercised in locating signs along parkways so as not to unnecessarily detract from aesthetically pleasing structures, to minimize clearing of vegetation (for sight lines) and avoid impacts to adjoining homeowners. Advantage should be taken of any existing or planned guide rail locations to minimize new guide rail where slip-impact assemblies cannot be used. Signs should not be located on stone-faced or other structures which have special aesthetic value. Close proximity to structures should be avoided where discretion is available. All proposed sign locations should be field checked with these concepts in mind.

4.04 SIGNING VERTICAL CLEARANCE FOR STRUCTURES

Parkways under jurisdiction of New York State must be posted if the vertical clearance over any lane is less than 14 feet. (As of this writing, legislation is being introduced to eliminate this requirement.) In some cases, this would involve mounting signs overhead on the bridge structure. This would detract from the appearance of stone-faced rigid frames or arches commonly used on early parkways. In such cases, it would be preferable to place the clearance signs in advance of the structure by ground mounting.

(28) NYSDOT MUTCD - 1983 - Sub-chapter D.

The NYS MUTCD (30) allows the R5-6 (advance clearance) sign to be used on multiple lane approaches if a single clearance is applicable to all approach lanes to be indicated. This method is still considered satisfactory for parkway structures with multiple clearances, since commercial vehicles are prohibited except under special permit. On parkway approaches, the lowest vertical clearance shall be determined and the corresponding regulatory sign (R5-6) shall then be ground-mounted immediately in advance of (but not on) the structure.

4.05 ROADSIDE DELINEATORS

The National MUTCD (31) specifies that delineation shall be provided on the right side of expressway and freeway roadways, and on at least one side of interchange ramps, except that delineation between interchanges is optional where fixed-source lighting is in operation. Consequently, roadside delineators are mandatory on Federal-Aid Parkway Projects.

The NYS MUTCD (32) is less emphatic on the need for continuous delineation, and permits limiting their use to "sections where changes in vertical or horizontal alignment, or local conditions indicate they would be helpful".

Delineators are most helpful to parkway motorists at night, particularly during inclement weather. On the other hand, delineators add clutter to the parkway environment and increase the effort required to carry out the more frequent mowing required. Also, curbing, and often a continuous median barrier (with attached delineators), provide additional sources of delineation on parkways. Delineators should be used on median barriers and guide rail. This is particularly critical if rustic steel is used since its dark color makes it less visible at night.

The Parkway Standards Task Force was generally in favor of the NYS MUTCD approach but can only suggest that efforts be made to ease the requirements of the National MUTCD.

5.0 RIGHT-OF-WAY

5.01 GENERAL

An essential concept of a parkway is that of a roadway in a ribbon of park-like development, with sufficient right-of-way (ROW) and vegetation to at least provide a visual buffer against man-made elements. During construction or reconstruction of a parkway, enough ROW should be acquired beyond the grading limits wherever possible to preserve a natural vegetative screen or accommodate new plantings. Failure to do so may eventually expose the parkway to future developments. Further, new homeowners can be expected to complain about noise and visual effects if allowed to build too close to the travel way.

(30) NYS MUTCD - 1983, Sec. 215.2, pp. 70-71
(31) FHWA MUTCD - 1978, Sec. 3D-4
(32) NYS MUTCD - 1983, Part 291, pp. 443-447
These factors should also weigh heavily into any decision about disposing of right-of-way which might be considered surplus to ordinary highway needs.

5.02 ROW WIDTHS AND TAKINGS

The extent of ROW to be acquired must take into account:

a. Land costs and funds available.
b. The topography and state of development of the land.
c. The minimum distance needed beyond slope point roundings for initial visual screening.
d. The desired total right-of-way band for visual screening to help in buffering traffic noise by physical separation.
e. Future widening or improvement needs.
f. Historical aspects.

Reference should be made to Chapters 5 and 17 of the Highway Design Manual in setting new taking lines. However, the distances beyond slope points recommended in Section 5.02 (10' Min., 25' des.) would be less than desirable for parkways. Nevertheless, in developed areas, acquiring additional ROW may not be warranted because of the high land costs and impact on property owners. Suggested values for parkways in undeveloped areas are indicated below:

1. ROW width beyond top or toe of slope
   Minimum: 25'
   Desired: 50'

2. Total width measured from edge of roadway
   Minimum: 100'
   Desired: 150'

6.0 APPURTENANCES

6.01 GUIDE RAILS AND MEDIAN BARRIERS

1. DESIGN, SELECTION - Guide rail selection must meet the latest standards and deflection criteria to provide needed protection for motorists. Consistent with these criteria, the following special considerations apply to parkways:

   a. Cable railing is preferred from an aesthetic standpoint because it is less obtrusive and permits a clearer view of the roadside.

   b. In designing railings for protection from existing embankment slopes, offsets to major trees and stands of trees should be measured during design. Unnecessary cutting of major trees or specimen can sometimes be avoided by selecting guide rail with lower deflection characteristics than required for the embankment alone.
c. When major trees or specimen run along a narrow buffer zone, consideration should be given to the use of guide rail rather than removing numerous trees which fall within the designated clear zone.

d. Concrete median barriers are more obtrusive than steel median barriers but are considered aesthetically acceptable where warranted by safety and economic considerations. On narrow medians under high volume conditions, steel barriers require much more maintenance and can become unsightly after numerous repairs. Thus, any aesthetic advantage would be lost in such cases. It is also easier to keep the area around a concrete barrier clear of litter and debris.

2. RAILING AND BARRIER TREATMENTS - Weathering steel guide rail may be used in rural, suburban and similar areas where natural elements dominate the roadside. In highly urbanized areas where walls, structures and commercial buildings are common roadside features, untreated galvanized railings and barriers would be more appropriate.

7.0 TRAILS AND BIKEWAYS

As explained in Section 1.0, the early parkways in New York State came about primarily to clean up waterways and serve as linear parks for pedestrians and equestrians. The addition of "parked drives" or what we now call the "Parkways" was then a secondary consideration. While motor vehicle travel use has evolved to become the primary use, this does not require that the earlier historical uses be denied.

With open space getting scarce in urban and suburban areas, the parkway right-of-way is becoming more valuable as a linear park. It is therefore felt that, where it can be done safely and without interfering with traffic operation, making the right-of-way available for non-vehicular uses would be highly beneficial. This could include pedestrian paths, equestrian trails and bikeways, and passive-type "pocket parks".

In many cases, the right-of-way already includes informal pathways or equestrian trails which can easily be re-established or up-graded at little cost. Outside sources of funds or volunteers may be available for construction or improvements. Arrangements must be made in advance for future maintenance which might be carried out by agencies of local government, riding or hiking clubs, environmental groups, etc. Local government agencies are preferred since they have the resources and staying power to meet long-term commitments for future maintenance.
Although written for unlimited access highways, Chapter 18 of the HDM should be consulted in the design of pedestrian facilities and bikeways, with adjustments made as needed. Special safety precautions are necessary on freeways to protect users of trails and bikeways from an errant vehicle. The facility should be separated physically from the travel way by at least 30'. Where this is not possible, guide rail should be considered. Visual screening should be employed for the benefit of trail users and also to avoid distracting motorists.

8.0 PARKWAY LANDSCAPE DEVELOPMENT

8.01 GENERAL

The public is acutely conscious of the appearance of highways and is particularly sensitive about retaining the landscape character of our parkway system. Therefore, it is very appropriate for today's parkway landscape development to reflect the landscape design concepts used on the earliest parkways. This is consistent with the NYSDOT Planting Policy (33), especially with section III, Procedures for Including Planting in Transportation Projects.

While safety is the prime and overriding consideration during the design of all highway and parkway landscape development, it is essential that appropriate landscape architectural designs be provided to promote the aesthetic integration of parkways into their environment. This is best accomplished by carefully planned preservation of existing vegetation that will provide buffered areas and an immediate landscape effect not possible by planting small trees and shrubs.

It is essential that the concepts and objectives of the landscape development be thoroughly considered from the earliest phases of project design. (Refer also to Section 5.0, covering ROW needs.) This will help to insure that the parkway character to be preserved or restored is thoroughly analyzed; that community concerns are identified; that environmental needs are determined and that the most effective use of existing features is obtained.

Parkways are typically characterized by continuous bands of natural or natural-appearing landscape that have a managed park-like or estate-like appearance. This appearance is derived from a well-developed sense of balance between open spaces and vegetation masses that are manipulated to take advantage of views, create illusions and screen undesirable elements. The ultimate purpose of these efforts is to impart a relaxing, continuously changing or renewing sense of freedom that people associate with being in the out-of-doors and in the "country".

(33) NYSDOT, Planting Policy, EI 87-20 (Albany, N.Y., 1987)
8.02 PARKWAY LANDSCAPING

The overall Planting Policy shall apply to landscaping for parkways, with the following additional provisions:

The parkway planting should generally be used to augment preserved vegetation in ways that retain the original parkway landscape design concepts. These plantings should generally consist of trees arranged as they might naturally grow, in great drifts or masses. Detail is lost on high-speed travelers, therefore, small plantings and shrubbery should generally be avoided. While specimen trees or clumps may well be used to frame views or as free standing focal or reference points, the indiscriminate use of thoughtlessly scattered "decorative" plantings is seldom effective and is inconsistent with the best of early parkway design. Pleasantly developed ground planes and open space along with strong tree masses usually create the most effective parkway landscape.

Screening out man-made development is often necessary in order to preserve the natural, park-like character of the corridor. Occasional glimpses of individual homesites, particularly farm buildings, are acceptable and often desirable but continuous rows of houses should be at least partly screened by plantings for the benefit of motorists as well as homeowners.
APPENDIX

TYPICAL SECTIONS AND CURB DETAILS
RAISED SHOULDER: GRASS/PAVED EDGE CURBS
EMBANKMENT SECTION

RAISED SHOULDER: GRASS/PAVED EDGE CURBS
CUT SECTIONS

PREFERRED SHOULDER SECTION
FLUSH SHOULDER

SHOULDER TREATMENT
PARKWAYS IN CUT/FILL
R/P TYPE PROJECTS

FLUSH PAVED SHOULDER
SHOULDER CURB
TYPICAL CUT/FILL

FLUSH PAVED SHOULDER
SHOULDER CURB
IN ROCK

NOTE: See Section 3.06.2

SCALE

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CARC

AS9HAL

Rely(,

CURB/GUTTER SECTION
FILL WITH GUIDE RAIL

CURB/GUTTER SECTION
FILL WITHOUT GUIDE RAIL

CURB/GUTTER SECTION
IN CUTS

TYPE AB-P CURB
(Modified Type AB from SS 609-2)

TYPE AP CURB/GUTTER
(DETAIL BASED ON 1977 AASHTO GUIDE)

SPECIAL PARKWAY SECTIONS
AND CURB DETAILS

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