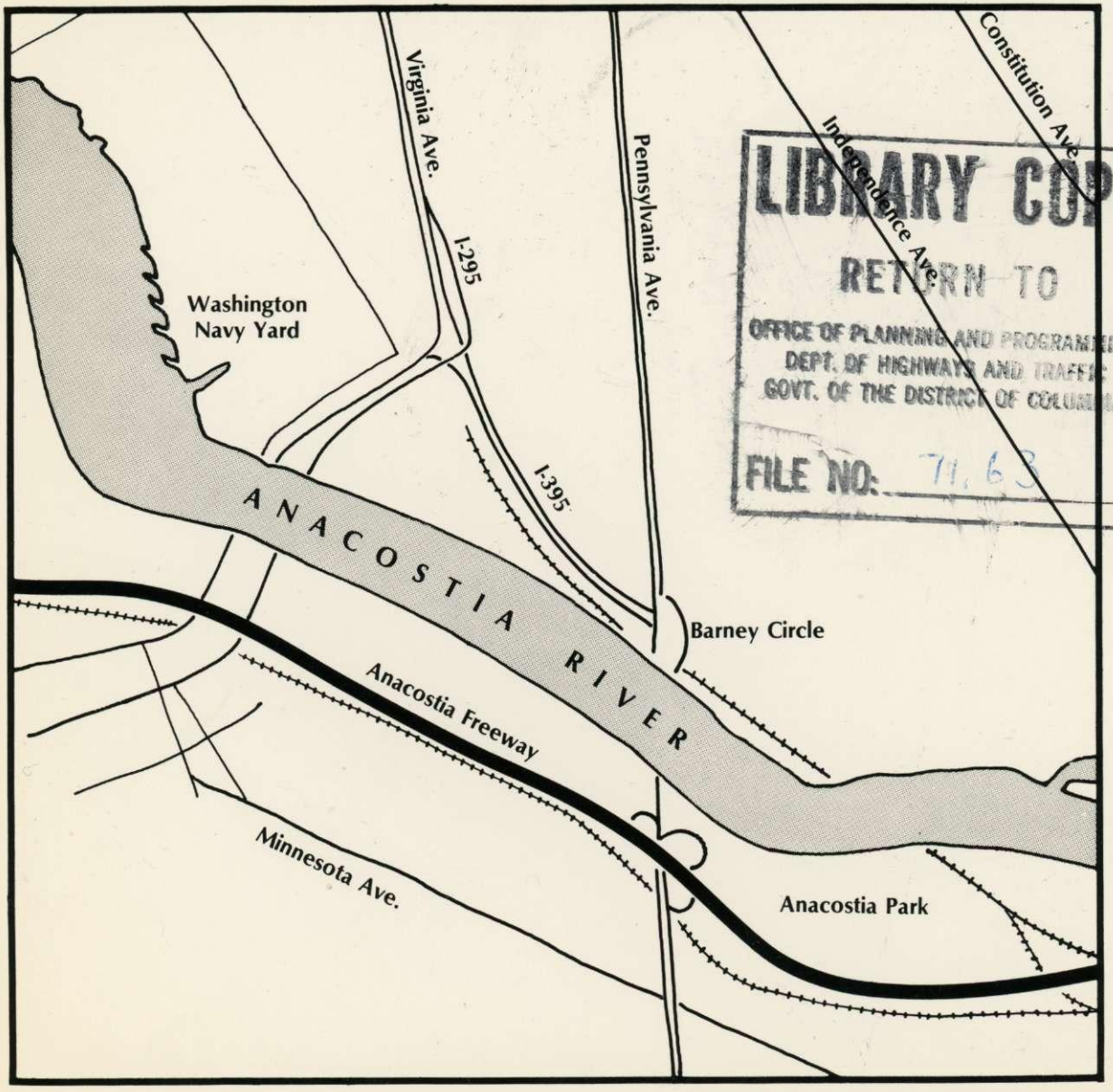
ANACOSTIA FREEWAY CORRIDOR ENHANCEMENT STUDY



Prepared for: District of Columbia Department of Transportation
Prepared by: EDAWinc. Alexandria, Virginia

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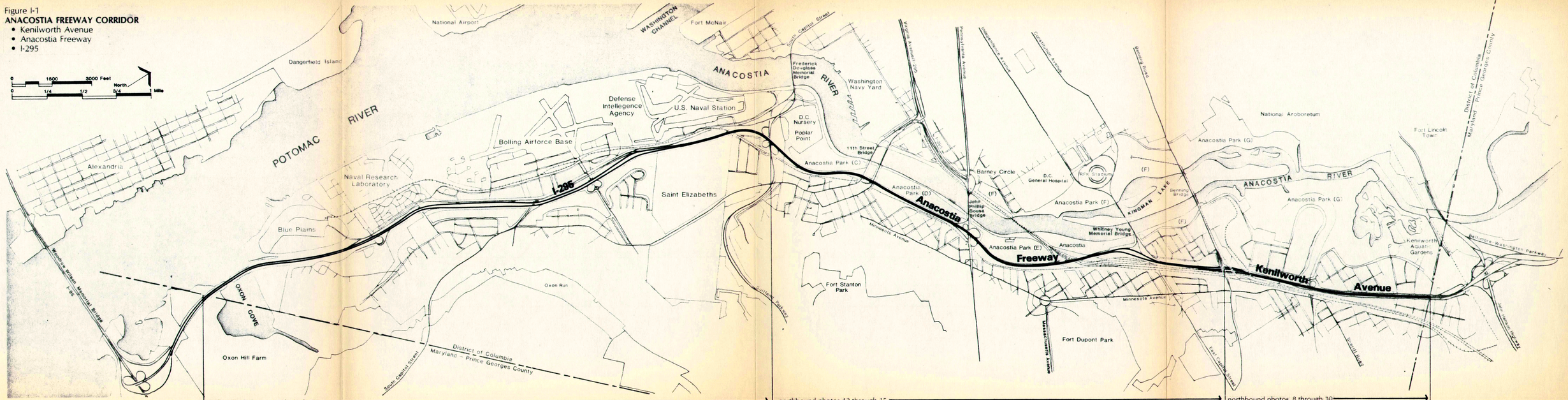

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I. INTRODUCTION

A. PURPOSE OF STUDY

The Anacostia Freeway is a neglected and poorly maintained entrance to Washington, D.C. This 10-mile commuter freeway on the eastern banks of the Anacostia and Potomac Rivers has the potential to become a significant and important gateway to the city, anticipating, reflecting and continuing the park-like quality of Washington within its corridor. The purpose of this study is to present design treatments which will guide redevelopment and maintenance of the freeway towards a new image of an enhanced gateway.

Many of the entrances into Washington were created to enhance the beauty of Washington and to set the stage for visitors to the Nation's Capital. Careful planning and design since the L'Enfant Plan in 1790, the McMillan Commission in 1901-1902, and the 1924 establishment of the National Capital Planning Commission have created a unique open space and parkway system in the metropolitan area. The George Washington Memorial Parkway and Rock Creek Parkway were designed as scenic roads linking important historic and recreational sites. George Washington Parkway links Memorial Bridge and Mount Vernon on the Virginia side of the Potomac River. It also acts as a major gateway from the west and south. Rock Creek Parkway links Rock Creek Park, the National Zoo and Potomac Park. The Suitland and Baltimore-Washington Parkways were designed as scenic parkways connecting military establishments with the Capital. The John Hanson Highway was designed as a commuter highway between Washington and Annapolis with a parkway like setting.

Along with the Baltimore-Washington Parkway, the Anacostia Freeway is the logical entrance to Washington from the east. Of all the approaches to the city, however, the Anacostia Freeway is the least attractive and inviting.

As an improved gateway Anacostia Freeway would dramatize the sense of arrival by revealing and unfolding Washington's skyline through a series of dramatic vistas within a unified environment. The character of such an environment, green, varied, and richly contrasting, can be found in the four other Metropolitan parkways—the George Washington Memorial, Rock Creek, Baltimore-Washington and Suitland Parkways—and in the John Hanson Highway mentioned above. These existing roadway facilities represent a high level of effort and imagination with their sensitive integration into the landscape, their careful weaving through the city and suburbs, and their variety of views and rich landscaped character. They are models for the future character and quality of the Anacostia Freeway Corridor.

These five parkways and highways create gateways into Washington not only by their location and relationship to the city but also by their sense of importance, their well-maintained, well-conceived image and their landscape character. The parkways' landscape character is integral to their intended use and differs dramatically from the freeways and their environments.

This study's primary design intention is to incorporate relevant parkway characteristics into the Anacostia Freeway Corridor. Today, the Anacostia Freeway Corridor consists of three different roadway facilities, the Kenilworth Avenue segment, the Anacostia Freeway and Interstate 295. One of the special opportunities of this project is to develop a unified image of the Corridor using consistent treatments of elements to link the three roadways (called the Anacostia Freeway Corridor throughout this report).

How can the Anacostia Freeway become a green gateway to the city and incorporate parkway qualities? It is the intent of this study and a challenge for the Nation's Capital to incorporate into the freeway environment, without compromising safety standards, some of the same design principles that guided these sensitive and rich parkway environments.

B. GOALS

The four major goals of this study are:

- To identify and recognize the Anacostia Freeway Corridor as a major gateway and entrance to the Capital City.
- To identify and develop conceptual design treatments emphasizing a unified gateway image throughout the Corridor, with a parkway like landscape character where appropriate.
- To facilitate planning policies and funding programs directed towards implementation of a comprehensive design plan for the Anacostia Freeway.
- To serve as a model approach for other neglected Metropolitan Washington highway facilities which can become gateways to the Nation's Capital and are in need of a visual enhancement program.

The U.S. Department of Transportation has authorized the preparation of this visual enhancement study for the Anacostia Freeway.

C. LOCATION/HISTORY

The Anacostia Freeway is located east of the U.S. Capitol in the District of Columbia. The northern section of the Freeway parallels the Anacostia River; the southern section parallels the Potomac River. The study area extends from the District of Columbia

boundary near the Woodrow Wilson Bridge to the District of Columbia boundary near the Baltimore-Washington Parkway on the north. Along this north-south drive a dramatic panorama of the Capital City is revealed. Views of Old Town Alexandria, the Washington Monument, the Old Post Office Tower, the Capitol building, the Library of Congress and RFK Stadium are juxtaposed one against another as the Freeway parallels the river.

The corridor is a major local, metropolitan and regional artery directing traffic across the Anacostia River directly into the Capitol City (see Anacostia Freeway Corridor Map). While the freeway serves District residents on both sides of the Anacostia River, the majority of the traffic consists of suburban commuters. The major local commuter roads feeding into the corridor are Central Avenue, Pennsylvania Avenue, Branch Avenue and Interstate 95.

The principal regional traffic using the Corridor as an entrance into the City is from Annapolis via the John Hanson Highway and from Baltimore via the Baltimore-Washington Parkway. Regional traffic connects with the Anacostia Freeway Corridor from I-95 north, by feeding into Kenilworth Avenue, and from I-95 south, by feeding into I-295.

The freeway corridor extends 10.7 miles. Its three contiguous road facilities were designed and built separately. From north to south these are Kenilworth Avenue (2.5 miles), the Anacostia Freeway (3.74 miles), and Interstate 295 (4.46 miles).

Kenilworth Avenue, the first of the facilities to be built, was constructed in the mid 1950s under ASHTA* regulations and design standards. The Kenilworth Avenue segment under study extends from Eastern Avenue to Benning Road.

During the early 1960s construction began on the Anacostia Freeway and the 11th Street Bridges to extend the Corridor across the Anacostia River and to connect with I-395. Unlike Kenilworth Avenue, the Anacostia Freeway was designed and built under the recent Federal Interstate Highway regulations. The freeway segment under study extends from the Benning Road Bridge to the Suitland Parkway.

Interstate 295 was the last facility to be built and was constructed in the late 1960s. Like the Anacostia Freeway, it was designed under the Federal Interstate Highway regulations. This last 4-mile segment was designed to allow a continuous flow of traffic from I-95 south to I-395. The I-295 segment under study extends from the Suitland Parkway to the District of Columbia-Maryland/Prince Georges County boundary.

*American State Highway and Transportation Agency

III. GATEWAY IMAGE

II. METHODOLOGY

The words "image and character of a road" usually imply a positive value. Yet the elements which compose a scenic environment, or positive character, in the five model roadways—George Washington, Baltimore-Washington, John Hanson Highway, Rock Creek, Suitland—do not exist in the Anacostia Freeway due to different design standards for freeways.

This study proposes that the freeway, like the parkway, can and should become a positive environment. For this to occur, one must first identify the positive and negative characteristics, or the opportunities and constraints for improvement, of the Anacostia Freeway Corridor which affect its potential scenic character. The specific differences between the two road types also need to be defined. Those parkway characteristics not found in a freeway must then be assessed for their relevance and appropriateness. Appropriate characteristics should be translated into design principles and guidelines for the visual enhancement of the freeway.

A. ANALYSIS PROCEDURE

The freeway environment is principally experienced from the car. The analysis procedure was initiated by a photographic site survey from the driver's perspective conducted along the entire 10.7 mile length of the Freeway Corridor.

The photographic survey identified:

- **Zones** within the 10-mile corridor. A zone includes the physical design of the road right-of-way, often referred to as r.o.w.; it includes the dimensions of the road, median, shoulders, exit/entry ramps and road width and
- **Character** of the road right-of-way. Character is made up of
  - visual quality of the landscape (within and beyond r.o.w.)
  - adjacent land uses which affect the landscape character
  - views (within and beyond the r.o.w.)
  - freeway structures (lighting, signage, fencing, railing).

The study area of the Anacostia Freeway Corridor includes the right-of-ways on the northbound and southbound lanes (the shoulders and recovery zones), the roadway lanes, the median, and the exit/entry ramps.

B. IDENTIFICATION OF ZONES

From the photographic survey three zones within the Freeway Corridor were identified which correspond directly to the three facilities identified earlier:

1. Zone I - Kenilworth Avenue
2. Zone II - Anacostia Freeway
3. Zone III - Interstate 295

The analysis and recommendations for the freeway corridor are organized according to these zones. The analysis of each zone's opportunities and constraints is presented sequentially in the order mentioned above (physical design of road r.o.w., character of r.o.w., landscape character, adjacent land uses, views and freeway structures). As the design of each of these three facilities is distinctly different, the character of these facilities, or zones, is distinctly different.

C. IDENTIFICATION OF EXISTING CHARACTER: OPPORTUNITIES AND CONSTRAINTS

1. Existing Character Zone I: Kenilworth Avenue

Kenilworth Avenue, extending two and one half miles, is a narrow urban corridor with an average right-of-way of 100 feet. It has two lanes in both directions, no shoulders and no center lane median space. The facility cuts through commercial and residential communities, is poorly maintained and lacks a consistent landscape character. Major existing conditions include objectionable views, poorly maintained freeway structures (fencing, lighting), and confusing signage and exit/entries. Opportunities to build on are the existing mature trees and the stone-faced bridges and pedestrian ramp abutments.

EXISTING OPPORTUNITIES

Landscape Character:
- existing mature specimen trees
- bridges and pedestrian ramp abutments faced with cut stone

Signage:
- consistent use of Federal Interstate signage–of standard location and appearance

EXISTING CONSTRAINTS

Physical Road Design:
- frequent interchanges and entry/exit conditions
- no center lane median space (roadway divided by New Jersey barrier topped with chain link fence)
- frequent grade changes resulting in below grade tunnel conditions

Landscape Character:
- no strong positive landscape image (lack of consistent plant types or species, lack of massed plant materials, unmaintained appearance)
- no entry/arrival freeway identification using plants or landforms

Adjacent Land Use:
- adjacent commercial facilities (gas station, car wash, junk yard) and residential communities (garden apartment, single family residence) highly visible from freeway

Views:
- objectionable views lack screening
- lack of careful directing of driver's views from freeway

Freeway Structures/ Lighting:
- no standard lighting location
- overscaled light fixtures
- unpainted metal light fixtures

Signage:
- inconsistent standard for sign location (signs hung on pedestrian bridges or adjacent to road)
- excessive signage in narrow constricted area

Fencing/Railing:
- poorly maintained, rusted fencing, consistent treatment missing, chain link fencing used for property r.o.w., pedestrian bridges and above New Jersey barriers as safety precaution

Maintenance:
- poorly maintained physical conditions (broken curbs, fencing/railing and lighting), overgrown vegetation.

2. Existing Character Zone II: Anacostia Freeway

The Anacostia Freeway extends approximately three and one half miles. It is an example of the freeways built in the 1960s with its broad austere geometry, overscaled lighting and signage and inadequate landscape planting. It has three lanes in each direction, shoulders plus a recovery zone and an unlandscaped median. Its broad open spaces permit views of Anacostia Park, the major positive feature of this zone.

EXISTING OPPORTUNITIES

Adjacent Land Uses/ Views:
- the Anacostia River and Park are highly visible and create scenic views and focal points the length of this segment of the corridor (3.74 miles)

Exit/Entry Ramps, Bridge Embankments:
- ramp conditions offer landscaping opportunities
- bridges and pedestrian ramp abutments are faced with cut stone

EXISTING CONSTRAINTS

Physical Road Design:
- limited right-of-way
- unlandscaped median
- closely spaced exits causing dangerous traffic lane changes

Landscape Character:
- no strong positive landscape image
- (no consistent plant type or massing of similar plants)
- no visual integration of waterfront parkland
- intrusive/distracting adjacent residential and commercial facilities

Adjacent Land Uses/ Views:
- adjacent commercial residential and industrial (railroad) facilities to east are highly visible from Freeway

Freeway Structures/ Lighting:
- no standard lighting location
- overscaled light fixtures
- unpainted light fixtures

Signage:

- overscaled, unpainted signage support structures (extending across north- and southbound lanes)
- poorly located signage for freeway exits (too close to exits for safe lane changes)
- inconsistent location of directional signage (yield, stop and speed limit signage)

Fencing/Railing:

- center lane divided by metal guardrail
- chain link fencing obstructing views of waterfront and parkland
- excessive use of metal guardrails

3. Existing Character Zone III: Interstate 295

Interstate 295, extending approximately four and one half miles, is the most scenic and parkway like of the three zones. It has the broadest right-of-way (approximately 330 feet), dramatic undulating topography, scenic views to the west and dense woodland vegetation forming its eastern boundary. It has two lanes in each direction, and a landscaped median and shoulders. Portions of its western boundary edge are less attractive, with highly visible industrial and institutional facilities blocking views of the waterfront.

EXISTING OPPORTUNITIES

Physical Road Design:
- broad extended right-of-way
- center landscaped median
- sensitive road engineering (integration of road with topography)

Landscape Character:
- appropriate parkway like character of dense woodlands and upland topography forming eastern r.o.w. boundary
- massed plantings in median, within r.o.w.

Views:
- impressive views of Washington skyline and monuments

Fencing/Railing:
- cut stone retaining walls in center median

Signage:
- consistent location adjacent to road within r.o.w.
- no overhead signage

EXISTING CONSTRAINTS

Adjacent Land Uses:
- large industrial and institutional facilities highly visible and dominating views of the waterfront

Views:
- views of Anacostia Waterfront blocked by prominent and large facilities
- views not directed across the Corridor landscape

Freeway Structures/ Lighting:
- inconsistent lighting location
- overscaled light fixtures
- unpainted metal light fixtures

Fencing/Railing: – scenic view of woodlands and meadows obstructed by chain link fencing

Maintenance: – insufficient maintenance and care of plant materials

D. SUMMARY OF EXISTING CHARACTER

The existing ten-mile freeway corridor lacks a unified image. Its appearance is often sterile or disjointed with multiple images of commercial, residential, parkland, institutional and industrial facilities projecting into the road setting. Unrelated design elements are linked only by a continuous roadway against a contrasting and varying background.

There are, however, isolated but significant features and elements which could be successfully integrated into a new image. The views to the waterfront seen along the Anacostia Freeway segment, Kenilworth Avenue's stone bridges and the parkway like landscape character in the Interstate 295 segment are elements which begin to create an attractive environment and could be built on, or expanded, in other segments of the Corridor.

E. DEFINITION OF FREEWAY AND PARKWAY CHARACTER

By combining the identified positive features and treatments of the problem areas of the Anacostia Freeway Corridor with the relevant and appropriate design principles of gateway parkways, a set of design recommendations can be developed for the Corridor. It is important to identify the differences between a freeway and a parkway in order to distinguish the appropriate design standards. It is also important to identify the qualities and characteristics of the parkway environment which make it more pleasing.

The essential difference between a freeway and a parkway relates to intended use. Freeways are designed for efficient, high speed travel, typically within or near an urban environment. They are frequently surrounded by disjointed land uses and their immediate landscape can be characterized as unorganized and unpleasant. The road design is open, broad and straight for high speed traffic.

Parkways have been designed for low to moderate speeds of travel within scenic areas. They were carefully integrated into open lands, and were designed to maximize scenic views and to create a variety of experiences within a natural, or undeveloped, setting. Parkway roads are narrower, often lack shoulders and use embankments as safety zones and wind and curve following the topography. The curving road alignments of the best parkway roads have been designed to limit vehicular speed and to respond to distant landmarks. They establish carefully sequenced views and enclosures. The typical parkway brings the immediate and distant landscape closer to the driver.

F. DESIGN PRINCIPLES

The existing gateway roads mentioned before provide prototypical design principles. These principles can guide the proposed design recommendations for the Anacostia Freeway. The parkway design principles which can be adapted to an existing freeway environment without compromising safety design standards are:

Landscape Character:
- the use of a continuous green corridor to provide an attractive gateway
- the consistent use of a landscape vocabulary to create a unified appearance
- the variation in planting setback from the road to create visual interest and spatial diversity
- the use of informally massed native plant materials responsive to topography to create a "natural" image
- the creation of a sense of arrival using a rhythmic patterning of structures, controlled views of the destination point and carefully sequenced signage

Views:
- the use of massed plantings to buffer intrusive adjacent land uses and to create an interrupted and focused driving environment
- the use of massed plantings to direct the motorist's views towards scenic vistas and focal points

Freeway Structures:
- the selection of freeway structures (lighting, signage, fencing/railing) which are both aesthetically pleasing and promote safe responses to the freeway conditions
- the consistent treatment of freeway structures–uniform location, spacing, materials.

III. GATEWAY IMAGE

III. GATEWAY IMAGE

A. RECOMMENDATIONS:

Using applicable parkway design principles, the plant material, the freeway structures and the maintenance of the Anacostia Freeway Corridor can be manipulated to create the desired image and gateway setting. Recommendations for the improvement and treatment of planting, freeway structures and maintenance have been made for prototypical conditions. The prototypical conditions are:

A. Arrival/Entry (threshold of the freeway)
B. Waterfront Park (major water edge, open space feature)
C. Natural Woodland (existing native, wooded vegetation)
D. Adjacent Incompatible Land Uses (intrusive and distracting commercial, industrial/residential development)
E. Views/Vistas (views from the freeway to major scenic focal points)
F. Exit/Entry Ramps, Bridge Embankments (changes in grade separation of lanes, overhead structures)
G. Medians (central planted or paved strip dividing opposite directions of traffic)
H. Urban Street (urban framework adjoining the road).

The following recommendations and design treatments for planting, structures, and maintenance have been developed at a conceptual level. It is assumed that these recommendations would be further developed and designed to meet Federal Interstate safety regulations.

1. PLANT MATERIAL RECOMMENDATIONS

Plant material recommendations are principally concerned with developing a landscape buffer to separate adjacent incompatible land uses, establishing a parkway landscape and reducing mowing maintenance requirements. To establish this parkway landscape the freeway right-of-way must be sufficiently wide for adequate planting. In many areas of the corridor the right-of-way lacks the necessary width for adequate planting. In order to achieve the desired parkway landscape, it is recommended that these options be studied:

- Consider property easements and/or land acquisition to gain the necessary width for adequate planting.

- Consider revising/modifying AASHTO* standards which prohibit plant material installation within 30′ of the road.

Plant materials recommended and suggested for each condition follow Conceptual Design Recommendations for Prototypical Conditions. The Plant List for Prototypical Conditions identifies plant types, specific plant material and landscape conditions where the plant material would be used. For instance, canopy trees, specifically Red Oaks, are recommended for Conditions C, E, H: Natural Woodland, Views/Vistas and Urban Street Conditions. Plant types recommended for the enhancement of the corridor include canopy, flowering and evergreen trees, shrubs, vines, annuals and perennials. An expanded list follows in the Recommended Plant List. A plant matrix identifies the use of plant types in landscape conditions within the three major freeway zones.

The plant material was chosen for its adaptability to the various conditions presented along the corridor such as: dust, salt spray, auto and truck exhaust; sources of noise pollution; incompatible land uses and unattractive views; attractive views; important existing vegetation.

*American Association of State Highway and Transportation Officials

PLANT LIST FOR PROTOTYPICAL CONDITIONS

PLANT TYPE	CONDITIONS	BOTANICAL NAME	COMMON NAME
Canopy Trees	C, E	Acer rubrum	Red Maple
	C, H, E	Quercus borealis	Red Oak
	C, E	Quercus phellos	Willow Oak
Flowering Trees	C, G	Amelanchier canadensis	Serviceberry
	C, G	Cornus florida	Dogwood
	E, F, G, H	Malus floribunda	Crab Apple
	A, B, F	Prunus yedoensis	Yoshino Cherry
Evergreen Trees	D, E	Cupressocyparis lelandii	Leyland Cypress
	A, E, F	Picea abies	Norway Spruce
	B, C, D, E, F, G, H	Pinus nigra	Austrian Pine
Shrubs	D, H	Juniperus chinensis 'Columnaris'	Blue Columnar Chinese Juniper
	D	Juniperus communis 'Hibernica'	Irish Juniper
	A, F, H	Juniperus horizontalis 'Plumosa'	Andorra Juniper
	F, G, H	Pyracantha coccinea 'Mohave'	Orange-Red Firethorn
	C, D, F	Rosa rugosa	Rugosa Rose
Vines	C, D	Campsis radicans	Trumpet Vine
	D, H	Clematis paniculata	Sweet Autumn Clematis
Perennials	A, B, E, F, G, H	Achillea sp.	Yarrow
		Hemerocallis hybrids	Daylily
		Miscanthus sinensis	Fountain Grass
		Pennisetum alopecuriodes	Chinese Pennisetum
		Rudbeckia fulgida 'Goldstrum'	Black-Eyed Susan
Bulbs	A, B, C, D, E, F, G, H	Narcissus sp.	Daffodil
Wildflowers	A, B, C, D, E, F, G		Southeastern seeding mixture

RECOMMENDED PLANT LIST

PLANT TYPE	BOTANICAL NAME	COMMON NAME
Canopy Trees	Acer rubrum	Red Maple
	Fraxinus americana	White Ash
	Liquidamber styraciflua	Sweetgum
	Platanus acerifolia	Plane Tree
	Quercus borealis	Red Oak
	Quercus palustris	Pin Oak
	Quercus phellos	Willow Oak
	Tilia americana	Basswood
	Zelkova serrata	Japanese Zelkova
Flowering Trees	Amelanchier canadensis	Serviceberry
	Cornus florida	Dogwood
	Cornus kousa	Kousa Dogwood
	Koelreuteria paniculata	Golden Rain Tree
	Malus floribunda	Crab Apple
	Oxydendron arboreum	Sourwood
	Prunus yedoensis	Yoshino Cherry
Evergreen Trees	Cedrus atlantica 'Glauca'	Blue Atlas Cedar
	Cupressocyparis leiandii	Leyland Cypress
	Ilex opaca	American Holly
	Picea abies	Norway Spruce
	Pinus nigra	Austrian Pine
Shrubs	Euonymus alata	Winged Euonymus
	Forsythia suspensa	Weeping Forsythia
	Juniperus chinensis 'Columnaris'	Blue Columnar Chinese Juniper
	Juniperus communis 'Hibernica'	Irish Juniper
	Juniperus horizontalis 'Plumosa'	Andorra Juniper
	Kalmia latifolia	Mountain Laurel
	Myrica cerifera	Wax Myrtle, Southern Bayberry
	Pyracantha coccinea 'Mohave'	Orange-Red Firethorn
	Rosa rugosa	Rugosa Rose

Vines	Campsis radicans	Trumpet Vine
	Celastrus orbiculatus	Oriental Bittersweet
	Clematis paniculata	Sweet Autumn Clematis
	Polygonum aubertii	Fleece Vine
Perennials	Achillea sp.	Yarrow
	Hemerocallis hybrids	Daylily
	Miscanthus sinensis	Fountain Grass
	Pennisetum alopecuriodes	Chinese Pennisetum
	Rudbeckia fulgida 'Goldstrum'	Black-Eyed Susan
Wildflowers	Solidago hybrids	Goldenrod
		Southeastern Seeding Mixture
Bulbs	Narcissus sp.	Daffodil

Figure III-1

PLANT MATRIX SUMMARY

KENILWORTH AVENUE

	Location Conditions Arrival/Entry	Waterfront Park	Natural Woodland	Incompatible Adjacent Land Uses	Views/Vistas	Exit/Entry Ramps, Bridge Embankments	Medians	Urban Street
Canopy Trees								•
Flowering Trees	•					•		•
Evergreen Trees	•			•		•		•
Shrubs	•			•		•		•
Vines				•				•
Annual/Perennials	•					•		•

ANACOSTIA FREEWAY

Canopy Trees								
Flowering Trees		•			•	•		
Evergreen Trees		•		•	•	•		
Shrubs		•		•		•		
Vines				•				
Annual/Perennials		•			•	•		

I-295

Canopy Trees			•		•		•	
Flowering Trees	•		•		•	•		
Evergreen Trees	•		•	•	•	•	•	
Shrubs	•		•	•	•	•	•	
Vines			•	•			•	
Annual/Perennials	•		•		•	•	•	

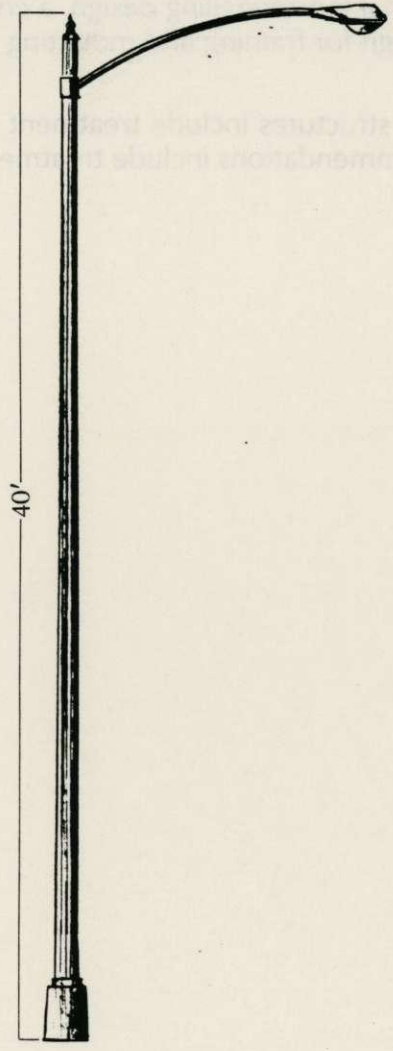
2. FREEWAY STRUCTURES RECOMMENDATIONS

Freeway Structures Recommendations are developed with both safety and aesthetic considerations in mind. These structures can serve as organizing elements, with their repeated use, and as image makers, as they help create a highly visible design character or image. The recommendations propose a consistent location and design of lighting fixtures, a fencing material and a more formal fencing/railing design, a consistent standard use of fencing/railing, and a new design for framing and mounting of signage.

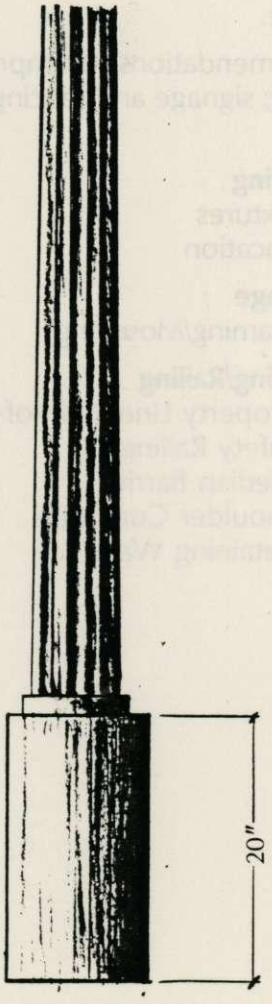
Recommendations for improvements to the freeway structures include treatment of lighting; signage and fencing/railing. The specific recommendations include treatment of:

- **Lighting**
  - Fixtures
  - Location
- **Signage**
  - Framing/Mounting
- **Fencing/Railing**
  - Property Line Right-of-Way
  - Safety Railings
  - Median Barrier
  - Shoulder Guardrails
  - Retaining Walls.

Figure III-2
FREEWAY STRUCTURES: LIGHTING

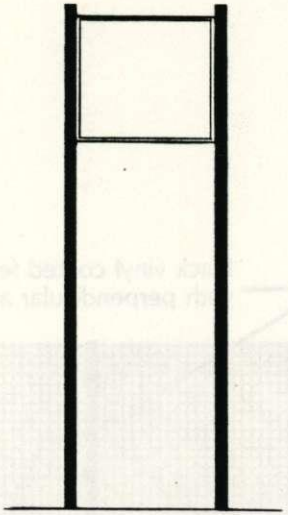


Breakaway Light Fixture
Base and Pole Detail

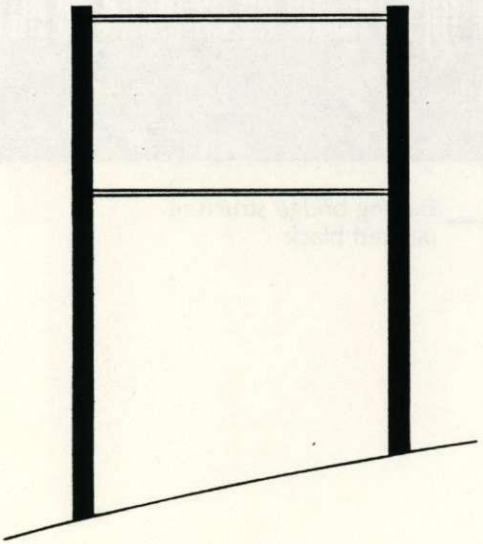


Recommended Ornamental
Pole Painted Black

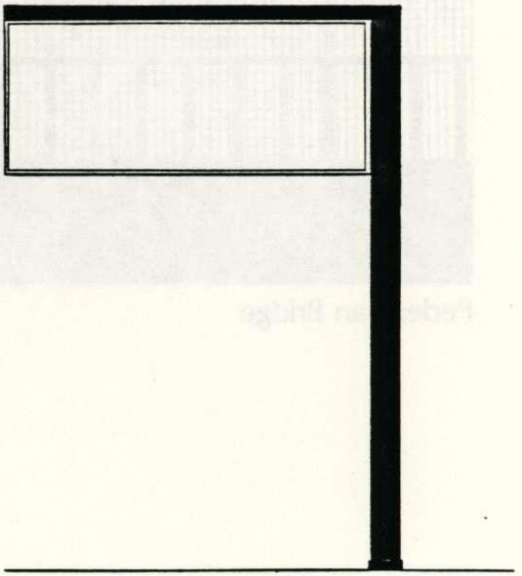
Figure III-3
FREEWAY STRUCTURES: SIGNAGE



Directional Signage



Signage Adjacent to Road



Overhead Signage/Interstate

Figure III-4
FREEWAY STRUCTURES: FENCING/RAILING

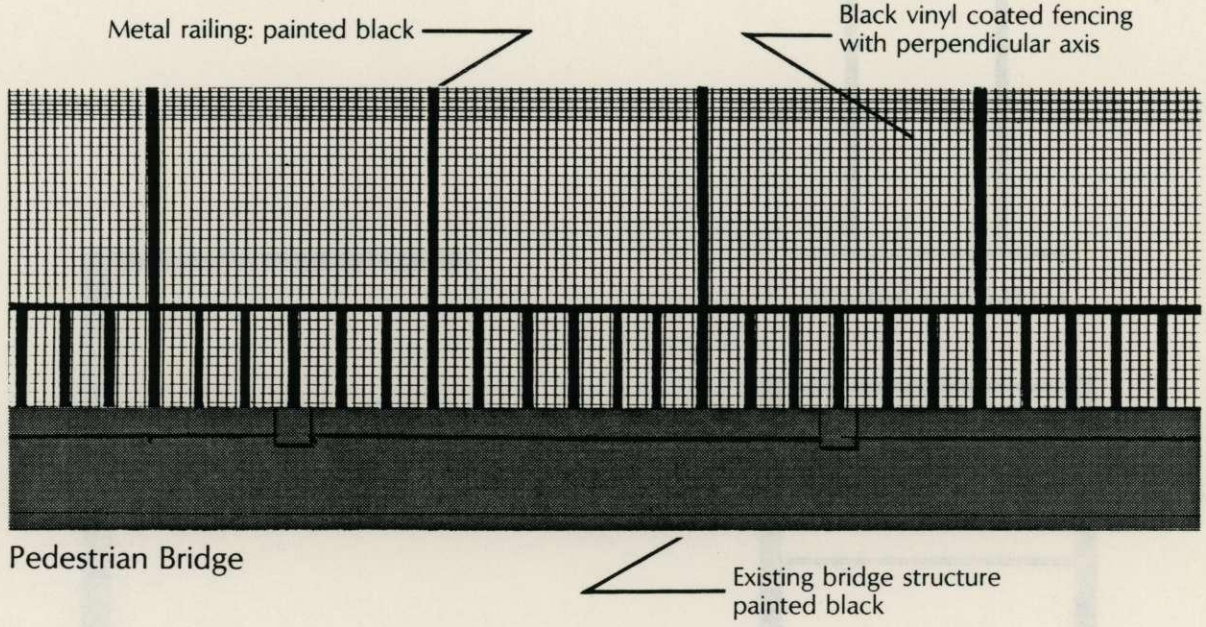
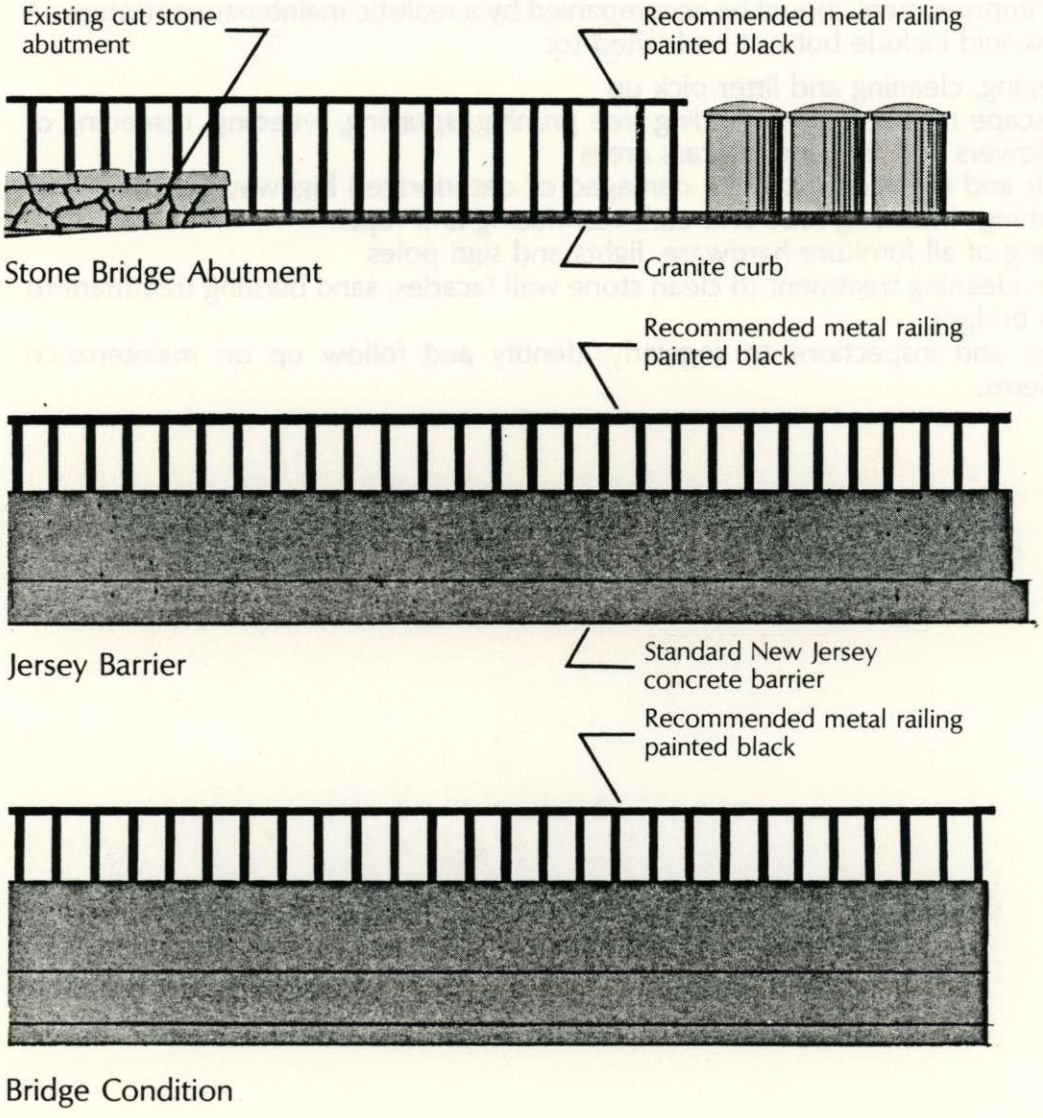


Figure III-5
FREEWAY STRUCTURES: FENCING/RAILING



3. MAINTENANCE RECOMMENDATIONS

Maintenance Recommendations consist primarily of establishing a maintenance program to ensure a well-kept, high quality image. An ongoing maintenance program is essential since new planting would take several years to develop. If a reasonable priority is not given to maintenance and replacement programs, the gradually developing image would erode rather than intensify.

Each new improvement should be accompanied by a realistic maintenance strategy. A program would include but not be limited to:

- Sweeping, cleaning and litter pick up
- Landscape maintenance including tree pruning, spraying, weeding, reseeding of wildflowers and mowing of grass areas
- Repair and replacement of all damaged or deteriorated highway hardware and furnishings including road and curb resurfacing and repair
- Painting of all furniture hardware, lights and sign poles
- Steam cleaning treatment to clean stone wall facades; sand blasting treatment to clean bridges
- Survey and inspections to regularly identify and follow up on maintenance problems.

CONCEPTUAL DESIGN RECOMMENDATIONS FOR PROTOTYPICAL CONDITIONS

B. CONCEPTUAL DESIGN RECOMMENDATIONS FOR PROTOTYPICAL CONDITIONS

Conceptual design recommendations have been made for the eight prototypical conditions of the Anacostia Freeway Corridor. The eight conditions are:

1. Condition A: Arrival/Entry
2. Condition B: Waterfront Park
3. Condition C: Natural Woodland
4. Condition D: Incompatible Adjacent Land Uses
5. Condition E: Views/Vistas
6. Condition F: Exit/Entry Ramps, Bridge Embankments
7. Condition G: Medians
8. Condition H: Urban Street

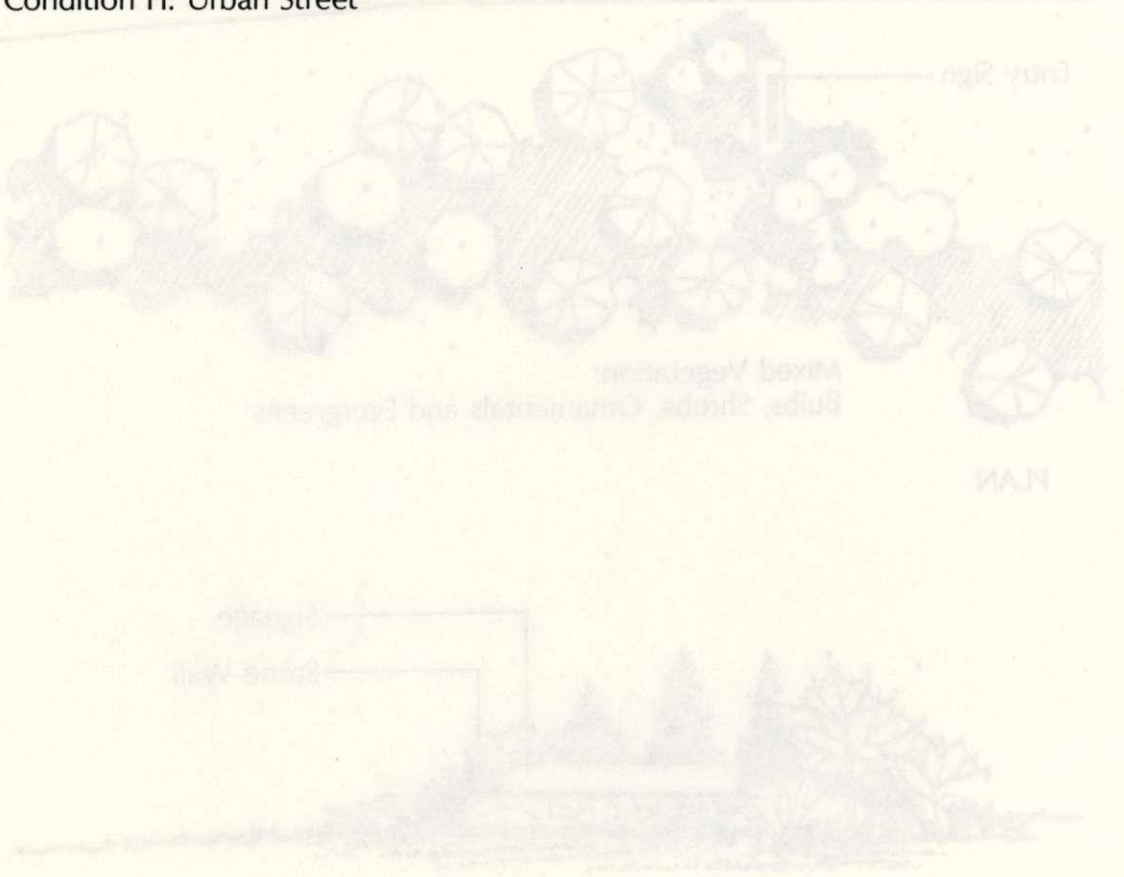
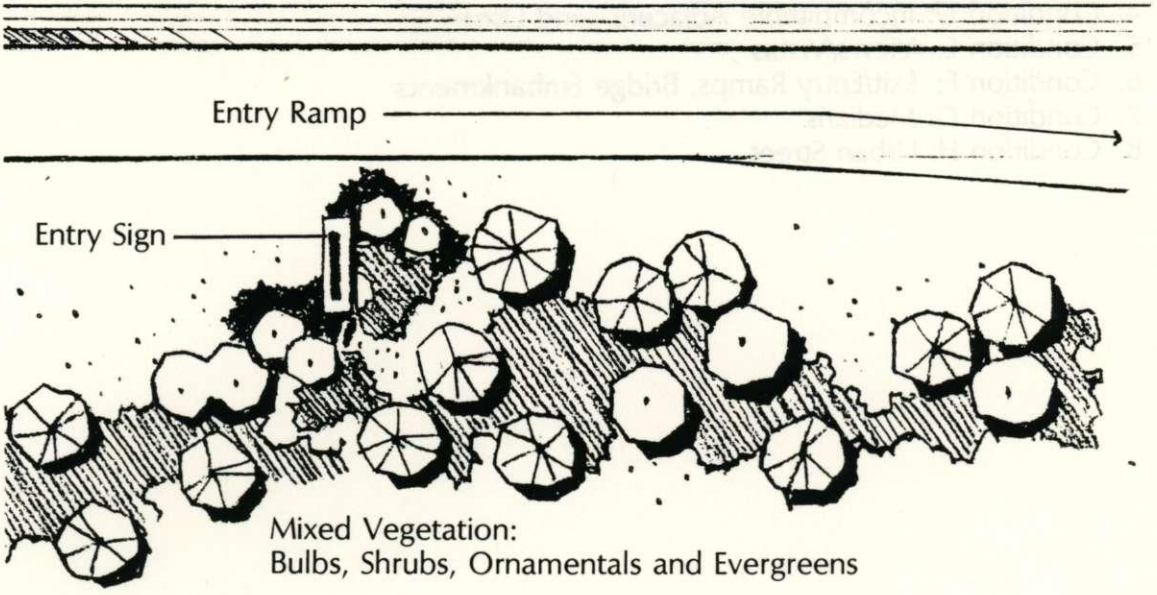
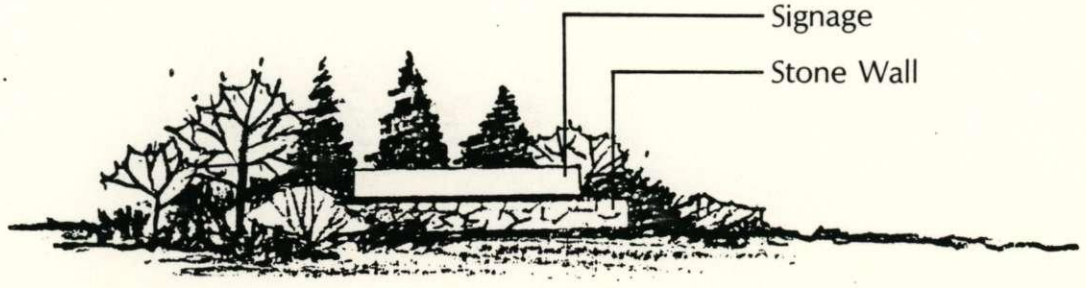


Figure III-6
CONDITION A: ARRIVAL/ENTRY



PLAN



ELEVATION

1. CONDITION A: ARRIVAL/ENTRY

Planting

Recommendations & Effects:

- Establish two principal arrival/entry areas at north and south boundaries of Corridor, Kenilworth Avenue and I-295, to identify the Anacostia Freeway Corridor and create a positive first impression and image.
- Develop carefully sequenced planting to create sense of anticipation and to direct the motorist's view toward significant Washington landmarks and city entrance. Enhance proposed signage with specimen flowering and evergreen trees and low evergreen shrubs (see recommended planting materials for landscape condition A).

Freeway Structures

Recommendations & Effects:

Lighting:

- Overhead lighting should be limited to entry and exit and bridged conditions and should be located adjacent to the roadway for an uncluttered appearance and consistent location.
- Use of ornamental light fixtures (see Figure III-2) would contribute to a parkway like image, particularly for urban conditions such as Kenilworth Avenue. Continue use of mercury vapor lighting due to lower costs and preferred color spectrum.
- Recessed built-in lighting in the entry signage would highlight the signage.

Signage:

- Remove all overhead directional signage and replace with signage adjacent to road to reduce visual clutter. Consider property easements and/or land acquisition in areas with limited r.o.w. Use proposed signage for consistent treatment (see page III-9).
- Establish ground plane entry signage announcing Anacostia Freeway Corridor (see Figure III-9). Incorporate stone wall construction to tie in with use of stone walls throughout the Corridor.

Fencing/Railing:

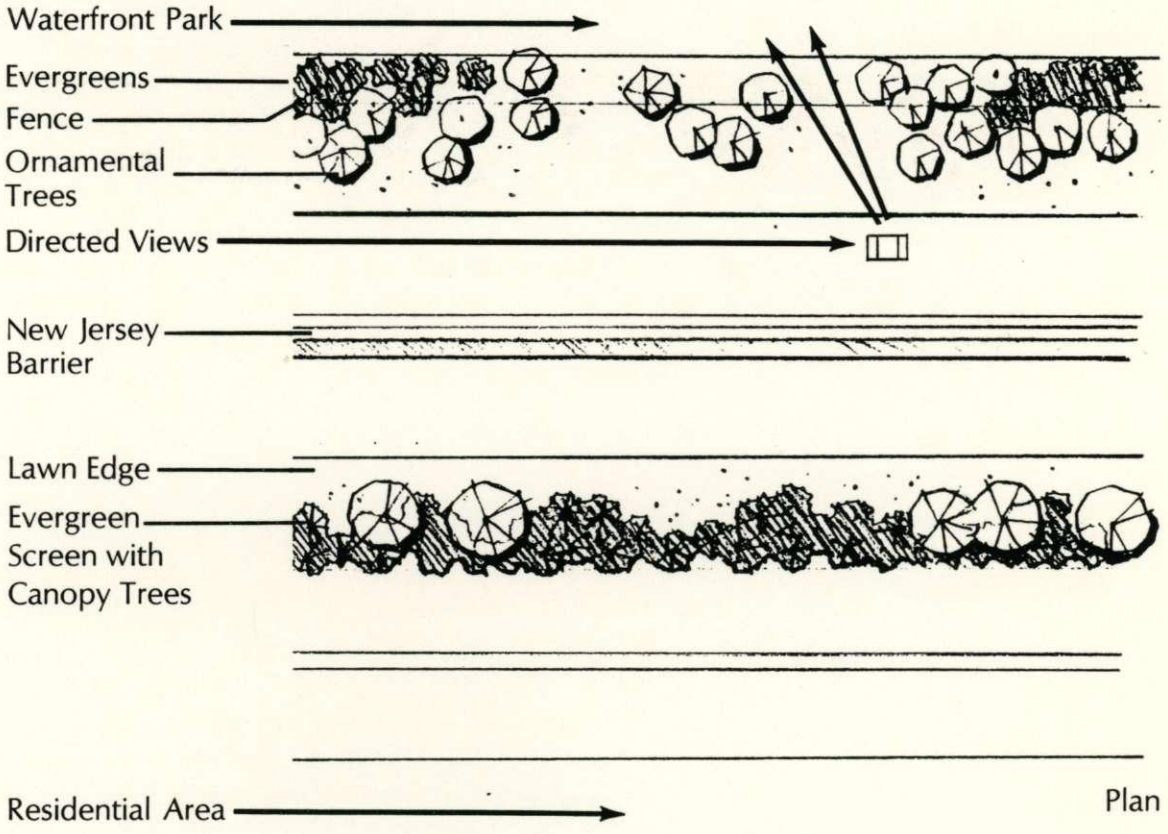
- No recommendations to be made.

Maintenance

Recommendations & Effects:

- Establish a high standard of maintenance for arrival/entry areas to create a positive image of the Corridor. Landscape maintenance should include tree pruning, spraying, weeding, reseeding of wildflowers and mowing of grass areas. Survey and inspections should regularly identify and follow up on maintenance problems.

Figure III-7
CONDITION B: WATERFRONT PARK CONDITIONS



Elevation

2. CONDITION B: WATERFRONT PARK

Planting

Recommendations & Effects:

- Integrate additional planting along waterfront boundary to dramatize views of the park from the Freeway and to buffer the park from the Freeway. Prune and maintain indigenous plantings in selected areas where views are to be maintained.
- Plant accent flowering and evergreen trees on both sides of r.o.w. fence to help screen the fence and integrate it with planting (see recommended plant material for landscape condition B).

Freeway Structures

Recommendations & Effects:

Lighting:

- Remove overhead lighting fixtures for consistent lighting treatment (all overhead lighting to be limited to entry/exit and bridged conditions).

Signage:

- Establish small locational sign announcing Anacostia Park adjacent to road. Use proposed treatment, black steel frame and posts. All other necessary signage to be in standard location, adjacent to road and of standard design (see Figure III-3).

Fencing/Railing:

- Replace existing chain link property line (r.o.w.) fence with black vinyl fencing to blend and harmonize with plant material and for consistent fencing treatment throughout corridor. Consider property easements to move r.o.w. fence into parkland. Fence freeway r.o.w. property line as required by interstate safety regulations.
- Replace center median guardrail with New Jersey barrier to conform with AASHTO standards and for consistent median treatment in narrow unplanted median areas.
- Establish a standard for the use of guardrails to reduce the excessive amount of railing used and limit the use of guardrails to areas with hazardous grade changes. Use standard interstate railing until new design is developed.

Maintenance

Recommendations & Effects:

- Perform specialized landscape maintenance pruning to existing vegetative buffer along waterfront edge to maintain open views of/to park. Landscape maintenance should also include spraying, weeding, reseeding of wildflowers and mowing of grass areas.

3. CONDITION C: NATURAL WOODLAND

Planting

Recommendations & Effects:

- Maintain existing woodland conditions found predominantly along Interstate-295 east embankment. Continue woodland character planting on west embankment and in center median. This treatment would buffer objectionable views of adjacent land uses while creating a consistent park like character and strong image of a green freeway corridor.
- Vary planting setback edges to existing woodland to heighten the naturalistic appearance of woodland. Consider revising standards to allow trees to be planted closer than 30 feet away from the road.

Freeway Structures

Recommendations & Effects:

Lighting:

- Remove all lighting except in exit/entry ramp and bridged conditions. For those conditions, lighting fixtures should be of the proposed ornamental type and located adjacent to the road (see Figure III-2).

Signage:

- Remove, when possible, overhead signage structures. Locate adjacent to road. Consider property easements and/or land acquisition for area with limited right-of-way. This would allow more signage to be located adjacent to road. If overhead signage is needed, reduce size of structure and apply proposed mounting design system (see Figure III-3).
- Proposed signage to be of black steel frames and posts, of varying sizes according to the conditions. Establish standard location for directional signage (yield sign, speed limit, etc.). This signage system would reduce visual clutter and confusion while increasing its effectiveness.

Fencing/Railing:

- Limit use of chain link fencing. Fencing visually separates rather than integrates the woodland landscape in and outside the Freeway r.o.w. In conditions where fencing is required (such as Freeway r.o.w. property line) use black vinyl fencing to blend and harmonize with woodland.

Maintenance

Recommendations & Effects:

- Preserve existing woodlands by removing damaged and diseased vegetation, pruning crowded limbs, removing choking vines. Landscape maintenance should also include weeding and mowing of grass areas along edges of woodland.

4. CONDITION D: INCOMPATIBLE ADJACENT LAND USES

Planting

Recommendations & Effects:

- Screen highly visible institutional and industrial facilities along I-295, views of residential and commercial communities on Kenilworth Avenue and Anacostia Freeway and gas stations and junk yards facing Kenilworth Avenue. Plant dense masses of evergreen and mixed deciduous trees (see recommended plant list for condition D). Planting of evergreen and deciduous trees would screen objectionable views and would establish an effective landscape buffer.

Freeway Structures

Recommendations & Effects:

Lighting:

- Overhead lighting should be limited to entry and exit and bridged conditions and should be located adjacent to the roadway for an uncluttered appearance and consistent location.
- Use of ornamental light fixtures (see Figure III-2) would contribute to a parkway like image particularly for urban conditions such as Kenilworth Avenue. Continue use of mercury vapor lighting due to lower costs and preferred color spectrum.

Signage:

- Remove, when possible, overhead signage structures. Locate adjacent to road. Consider property easements and/or land acquisition to area with limited right-of-way. This would allow more signage to be located adjacent to road. If overhead signage is needed, reduce size of structure and apply proposed mounting design system (see Figure III-3).
- Proposed signage to be of black steel frame and posts, of varying sizes according to the conditions. Establish standard location for directional signage (yield sign, speed limit, etc.). This signage system would reduce visual clutter and confusion while increasing its effectiveness.

Fencing/Railing:

- Consider property easements and land acquisition to extend property line r.o.w. in areas with less than 40 foot clearance from road. This would allow plant material to screen and integrate fencing with the landscape. Replace existing chain link fencing with black vinyl fencing for consistent fencing treatment throughout corridor. Fence Freeway r.o.w. property line as required by interstate safety regulations.
- Establish a standard for the use of guardrails to reduce the excessive amount of existing railing. Limit use of guardrails to areas with hazardous grade changes. Establish a standard for their use. The preferred recommendation is to develop a new guardrail design. Until one is established, use standard interstate metal railing.

Maintenance

Recommendations & Effects:

- Establish a high level of maintenance in order to preserve the positive image of the green corridor in the urban environment. Maintenance should include sweeping, cleaning and litter pick up; landscape maintenance such as pruning, spraying, weeding, and mowing of lawn areas; and repair and replacement of all damaged or deteriorated roadway hardware and furnishings, including road and curb resurfacing and repair.

5. CONDITION E: VIEWS/VISTAS

Planting

Recommendations & Effects:

- Scenic views of the Capital City and waterfront would create an interesting and enjoyable driving experience while reinforcing a gateway image.
- On Anacostia Freeway and Interstate-295 frame views of the city, including views of the Capitol and Washington Monument. Plant evergreen and mixed deciduous trees to frame and direct views (see recommended plant material for landscape condition E).
- Prune existing vegetation which blocks views to city and waterfront.

Freeway Structures

Recommendations & Effects:

Lighting:

- Remove overhead center lane median lighting which may block or interfere with views. Locate all required lighting at exit/entry ramps and bridged conditions adjacent to road where lighting fixtures will give an uncluttered appearance and detract least from the view.

Signage:

- Remove, when possible, overhead signage structures which may detract from views. Locate them adjacent to road. Consider property easements and/or land acquisition for area with limited right-of-way. This would allow more signage to be located adjacent to road. If overhead signage is needed, reduce size of structure and apply proposed mounting design system (see Figure III-3).
- Proposed signage should be of black, squared, steel frame with posts of varying sizes according to the conditions. Establish standard location for directional signage (yield sign, speed limit, etc.). This signage system would reduce visual clutter and confusion while increasing its effectiveness.

Fencing/Railing:

- Limit use of chain link fencing, as fencing visually separates rather than integrates the landscape environment in and outside the Freeway r.o.w. Replace chain link fencing with proposed black vinyl fencing in areas requiring fencing (such as Freeway r.o.w. property line required by Interstate safety regulations) to blend and harmonize with plant materials. Consider property easements and land acquisition to extend property r.o.w. in areas with less than 40 foot clearance from road. This would allow plant material to screen fencing and make it less visually intrusive.
- Additional installation of stone walls would contribute towards a consistent park like character throughout the corridor. Cut stone retaining walls, matching the existing stone walls and bridge abutments, would visually harmonize with the parkway like landscape and would enhance views to the Capitol and Waterfront.

Maintenance

Recommendations & Effects:

- A high level of maintenance is particularly important in viewing areas of the Freeway where close foreground views of trash and neglected areas could distract from long scenic views. Maintenance should include sweeping, cleaning and litter pickup; landscape maintenance; and hard surface repair and replacement work on curbs and road surfaces.

6. CONDITION F: EXIT/ENTRY RAMPS, BRIDGE EMBANKMENTS

Planting

Recommendations & Effects:

- Plant flowering and evergreen trees with low evergreen shrubs to form an important first and last impression as motorists enter and exit the freeway (see recommended plant material for condition F). This treatment would apply to all exit and entry ramped areas and bridge embankments.

Freeway Structures

Recommendations & Effects:

Lighting:

- Overhead lighting should be limited to entry and exit and bridged conditions and should be located adjacent to the roadway for an uncluttered appearance and consistent location.
- Use of ornamental light fixtures (see Figure III-2) would contribute to a parkway like image, particularly for urban conditions such as Kenilworth Avenue. Continue use of mercury vapor lighting due to lower costs and preferred color spectrum.

Signage:

- Remove, when possible, overhead signage structures. Locate adjacent to road. Consider property easements and/or land acquisition for area with limited right-of-way. This would allow more signage to be located adjacent to road. If overhead signage is needed, reduce size of structure and apply proposed mounting design system (see Figure III-3).
- Proposed signage to be of black steel frames and posts, of varying sizes according to the conditions. Establish standard location for directional signage (yield sign, speed limit, etc.). This signage system would reduce visual clutter and confusion.

- Remove signage on overhead pedestrian bridges. This would give a less cluttered appearance to the roadway.
- Continue use of Federal Interstate signage.

Fencing/Railing:

- Fence Freeway r.o.w. property line as required by interstate safety regulations. Replace existing chain link fencing with proposed black vinyl fencing which would blend with plant material and surrounding landscape.
- Install proposed black metal railing with consistent post spacing in conditions where railing is currently being used, such as pedestrian bridges and bridged conditions. A consistent use of metal railing applied to various site conditions would establish a consistent identity throughout the corridor (see Figure III-5).
- Establish a standard for the use of guardrails to reduce the excessive amount of existing railing. Limit the use of guardrails to areas with hazardous grade changes. The preferred recommendation is to develop a new guardrail design. Until one is established, use standard interstate metal railing.
- Additional installation of stone walls would contribute to a consistent parkway like character throughout the corridor. Cut stone retaining walls would match existing stone walls and bridge embankments.

Maintenance

Recommendations & Effects:

- Maintenance should emphasize repair and replacement of all damaged or deteriorated highway hardware and furnishings, including road and curb resurfacing and repair. Steam clean stone bridges.

7. CONDITION G: MEDIANS

Planting

Recommendations & Effects:

- Plant median of Interstate-295 with informally massed deciduous and evergreen trees to repeat the existing woodland on the eastern edge of I-295 and to achieve a similar natural character. Dense median planting would screen objectionable views of industrial and institutional facilities to the west and would reduce glare of oncoming traffic at night.
- Plant center median of Anacostia Freeway where opportunities exist. Plant street trees in narrow planting strips above bridge abutments to repeat the image of the green corridor.

Freeway Structures

Recommendations & Effects:

Lighting:

- Overhead lighting should be limited to entry and exit and bridged conditions and should be located adjacent to the roadway for an uncluttered appearance and consistent location.
- Use of ornamental light fixtures (see Figure III-2) would contribute to a parkway like image, particularly for urban conditions such as Kenilworth Avenue. Continue use of mercury vapor lighting due to lower costs and preferred color spectrum.

Signage:

- Remove all overhead and center median signage and locate adjacent to road. Consider property easements and land acquisition for area with limited right-of-way. This would allow more signage to be located adjacent to road.
- Proposed signage to be of consistent material in standard locations for unified image of roadway.

Fencing/Railing:

- Install New Jersey barrier throughout the corridor in areas without a landscaped median. This treatment would conform with AASHTO standards and would provide a consistent appearance to the median.
- Metal railing would be installed wherever existing railing is used above New Jersey barriers. Replace chain link fencing above New Jersey barrier on Kenilworth Avenue with proposed metal railing for a more attractive treatment and compatible use of materials (see Figure III-5).
- Establish a standard for the use of guardrails to reduce the excessive amount of existing railing. The preferred recommendation is to develop a new guardrail design. Use the standard interstate metal railing until new standard is developed. Limit use of guardrails to areas with hazardous changes.
- Additional installation of stone walls would contribute to the parkway like character of the corridor. Use cut stone retaining walls to match existing stone walls and bridge abutments in landscaped medians along I-295 and Anacostia Freeway.

Maintenance

Recommendations & Effects:

- A high level of maintenance is particularly important in the medians where close foreground views of trash and neglected areas would detract from the desired positive image. Maintenance should include sweeping, cleaning and litter pickup; landscape maintenance; and hard surface repair and replacement work on curbs and road surfaces.

8. CONDITION H: URBAN STREET

Planting

Recommendations & Effects:

- Plantings of street trees and evergreen trees at edges of roadway would provide a sense of enclosure and screen objectionable views of adjacent commercial, residential and industrial land uses as well as buffering those areas from the roadway.
- Rows of canopy street trees with low understory evergreen shrubs would be an effective screen of adjacent commercial facilities. Consider land acquisition or property easements to provide more adequate space for planting.
- Plant mixed evergreen and ornamental trees in medians against stone piers of pedestrian bridges over Anacostia Freeway. This would partially screen the overhead pedestrian bridges and repeat the image of the green corridor.

Freeway Structures

Recommendations & Effects:

Lighting:

- Overhead lighting should be limited to entry and exit and bridged conditions and should be located adjacent to the roadway for an uncluttered appearance and consistent location.
- Use of ornamental light fixtures (see Figure III-2) would contribute to a parkway like image, particularly for urban conditions such as Kenilworth Avenue. Continue use of mercury vapor lighting due to lower costs and preferred color spectrum.

Signage:

- Remove all overhead directional signage and replace with signage adjacent to road to reduce visual clutter. Consider property easements and/or land acquisition in areas with limited r.o.w.

- If overhead signage is needed, reduce size of structures and apply proposed mounting design system (see Figure III-3).
- Replace center median guardrail with New Jersey barrier to conform with AASHTO standards and for consistent median treatment in unlandscaped median areas.
- Establish a standard for the use of guardrails to reduce the excessive amount of railing used and limit the use of guardrails to areas with hazardous grade changes. Use standard interstate railing until new design is developed.

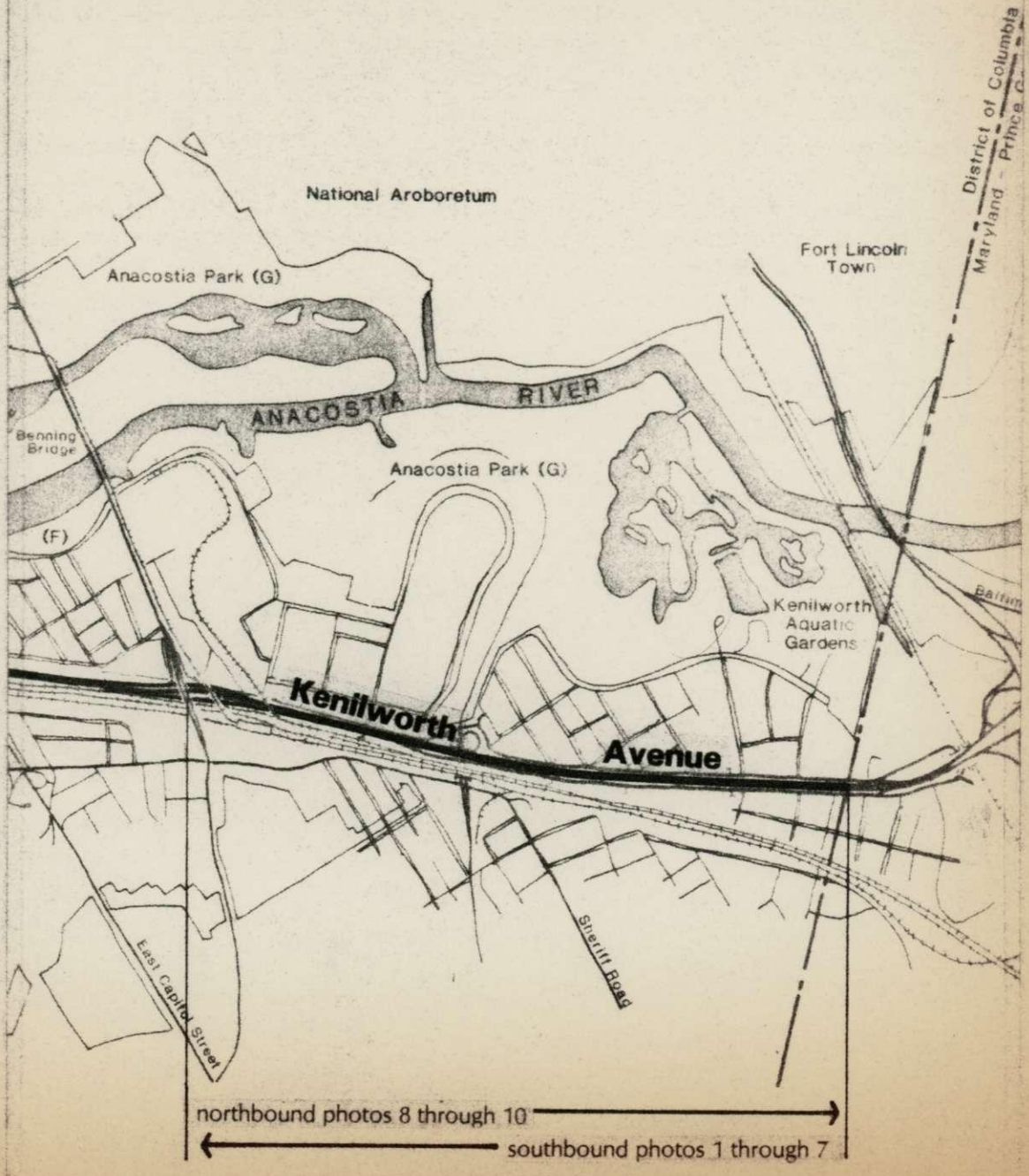
Maintenance

Recommendations & Effects:

- Establish a high level of maintenance in order to preserve the positive image of the green corridor in the urban environment.

DESIGN TREATMENTS FOR ANACOSTIA FREEWAY CORRIDOR

Figure III-8
ZONE 1: KENILWORTH AVENUE



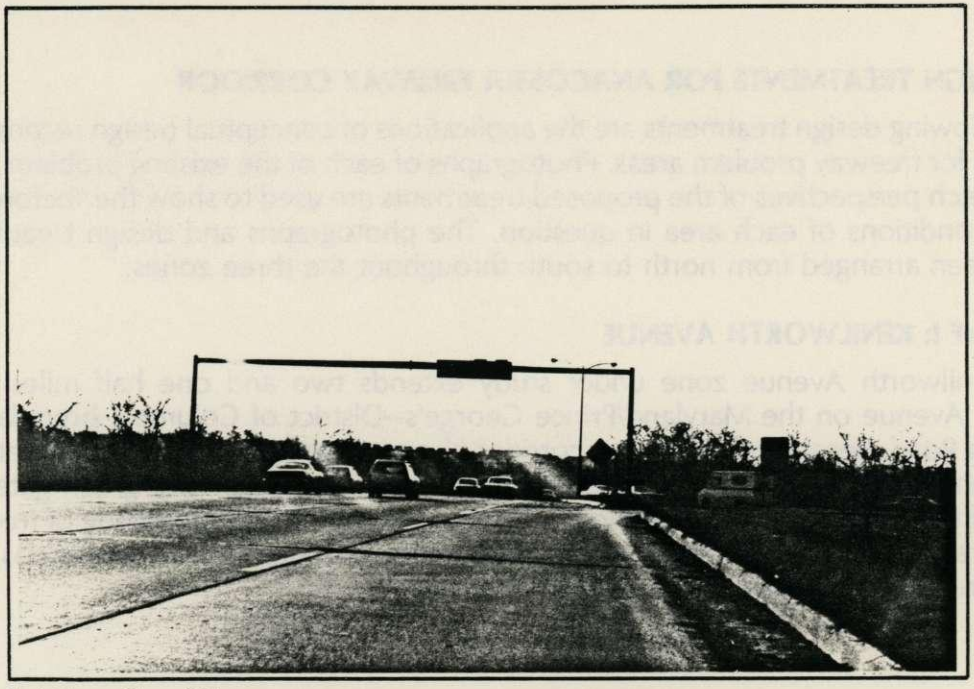
C. DESIGN TREATMENTS FOR ANACOSTIA FREEWAY CORRIDOR

The following design treatments are the applications of conceptual design recommendations for freeway problem areas. Photographs of each of the existing problem areas and sketch perspectives of the proposed treatments are used to show the "before and after" conditions of each area in question. The photographs and design treatments have been arranged from north to south throughout the three zones.

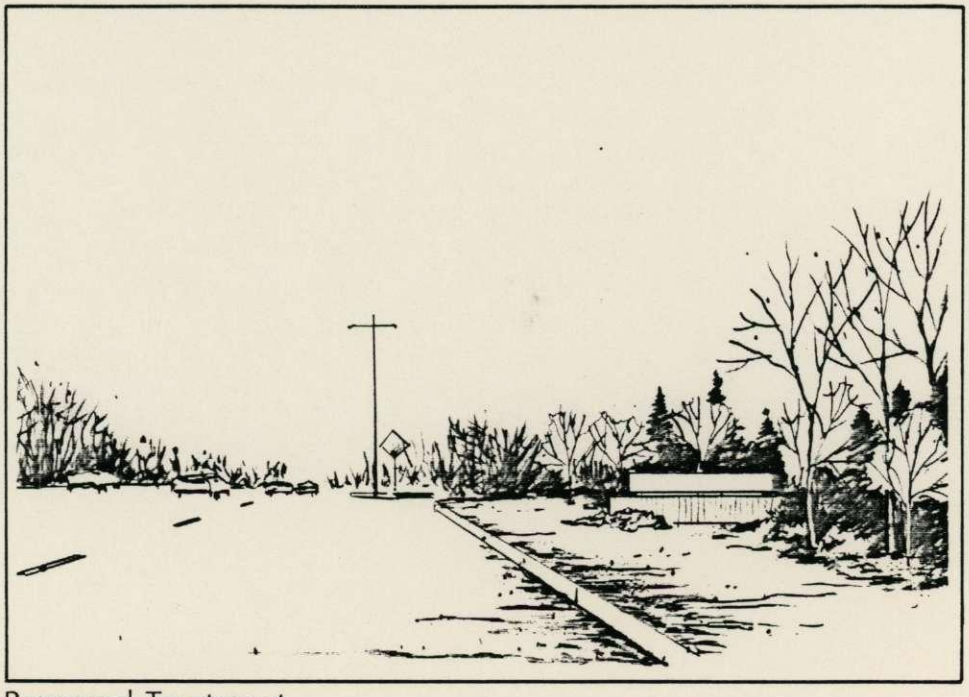
1. ZONE I: KENILWORTH AVENUE

The Kenilworth Avenue zone under study extends two and one half miles from Eastern Avenue on the Maryland/Prince George's–District of Columbia boundary to Benning Road. Because of its narrow corridor (the average right-of-way is 100 feet) and its urban setting it offers the greatest challenge to the creation of a green gateway. Most of the recommendations concern the standardization and upgrading of freeway structures and improved maintenance. Most of the planting recommendations concern screening of incompatible adjacent land uses.

Figure III-9
KENILWORTH AVENUE, SOUTHBOUND #1



Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #1

CONDITION:

A. Arrival/Entry

Planting

Recommendation: – Establish a sequence of planting and a unified entry planting and signage design (see recommended plant list for Condition A).

Effect: – A careful sequencing of the entry planting and signage would direct the motorists' attention to the signage. It would create a sense of arrival and an important first impression and image of the corridor.

Freeway Structures

Lighting:

Recommendation: – Replace existing lighting with proposed ornamental fixtures adjacent to road.

Effect: – Ornamental lighting fixtures would contribute to the parkway like character; a standard location adjacent to the road would maintain an uncluttered median and provide a consistent treatment.

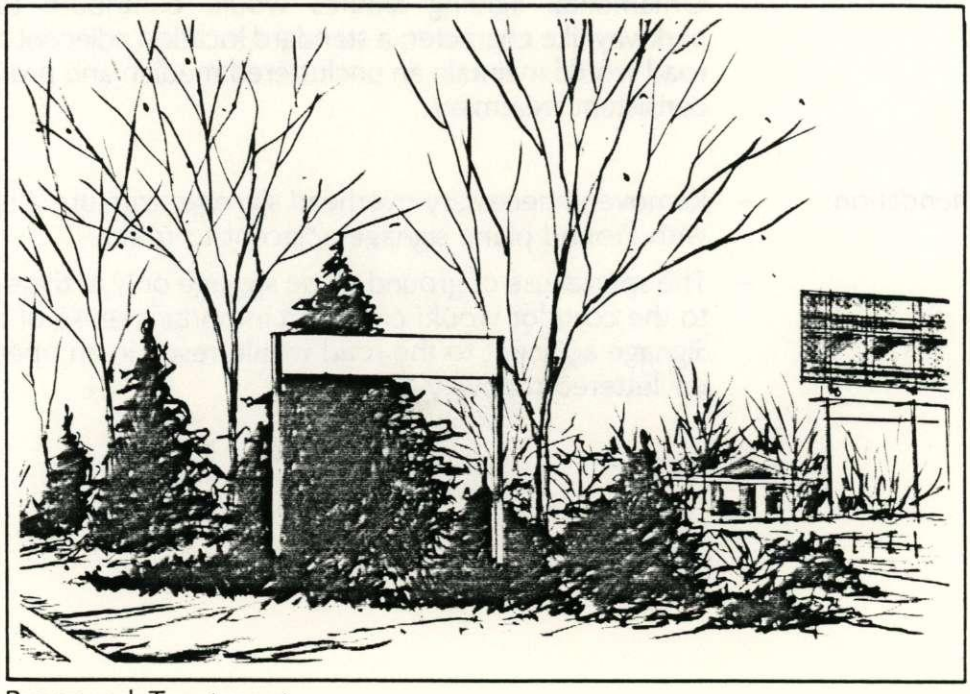
Signage:

Recommendation: – Remove unnecessary overhead signage structure. Replace with ground plane signage adjacent to road.

Effect: – The special use of ground plane signage only at the entries to the corridor would create an important sense of entry. Signage adjacent to the road would result in an open and uncluttered roadway.

Figure III-10
KENILWORTH AVENUE, SOUTHBOUND #2

Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #2

CONDITIONS:

D. Incompatible Adjacent Land Uses
H. Urban Street

Planting

Recommendation: – Plant street trees and massed evergreen trees along embankment (see recommended plant list for Condition D, H).

Effect: – A uniform planting of street trees would establish visual order while evergreen trees would screen views of residential neighborhoods and buffer the neighborhoods from the roadway.

Freeway Structures

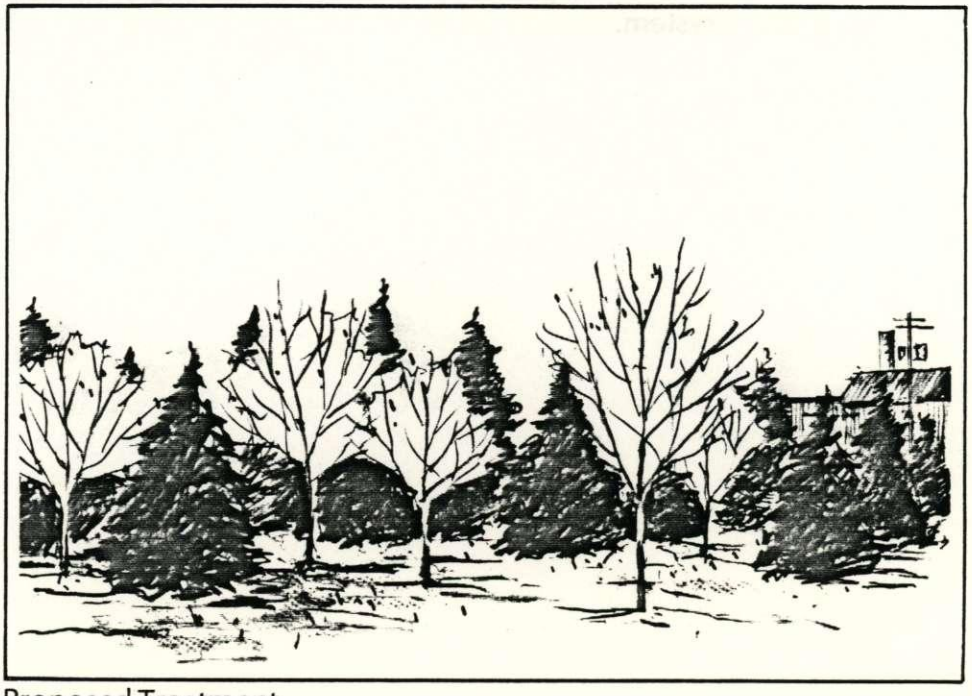
Signage:

Recommendation: – Install recommended signage.

Effect: – This would provide a more attractive and unified signage system.

Figure III-11
KENILWORTH AVENUE, SOUTHBOUND #3

Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #3

CONDITIONS:

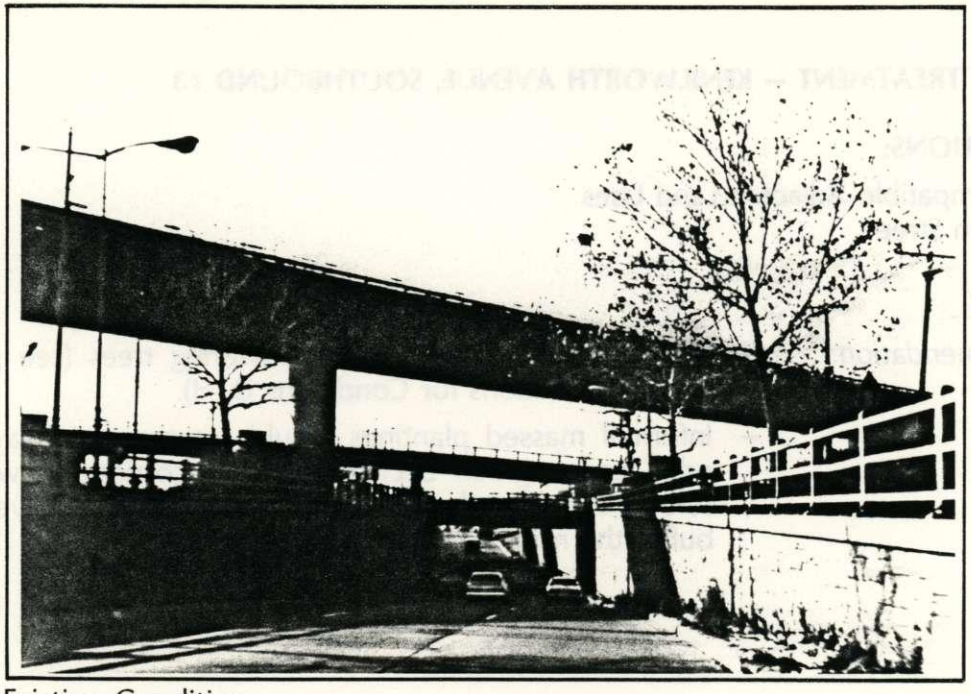
D. Incompatible Adjacent Land Uses
H. Urban Street

Planting

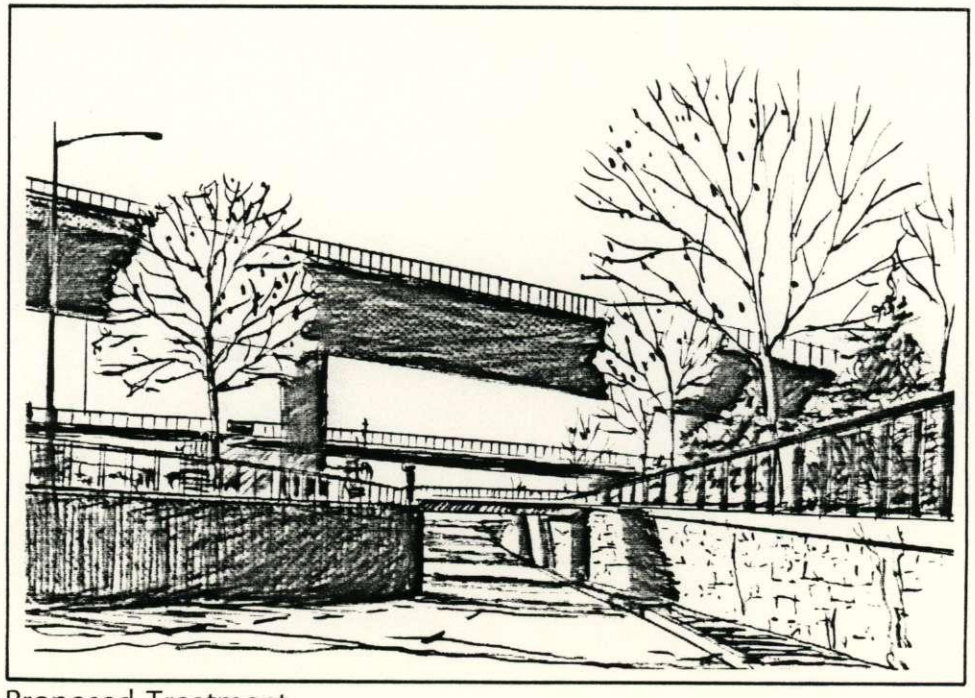
Recommendation: – Plant massed evergreen and flowering trees (see plant recommendations for Conditions D, H).

Effect: – Informal massed plantings would create a parkway-like edge and a green backdrop to the corridor. It would screen views of the residential communities as well as buffer the road from the neighborhood.

Figure III-12
KENILWORTH AVENUE, SOUTHBOUND #4



Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #4
CONDITIONS:

F. Exit/Entry Ramps, Bridge Embankments
H. Urban Street

Planting

Recommendation: – Plant additional street trees of same species as existing trees above bridge abutments and in front of bridge pier. Plant massed evergreens in front of pier.

Effect: – Additional tree planting would recall the green corridor effect of the earlier roadway sequences and would be an attractive use of narrow planting strips. Massed evergreen planting would partially screen the pier of the overhead ramp.

Freeway Structures

Lighting:

Recommendation: – Relocate center median lighting and relocate adjacent to roadway. Use proposed ornamental fixtures.

Effect: – This would provide a consistent lighting appearance location and would reduce the visual clutter in the center median.

Fencing/Railing:

Recommendation: – Remove existing railing above bridge abutment and install recommended metal railing.

Effect: – Use of recommended railing would be more compatible with stone bridge structures. Similar treatments and materials would unify the appearance of the roadway.

Maintenance

Recommendation: – Remove weeds along paved roadway edge and apply preventive spray to maintain edge.

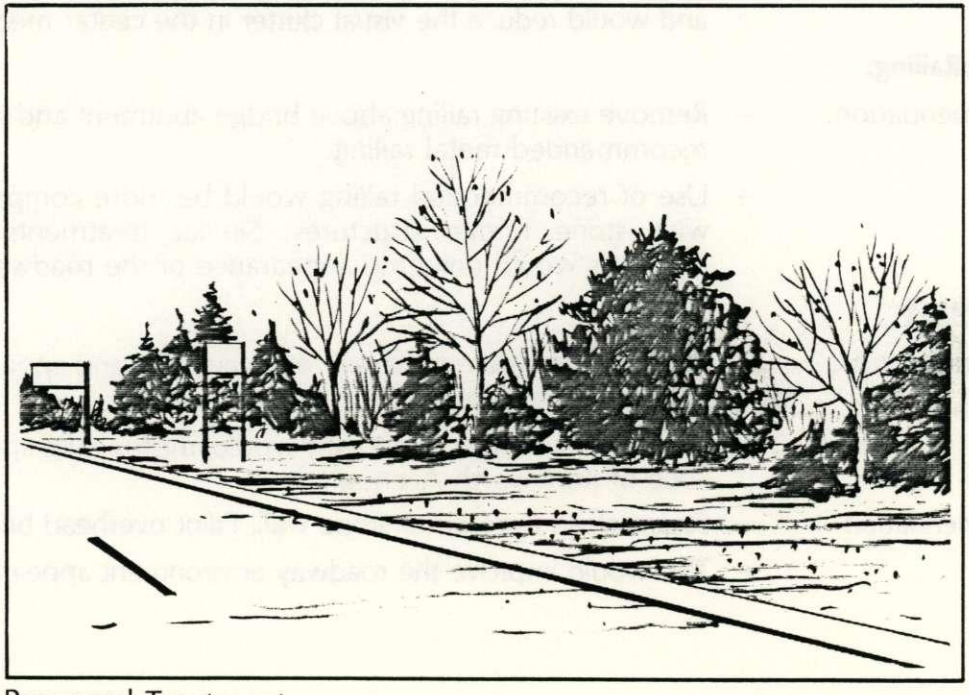
Effect: – A maintained edge of roadway would improve the appearance of Kenilworth Avenue.

Recommendation: – Steam clean the face of stone wall. Paint overhead bridges.

Effect: – This would improve the roadway environment appearance.

Figure III-13
KENILWORTH AVENUE, SOUTHBOUND #5

Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #5

CONDITIONS:

D. Incompatible Adjacent Land Uses
H. Urban Street

Planting

Recommendation: – Plant deciduous and evergreen trees in front of fence (see recommended plant list for Conditions D, H).

Effect: – This would screen views of adjacent residental communities, provide an attractive green edge to the roadway and integrate the fence with the planting.

Freeway Structures

Fencing/Railing:

Recommendation: – Replace existing chain link fence with proposed black vinyl coated fence.

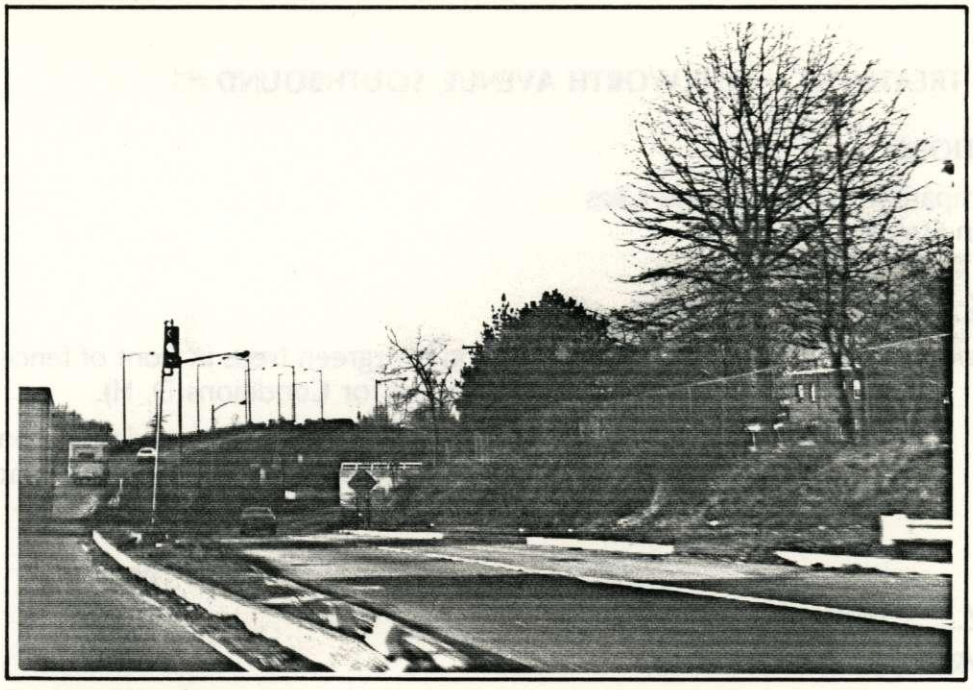
Effect: – The black fencing would blend with the proposed planting.

Maintenance

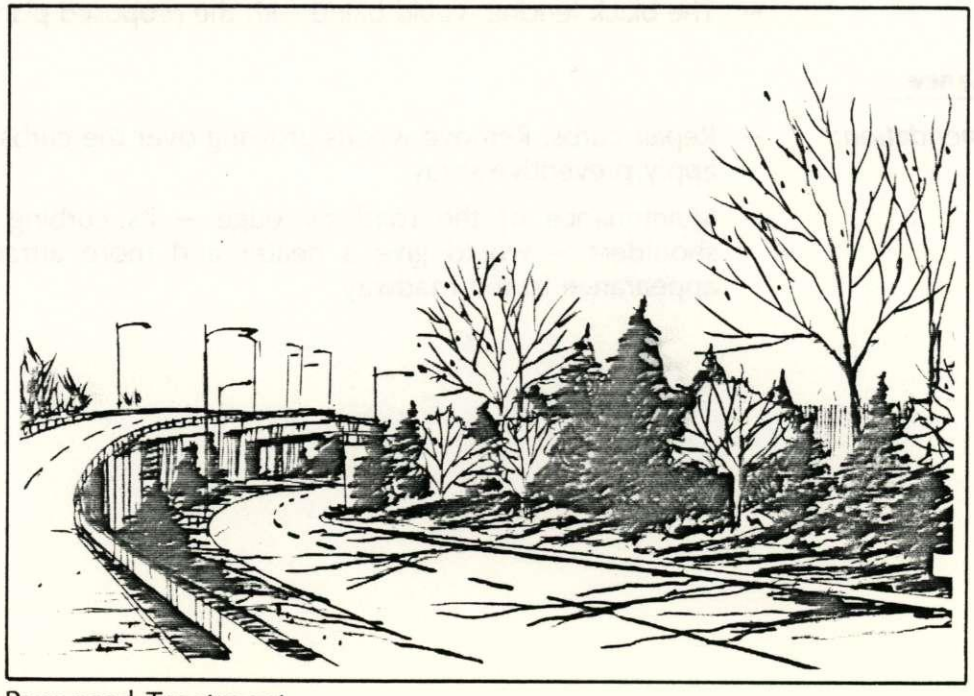
Recommendation: – Repair curbs. Remove weeds growing over the curbs and apply preventive spray.

Effect: – Maintenance of the roadway edge – its curbing and shoulders – would give a neater and more attractive appearance to the roadway.

Figure III-14
KENILWORTH AVENUE, SOUTHBOUND #6



Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #6

CONDITIONS:

F. Exit/Entry Ramps, Bridge Embankments
H. Urban Street

Planting

Recommendation:

- Plant exit embankment with small flowering trees and evergreen trees and shrubs. Plant evergreen trees on both sides of fence line.

Effect:

- A similar treatment of the exit embankment would make it consistent with the rest of the corridor and form an important last impression of the corridor. Planting on both sides of fence would integrate the fence with the landscape and would also screen views of adjacent residential communities. Shrub planting of the embankment would stabilize slope and lower maintenance costs.

Freeway Structures

Lighting:

Recommendation:

- Remove non-functional traffic light. Move exit ramp lighting to edge of roadway, and install recommended features.

Effect:

- This would give an organized and consistent appearance to the corridor.

Fencing/Railing:

Recommendation:

- Install recommended metal railing on bridge.
- Install recommended black vinyl fencing along property line.

Effect:

- Use of the proposed fencing and railing would result in a more attractive and consistent appearance of the roadway and would screen adjacent residential housing.

Maintenance

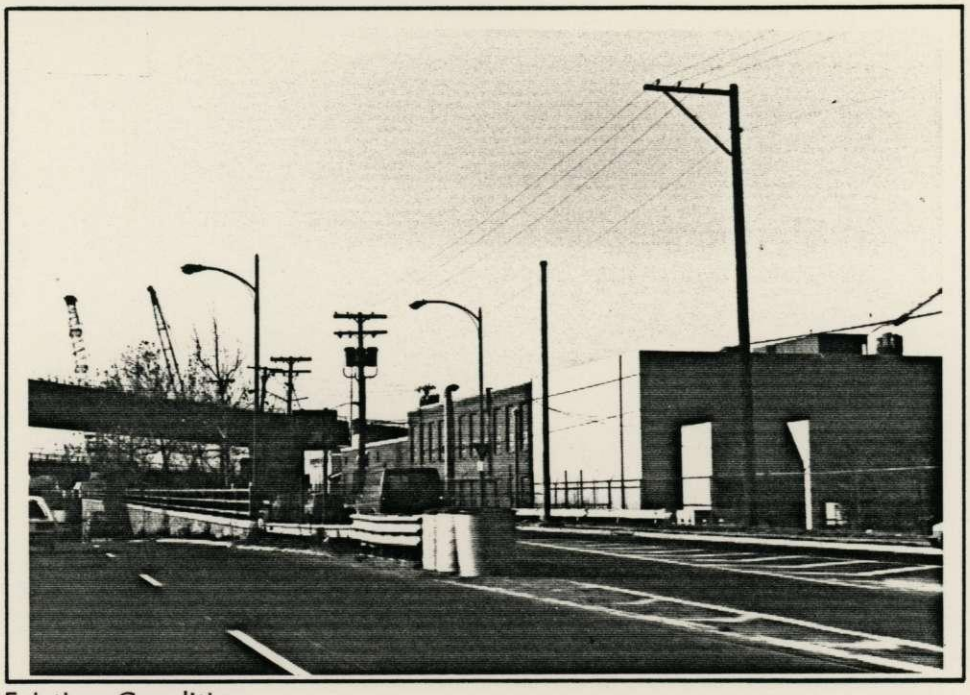
Recommendation: – Clean up and repair paved median strip. Remove weeds and apply preventive spray. Remove loose rubble and concrete. Repair concrete curbing.

Effect: – This would give a clean, well-maintained appearance.

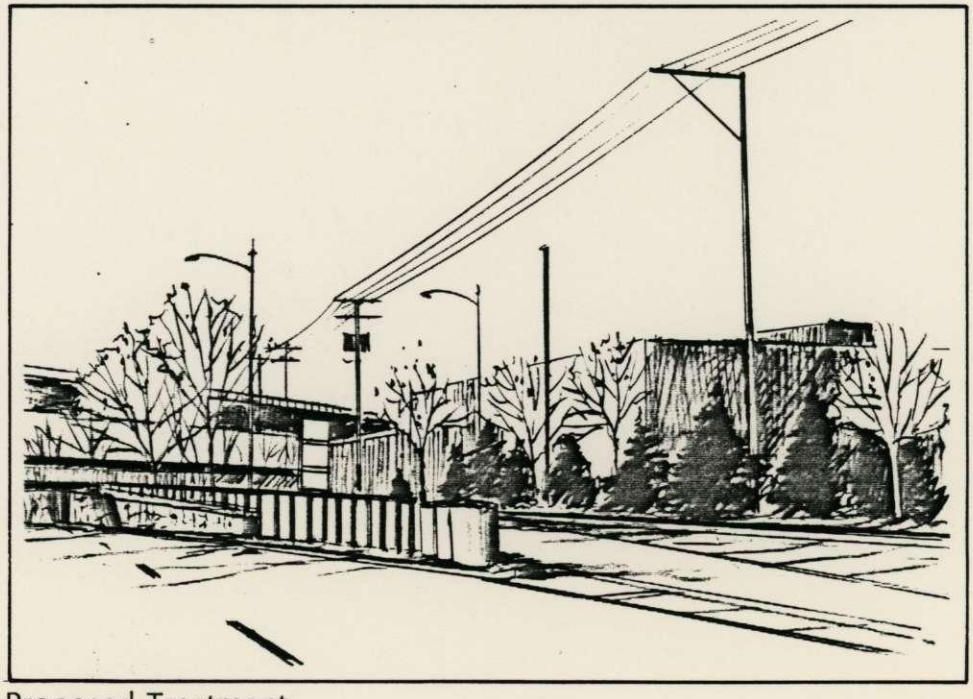
Recommendation: – Install new paving in median strip.

Effect: – This would give a neater and more attractive appearance.

Figure III-15
KENILWORTH AVENUE, SOUTHBOUND #7



Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, SOUTHBOUND #7

CONDITIONS:

D. Incompatible Adjacent Land Uses
F. Exit/Entry Ramps, Bridge Embankments

Planting

Recommendation: – Plant upright screen trees against fence to grow on fence along exit (see recommended plant list for Condition D).

Effect: – Planting would provide an attractive treatment of the exit by developing a living green edge to the roadway and would create an important last impression of the corridor.

Freeway Structures

Fencing/Railing:

Recommendation: – Remove guardrail, adjacent to bridge abutment and continue proposed metal railing.

Effect: – This would provide a uniform and attractive railing treatment.

Recommendation: – Replace chain link fence along exit with proposed black vinyl coated fence.

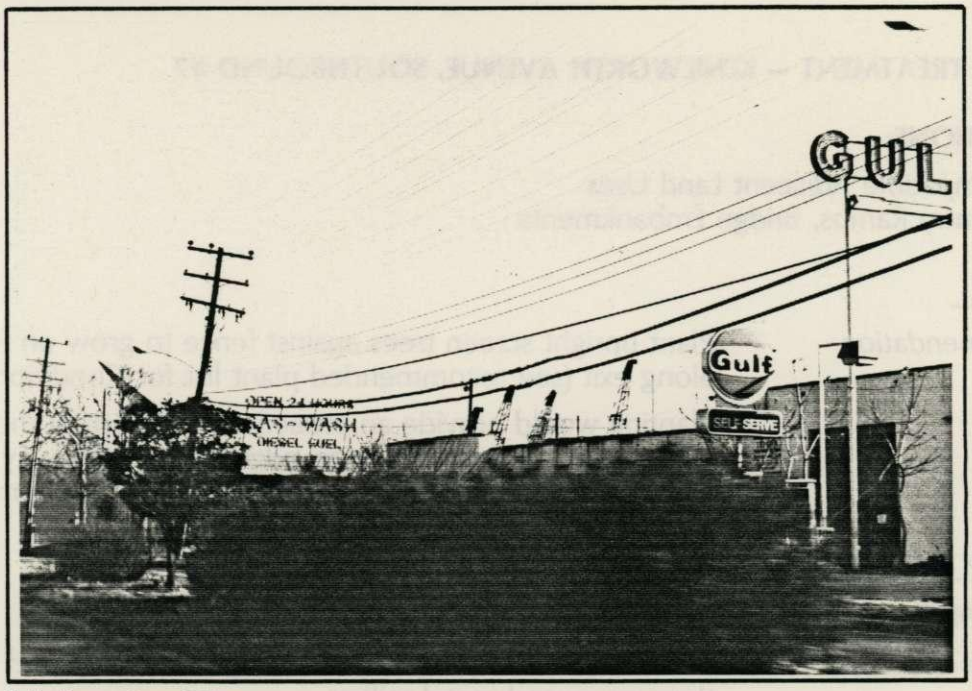
Effect: – This would be a more attractive treatment of the roadway edge and would be consistent with fencing treatments throughout the corridor.

Maintenance

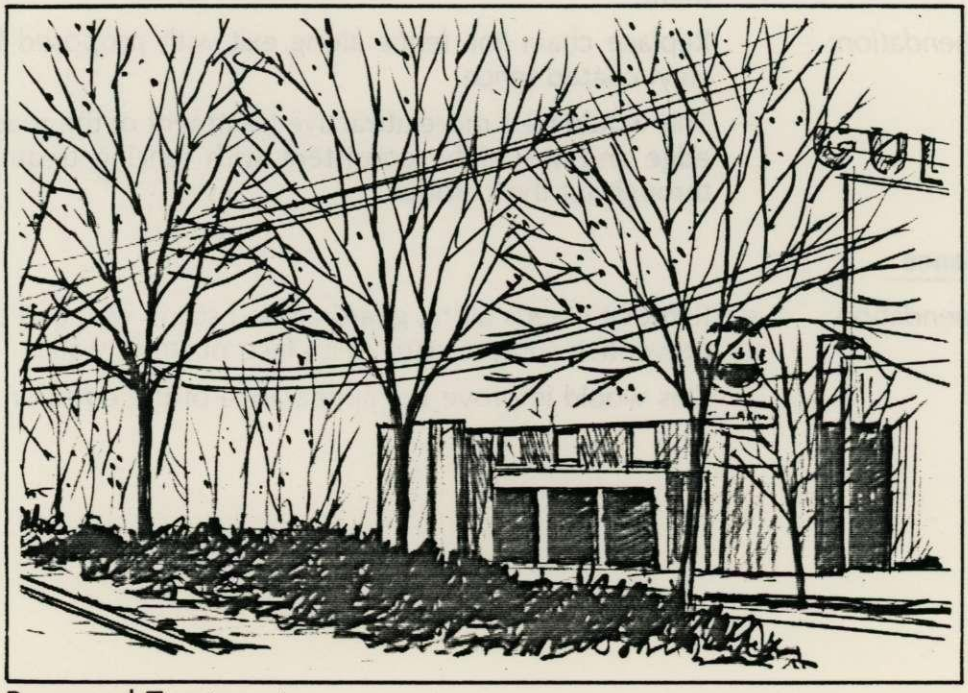
Recommendation: – Remove weeds along guardrail and stone wall and apply preventive spray. Steam clean face of stone wall.

Effect: – This would improve the appearance of the corridor.

Figure III-16
KENILWORTH AVENUE, NORTHBOUND #8



Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, NORTHBOUND #8

CONDITIONS:

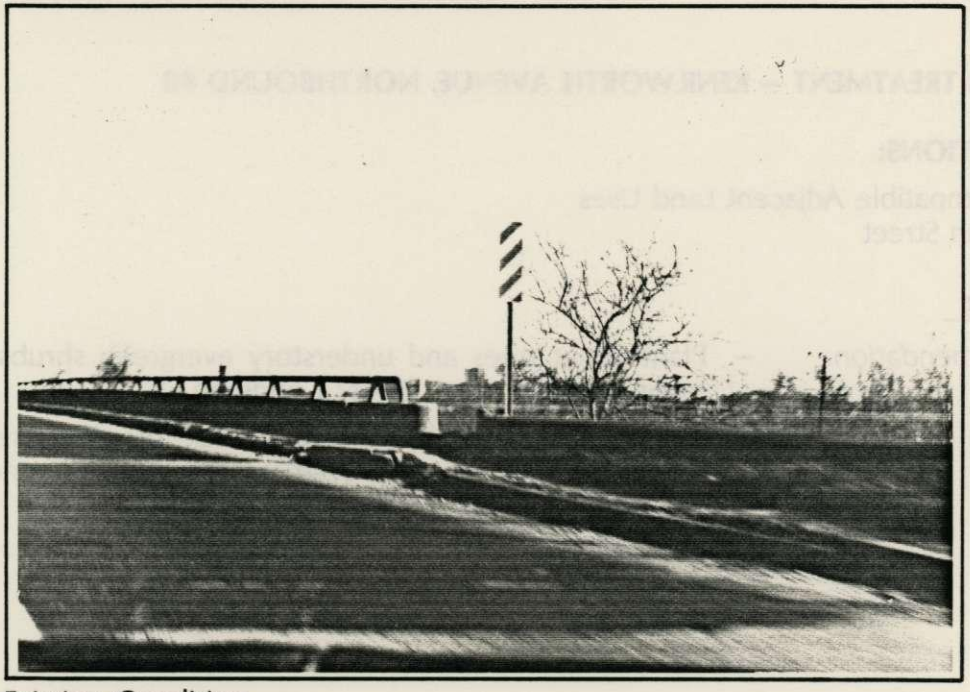
D. Incompatible Adjacent Land Uses
H. Urban Street

Planting

Recommendation: – Plant street trees and understory evergreen shrubs (see recommended plant list for Condition D).

Effect: – This treatment would provide a sense of enclosure and would screen but not restrict views of commercial facilities.

Figure III-17
KENILWORTH AVENUE, NORTHBOUND #9



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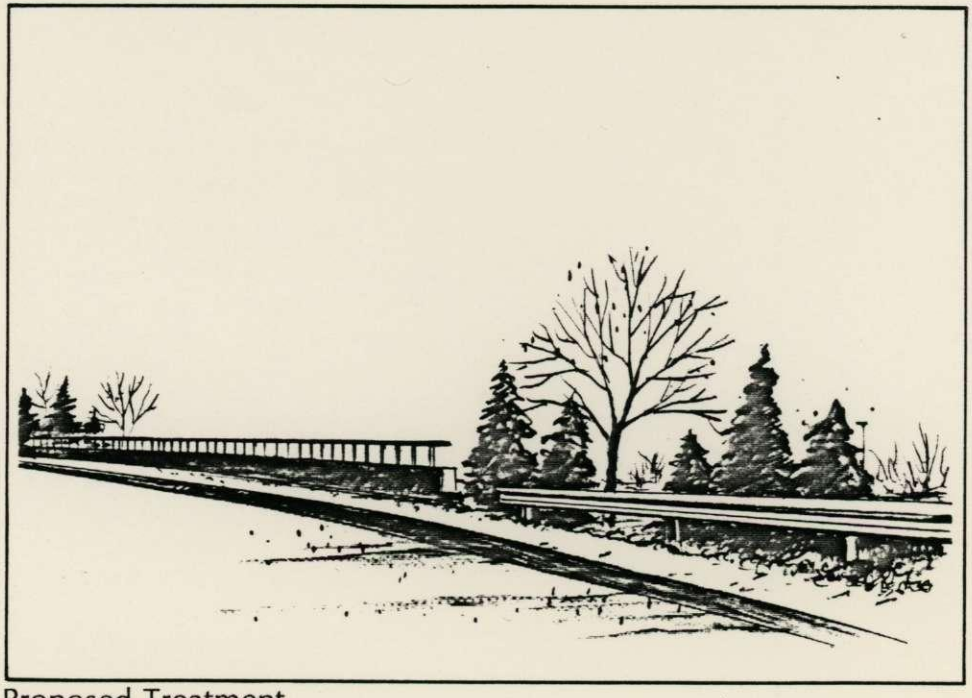


Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, NORTHBOUND #9

CONDITION:

F. Exit/Entry Ramps, Bridge Embankments

Planting

Recommendation: – Maintain lawn around guardrail and plant mixed evergreen shrubs behind guardrail. Add mixed evergreen and ornamental trees where possible.

Effect: – This planting and increased maintenance would be a more attractive treatment of this condition.

Freeway Structures

Fencing/Railing:

Recommendation: – Remove bridge railing and install recommended metal railing.

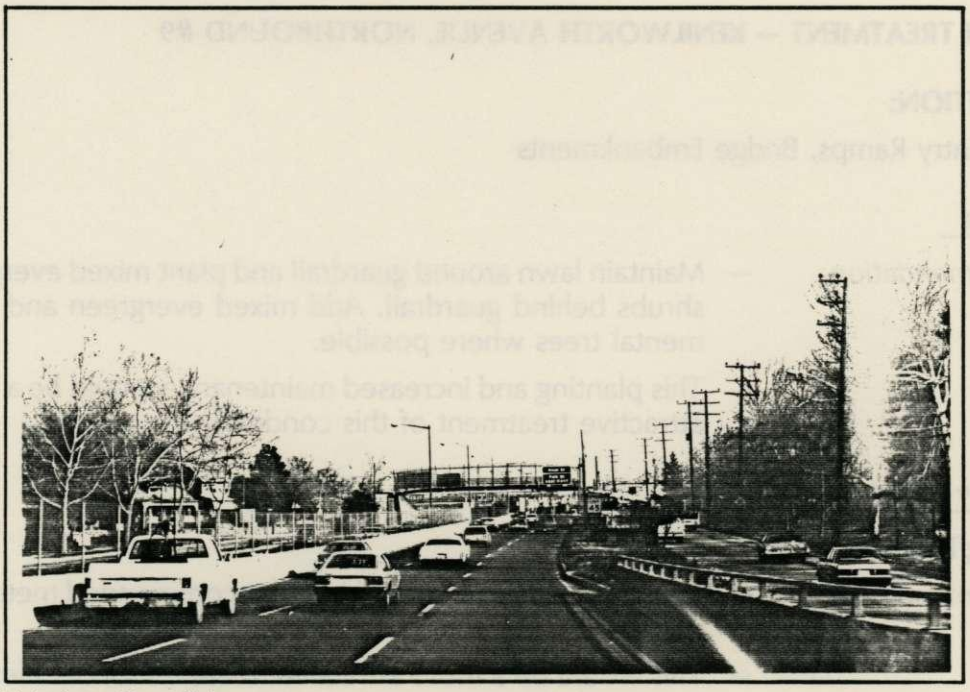
Effect: – This would be a more attractive treatment of the elevated roadway edge and would be consistent with the railing treatments throughout the corridor.

Maintenance

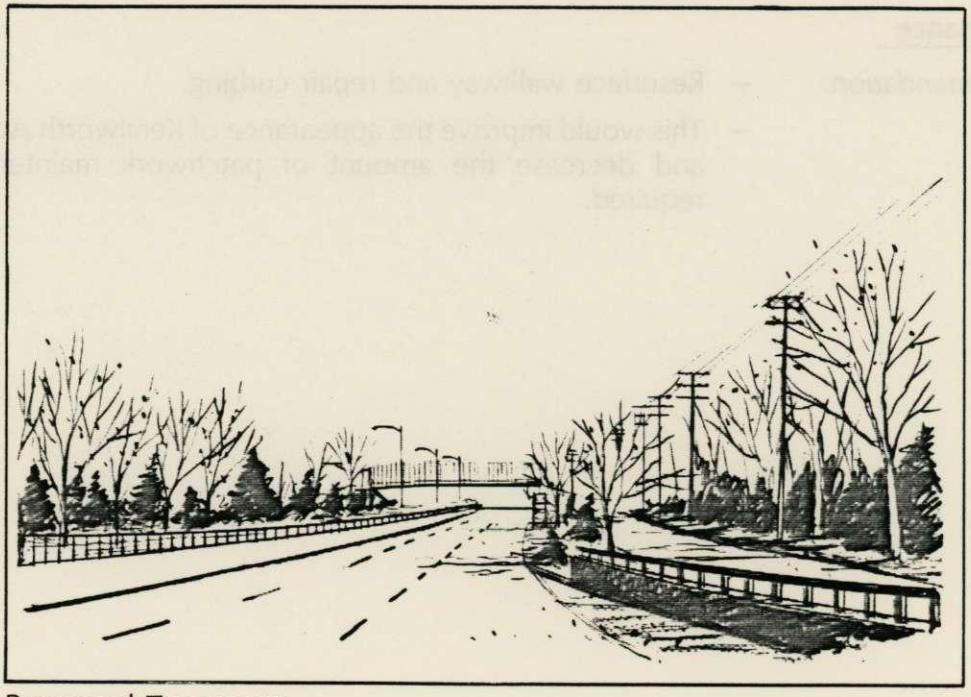
Recommendation: – Resurface walkway and repair curbing.

Effect: – This would improve the appearance of Kenilworth Avenue and decrease the amount of patchwork maintenance required.

Figure III-18
KENILWORTH AVENUE, NORTHBOUND #10



Existing Condition



Proposed Treatment

DESIGN TREATMENT – KENILWORTH AVENUE, NORTHBOUND #10

CONDITIONS:

D. Incompatible Adjacent Land Uses
F. Exit/Entry Ramps, Bridge Embankments
G. Medians
H. Urban Street

Planting

Recommendation: – Maintain dense planting at edges of corridor. Supplement where necessary.

Effect: – Maintenance of existing planting and supplemental planting at the edge of the roadway corridor would create a green backdrop to the roadway. A green buffer would visually separate the roadway from adjacent zones.

Recommendation: – Plant row of street trees in median between parallel road and Freeway.

Effect: – This would create a partial screen between the roadways. It would be an attractive use of the median and suggest a parkway appearance.

Freeway Structures

Lighting:

Recommendation: – Remove center lane lighting to side of road. Replace existing fixtures with proposed ornamental fixtures.

Effect: – This treatment would result in an open, uncluttered corridor with a neater appearance and would conform to the standard lighting location. Use of ornamental fixtures would contribute to a parkway like character.

Signage:

Recommendation: – Remove signage from pedestrian bridge. When possible, relocate signage adjacent to road.

Effect: – A consistent signage location adjacent to the road would reduce visual clutter and increase the effectiveness of the signage.

Fencing/Railing:

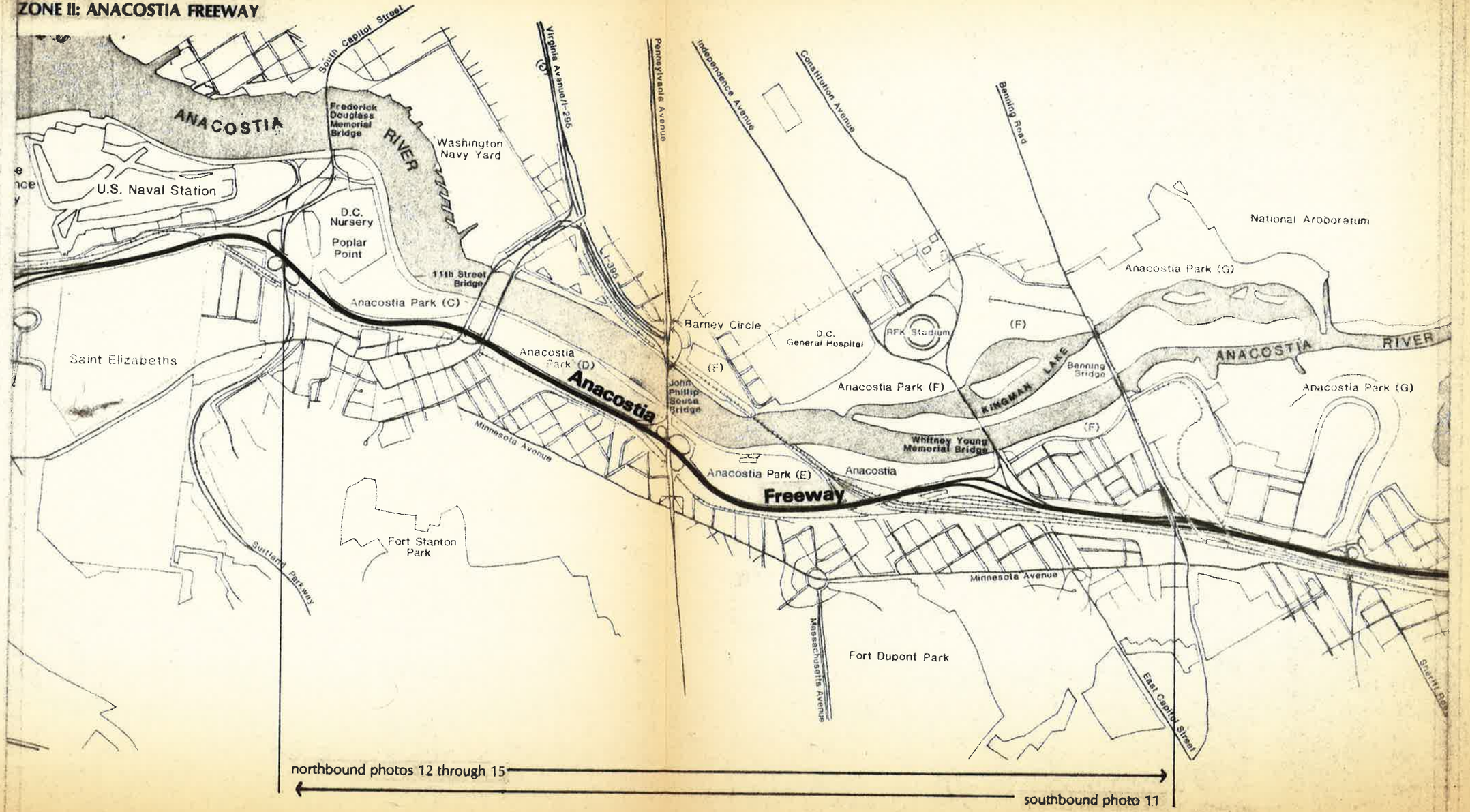
Recommendation:

- Remove chain link fencing above New Jersey barrier and install recommended metal railing.
- Install proposed metal railing for pedestrian bridges.

Effect:

- Use of compatible materials and similar treatments would unify the appearance of the roadway.

Figure III-19
ZONE II: ANACOSTIA FREEWAY



2. ZONE 2: ANACOSTIA FREEWAY

The Anacostia Freeway zone under study extends approximately three and one half miles from Benning Road to the Suitland Parkway. Like the Kenilworth Avenue zone, it crosses a fairly dense urban setting. Most of the recommendations for this zone include the standardization and upgrading of freeway structures; planting recommendations are made for the screening of incompatible adjacent land uses and for directing views to Anacostia Park.

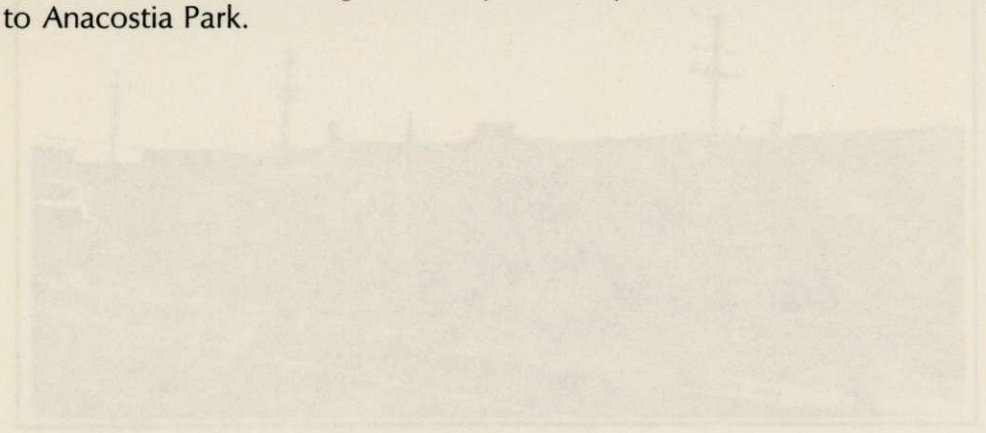
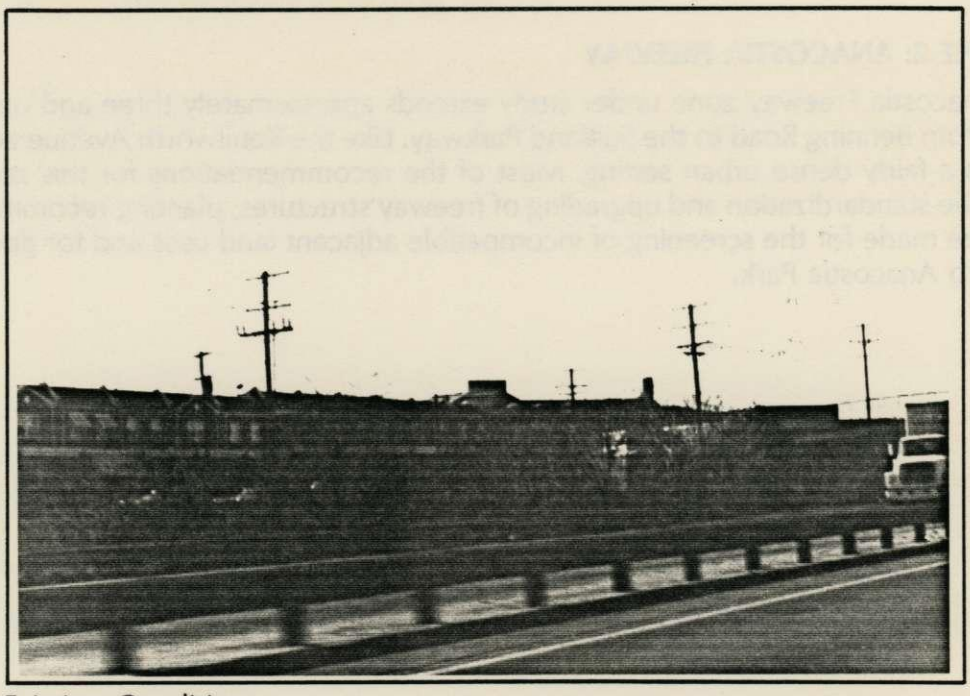
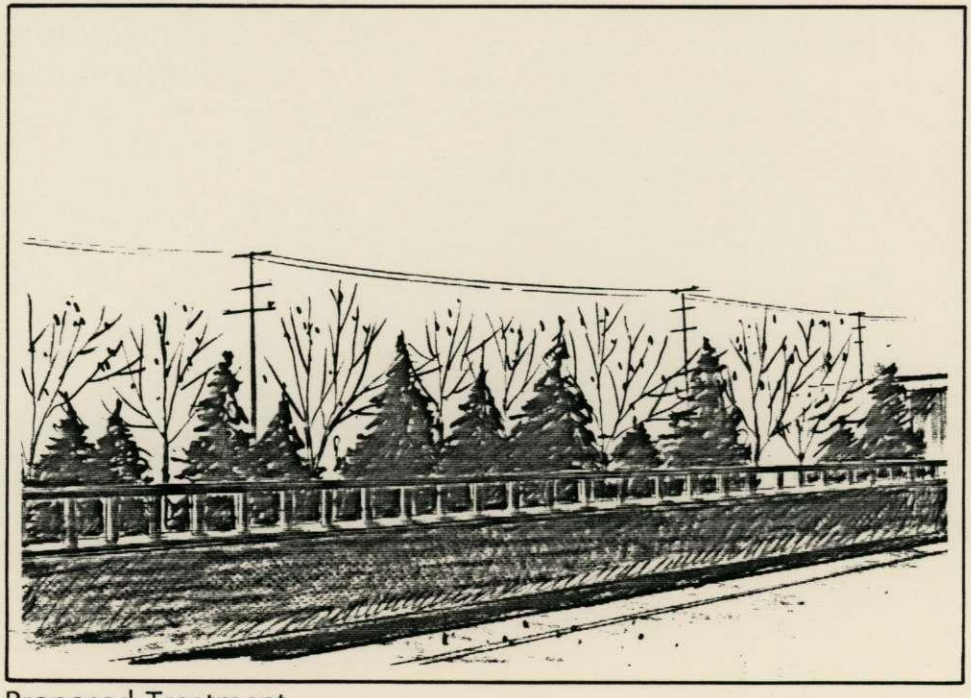


Figure III-20
ANACOSTIA FREEWAY, SOUTHBOUND #11



Existing Condition



Proposed Treatment

DESIGN TREATMENT – ANACOSTIA FREEWAY, SOUTHBOUND #11

CONDITIONS:

D. Incompatible Adjacent Land Uses
G. Medians

Planting

Recommendation:
- Plant evergreen and mixed deciduous trees along western edge of corridor. Consider land easement or acquisition in order to increase the planting density (see recommended plant list for Conditions D, G).

Effect:
- This would effectively screen views of adjacent residential communities and railroad corridor and would buffer the community from the roadway. It would establish a green background for the roadway.

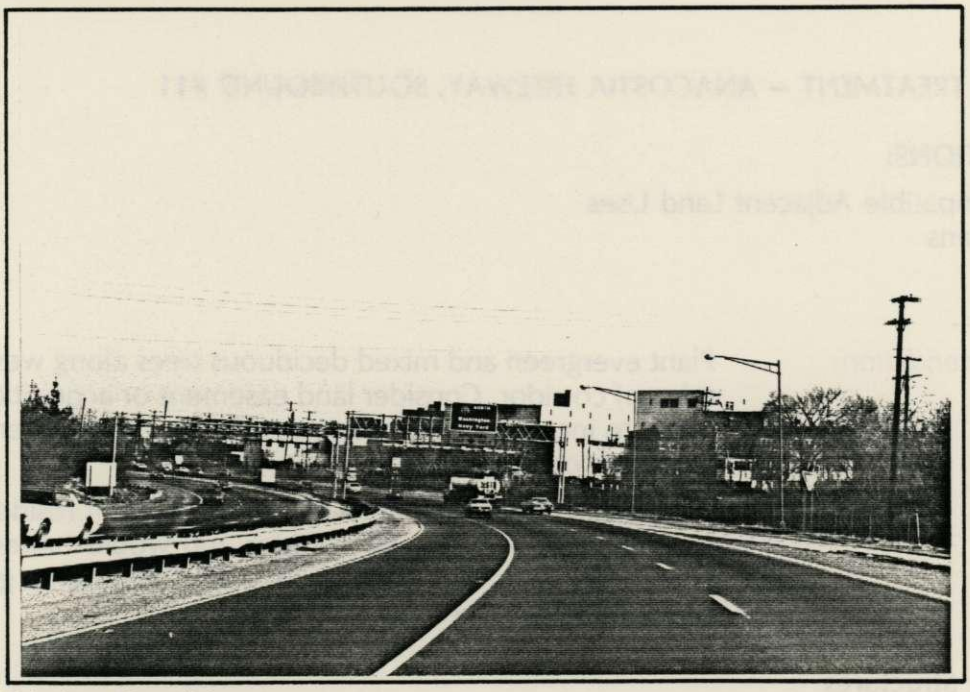
Freeway Structures

Fencing/Railing:

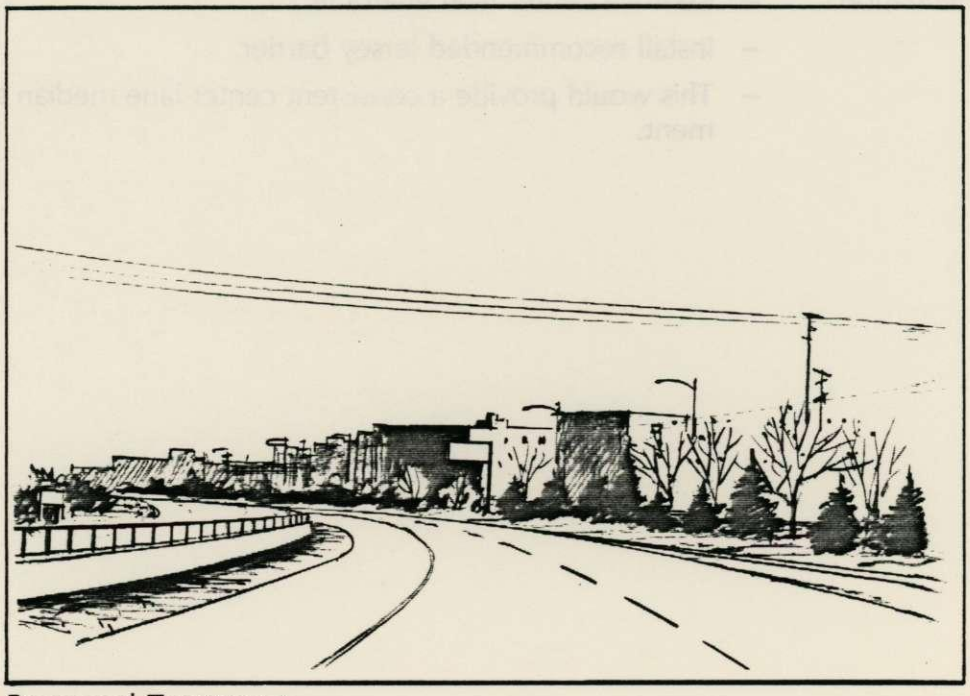
Recommendation:
- Remove center lane guardrail.
- Install recommended jersey barrier.

Effect:
- This would provide a consistent center lane median treatment.

Figure III-21
ANACOSTIA FREEWAY, NORTHBOUND #12



Existing Condition



Proposed Treatment

DESIGN TREATMENT – ANACOSTIA FREEWAY, NORTHBOUND #12

CONDITIONS:

D. Incompatible Adjacent Land Uses
G. Medians

Planting

Recommendation:
- Plant mixed evergreen and deciduous trees along fence at freeway edge (see recommended plant list for Conditions D, G).

Effect:
- This would screen undesirable views of commercial facilities and improve the appearance of the freeway by developing a green background to the freeway.

Freeway Structures

Lighting:

Recommendation:
- Remove lighting along freeway except for exit/entry ramps and bridges.

Effect:
- This would provide a consistent lighting location and appearance to the freeway.

Fencing/Railing:

Recommendation:
- Remove center guardrail and install New Jersey barrier.

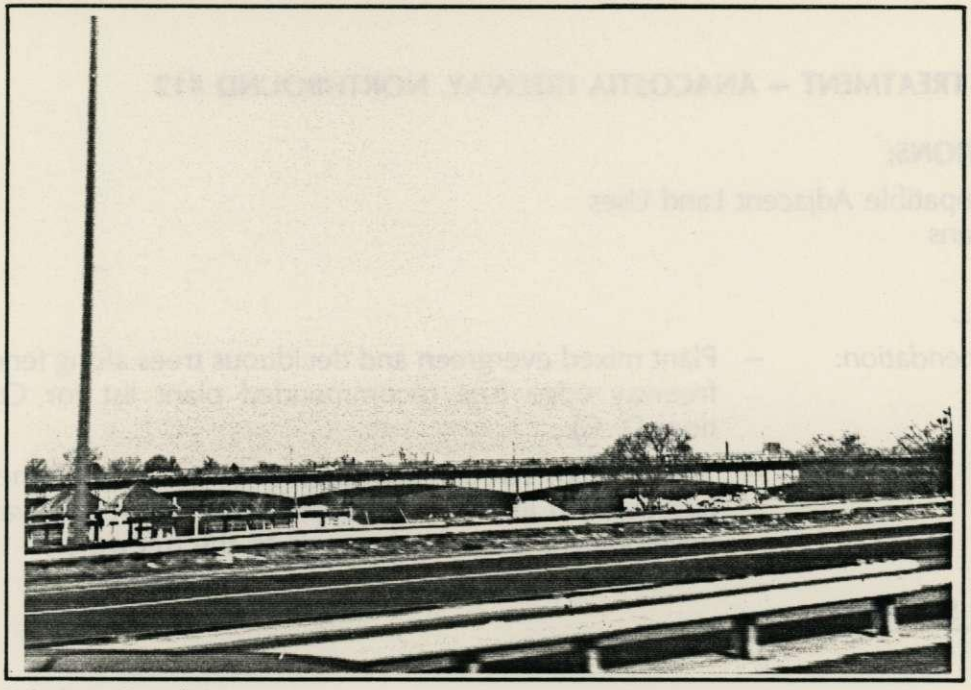
Effect:
- New Jersey barrier would provide consistent center-lane treatment.

Signage:

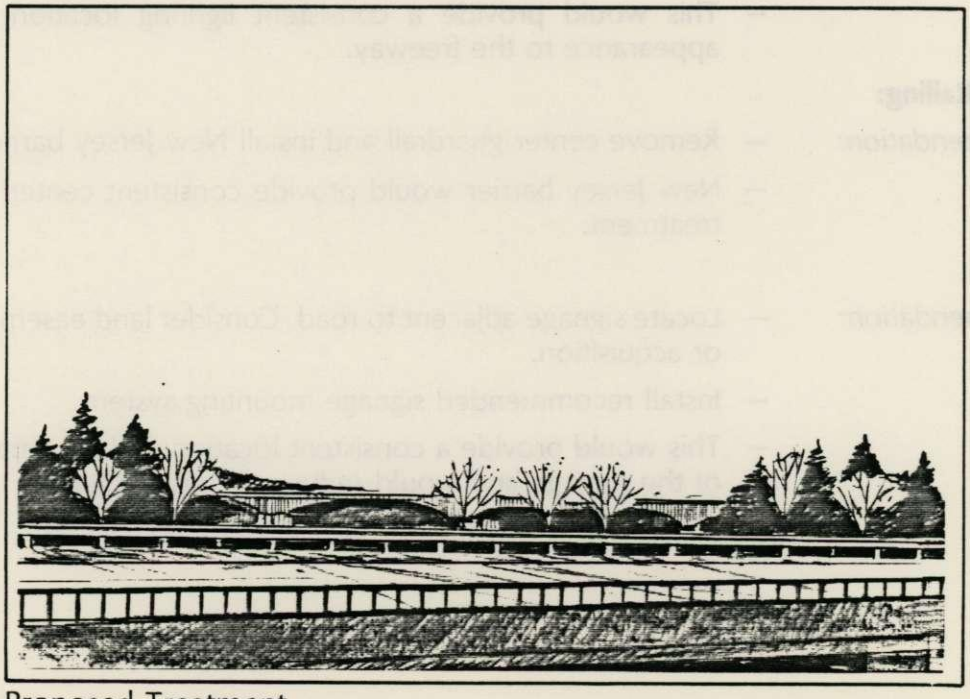
Recommendation:
- Locate signage adjacent to road. Consider land easements or acquisition.
- Install recommended signage mounting system.

Effect:
- This would provide a consistent location and appearance of the signage and would reduce the visual clutter.

Figure III-22
ANACOSTIA FREEWAY, NORTHBOUND #13



Existing Condition



Proposed Treatment

DESIGN TREATMENT – ANACOSTIA FREEWAY, NORTHBOUND #13

CONDITIONS:

B. Waterfront Park
E. Views/Vistas
G. Medians

Planting

Recommendation:

- Plant informal masses of evergreen and accent flowering trees along waterfront park area (see recommended plant list for Conditions B, G).

Effect:

- This treatment would direct and dramatize views towards the waterfront park while partially buffering the park from the freeway.
- This would help integrate the park and its green recreational character into the freeway environment.

Freeway Structures

Lighting:

Recommendation:

- Remove lighting from roadside.

Effect:

- As this is not an entry/exit or bridged condition, this would be consistent with the standard treatment for lighting location.

Signage:

Recommendation:

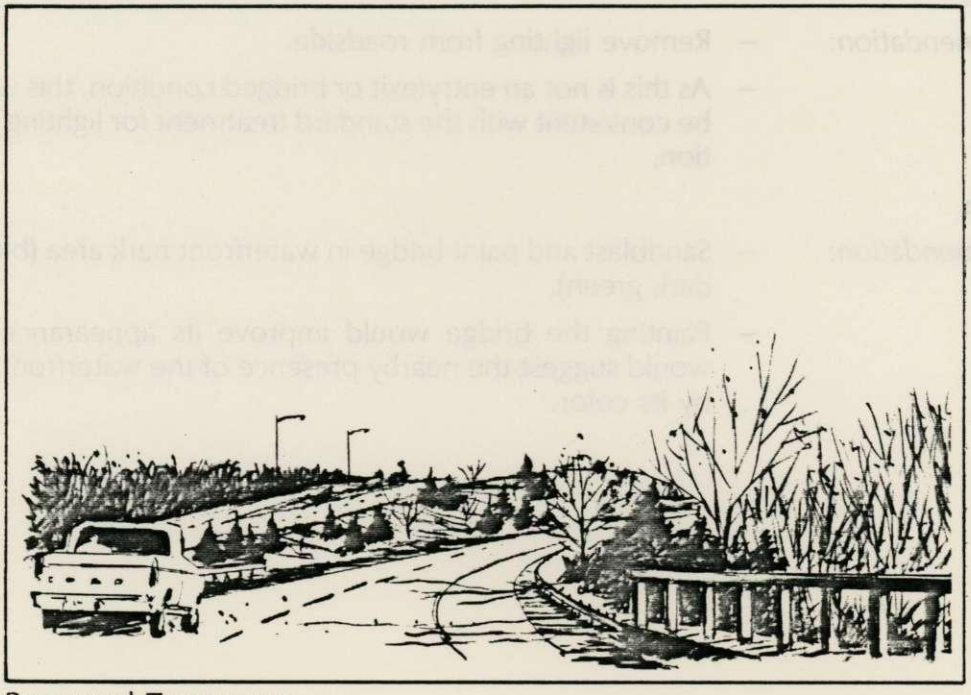
- Sandblast and paint bridge in waterfront park area (blue or dark green).

Effect:

- Painting the bridge would improve its appearance and would suggest the nearby presence of the waterfront park by its color.

Figure III-23
ANACOSTIA FREEWAY, NORTHBOUND #14

Existing Condition



Proposed Treatment

DESIGN TREATMENT – ANACOSTIA FREEWAY, NORTHBOUND #14

CONDITION:

F. Exit/Entry Ramps, Bridge Embankments

Planting

Recommendation:

- Plant evergreen and flowering trees with seasonal annuals and perennials along embankments (see recommended plant list for Condition F).

Effect:

- Informal massed plantings along the embankments would partially screen oncoming traffic and would enhance the parkway like character.

Freeway Structures

Lighting:

Recommendation:

- Retain lighting fixtures only at entry condition of oncoming traffic. Install ornamental light fixture.

Effect:

- This would be a more appropriate lighting treatment for a parkway like area.

Fencing/Railing:

Recommendation:

- Remove guardrail and replace with cut stone retaining wall along embankment.

Effect:

- The stone wall would enrich the landscape character and would provide a consistent use of material in each zone.
- Use of the stone wall along the embankment would be consistent with the parkway like environment and would reinforce the landscape character of the freeway.

DESIGN TREATMENT – ANACOSTIA FREEWAY, NORTHBOUND #15

CONDITIONS:

D. Incompatible Adjacent Land Uses
G. Medians

Planting

Recommendation:
- Plant evergreen and deciduous trees in front of fence (see recommended plant list for Conditions D, G).

Effect:
- This treatment would integrate the fence with plant material rather than separate the road from the landscape and would screen the railroad corridor.

Freeway Structures

Lighting:

Recommendation:
- Retain lighting closest to bridged condition and relocate it from center lane median to position adjacent to roadway. Use recommended ornamental fixture.

Effect:
- This would result in an open corridor with a neater, less cluttered appearance and would conform with the standard lighting location.

Fencing/Railing:

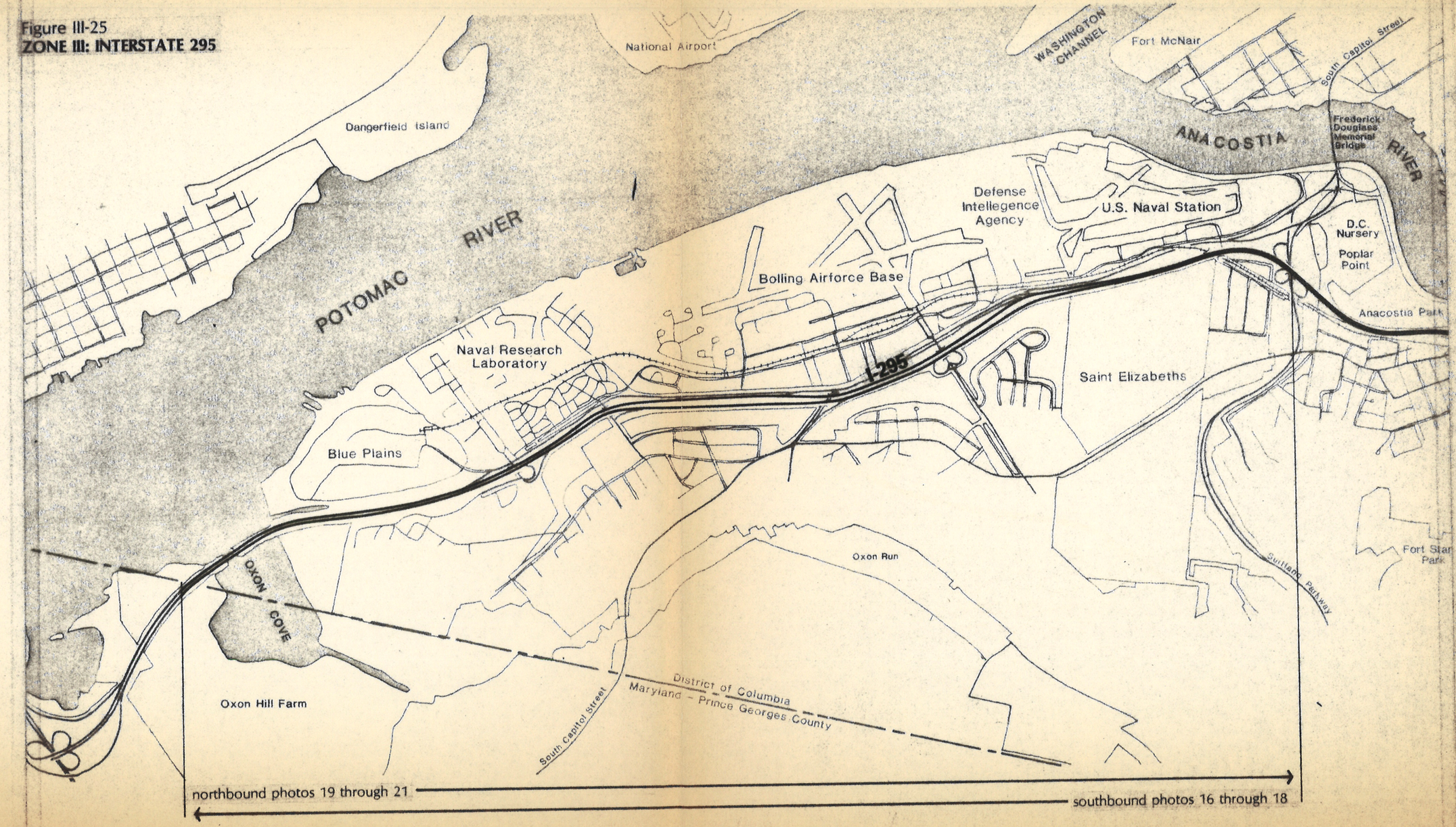
Recommendation:
- Replace existing chain link fence with recommended black vinyl fencing. Move fence back into the trees. Consider property or land acquisition.

Effect:
- Use of the proposed fencing treatment would make it less visible against the landscape and consistent with the rest of the corridor.
- Increased setback of the fence would result in more room for planting and a less constricted edge to the roadway. Relocation of the fence would allow it to be integrated with proposed planting and would result in a unified landscape.

Recommendation:
- Remove center guardrail and install New Jersey barrier.

Effect:
- New Jersey barrier would provide consistent center lane treatment.

Figure III-25
ZONE III: INTERSTATE 295

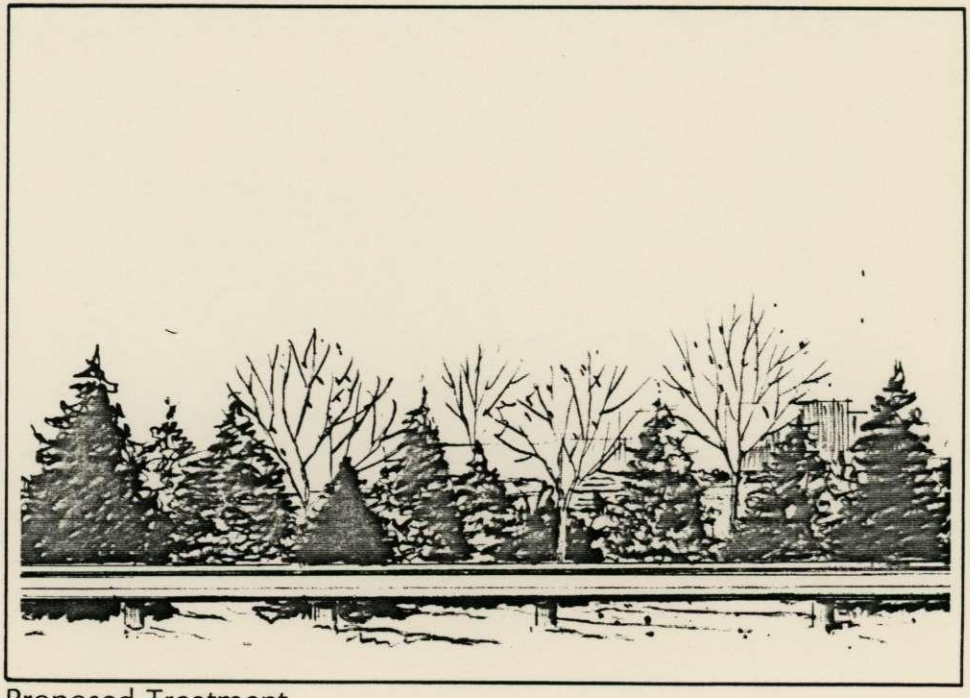


3. ZONE III: INTERSTATE 295

The Interstate 295 zone under study is four miles in length and extends from the Suitland Parkway to the District of Columbia–Maryland/Prince George's Boundary. Of the three zones, it resembles the ideal green gateway the most. Most of the recommendations are made for the enhancement of dramatic views and existing vegetation. Additional recommendations are made for the standardization of freeway structures.

Figure III-26
INTERSTATE 295, SOUTHBOUND #16

Existing Condition



Proposed Treatment

DESIGN TREATMENT – INTERSTATE 295, SOUTHBOUND #16

CONDITIONS:

D. Incompatible Adjacent Land Uses
G. Medians

Planting

Recommendation: – Plant evergreen and mixed deciduous trees to screen industrial and institutional facilities (see recommended plant list for Conditions D, G).

Effect: – This screening treatment would provide a green buffer between the corridor and visually objectionable adjacent land uses. It would create a uniform green background to the edges of the corridor and suggest a parkway like character.

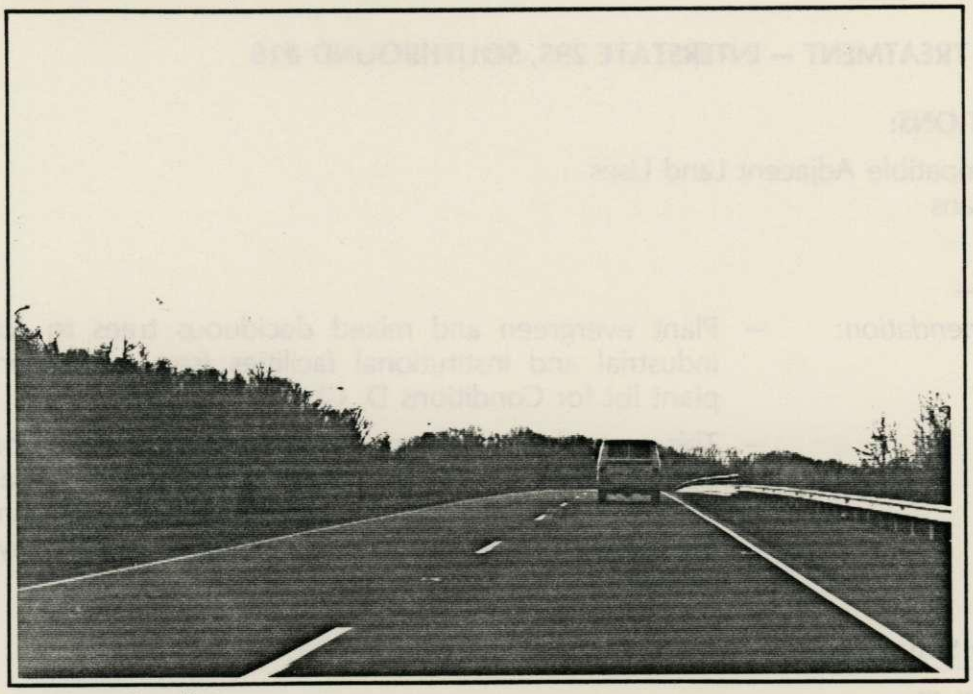
Freeway Structures

Fencing/Railing:

Recommendation: – Replace center guardrail with New Jersey barrier.

Effect: – New Jersey barrier would provide consistent center-lane treatment.

Figure III-27
INTERSTATE 295, SOUTHBOUND #17



Existing Condition

Proposed Treatment

DESIGN TREATMENT – INTERSTATE 295, SOUTHBOUND #17

CONDITIONS:

C. Natural Woodland
F. Exit/Entry Ramps, Bridge Embankments

Planting

Recommendation: – Integrate massed planting of evergreen and ornamental trees with existing vegetation behind stone retaining wall. Vary edge of existing vegetation.

Effect: – This would provide seasonal interest and would enhance the naturalistic appearance of the woodland.

Freeway Structures

Fencing/Railing:

Recommendation: – Replace guardrail on western edge with stone-faced retaining wall.

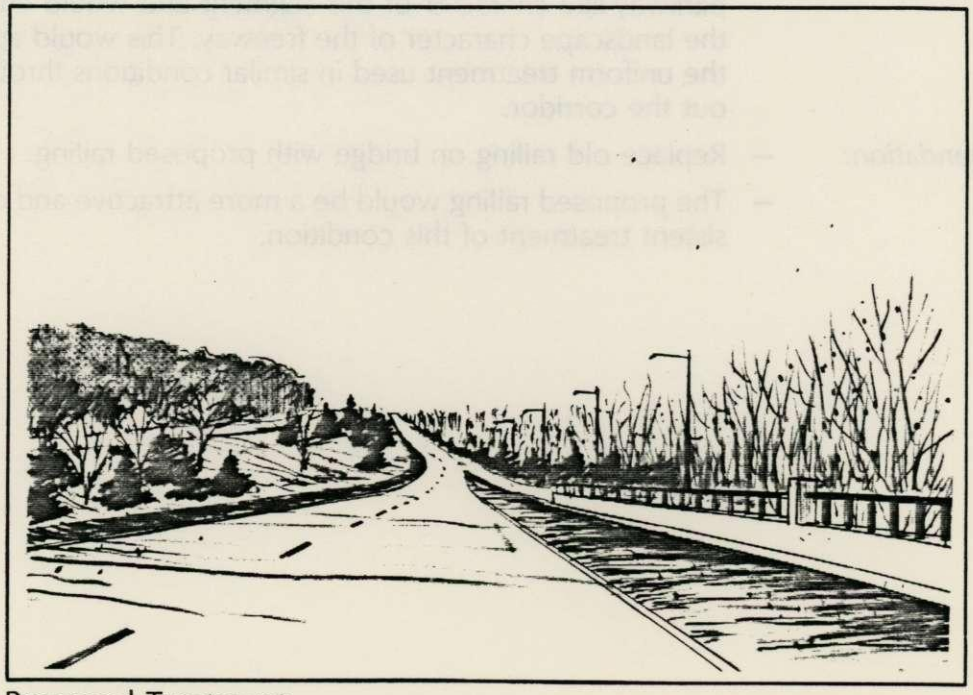
Effect: – Use of the stone wall would be consistent with the parkway like character of this segment and would enrich the landscape character of the freeway. This would apply the uniform treatment used in similar conditions throughout the corridor.

Recommendation: – Replace old railing on bridge with proposed railing.

Effect: – The proposed railing would be a more attractive and consistent treatment of this condition.

Figure III-28
INTERSTATE 295, SOUTHBOUND #18

Existing Condition



Proposed Treatment

DESIGN TREATMENT – INTERSTATE 295, SOUTHBOUND #18

CONDITIONS:

C. Natural Woodland
G. Medians

Planting

Recommendation: – Plant massed evergreen and deciduous trees in center median (see recommended plant list for Condition G). Provide grass edge; vary width to contribute to the natural character.

Effect: – This naturalistic treatment would enhance the parkway like character of the freeway. Increased tree planting would reduce the mowing requirements.

Freeway Structures

Lighting:

Recommendation: – Restrict lighting to exit/entry ramps only. Replace existing fixtures with ornamental fixtures.

Effect: – This would establish a consistent lighting location and would highlight the exit/entry ramps. Ornamental fixtures would enhance the desired parkway like image.

Fencing/Railing:

Recommendation: – Install recommended metal railing above guard wall.

Effect: – This would provide a consistent, unified design and treatment.

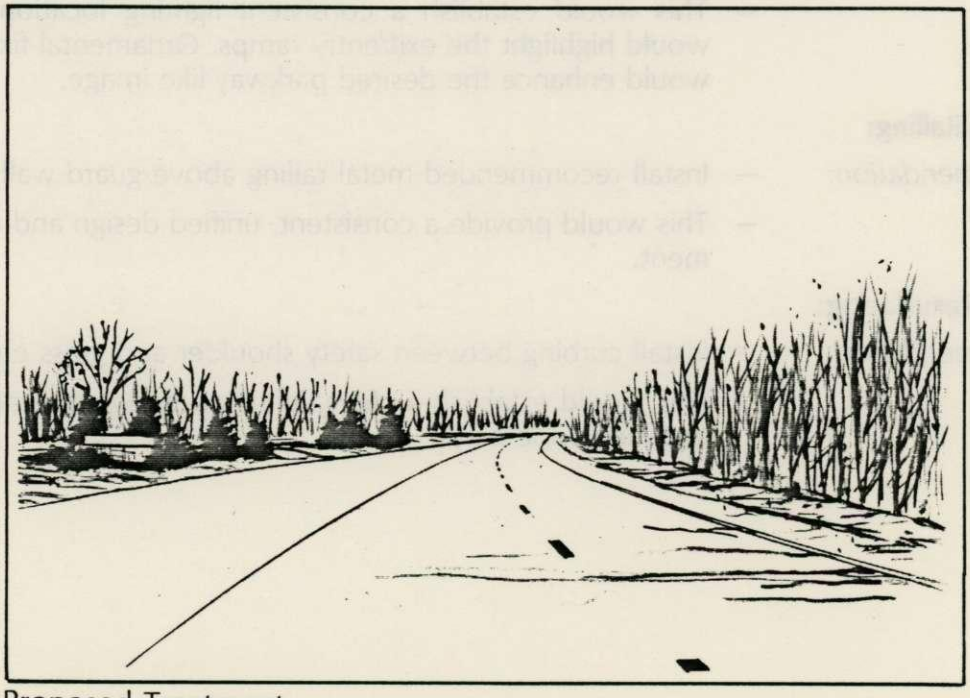
Paving/Resurfacing:

Recommendation: – Install curbing between safety shoulder and grass edge.

Effect: – This would establish a clear definition between roadway and landscape edge.

Figure III-29
INTERSTATE 295, NORTHBOUND #19

Existing Condition



Proposed Treatment

DESIGN TREATMENT – INTERSTATE 295, NORTHBOUND #19

CONDITIONS:

A. Arrival/Entry
C. Natural Woodland
G. Medians

Planting

Recommendation: – Establish a sequence of planting and a unified entry planting and signage design in the median. Remove shrubs in center median. Provide grass edge; vary width to contribute to the natural character.

Effect: – A careful sequencing of the entry planting and signage would direct the motorists' attention to the signage. It would create a sense of arrival and an important first impression and image of the corridor. A naturalistic planting treatment would enhance the parkway like character of the freeway. Increased median planting would reduce the mowing requirements.

Recommendation: – Vary planting setback along roadway edge and combine new plant materials with existing planted edge.

Effect: – This would create a naturalistic edge and varied spatial sequence.

Freeway Structures

Lighting:

Recommendation: – Restrict lighting to entry ramp area only. Replace existing lighting with proposed ornamental fixtures adjacent to road.

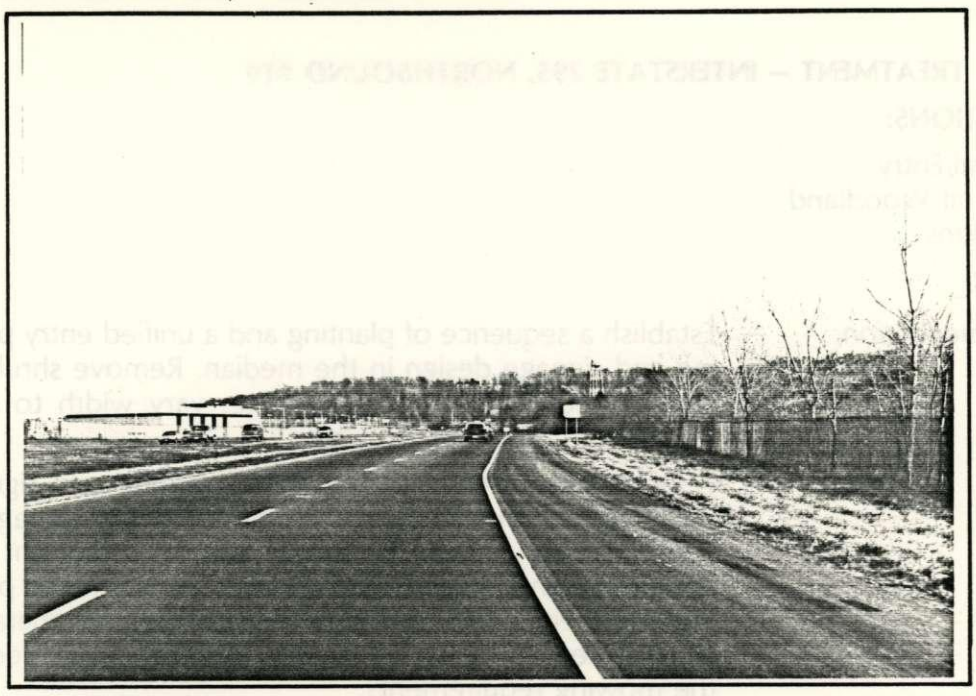
Effect: – This would establish a consistent lighting location and would highlight the entry. Ornamental lighting fixtures would contribute to the parkway like character.

Signage:

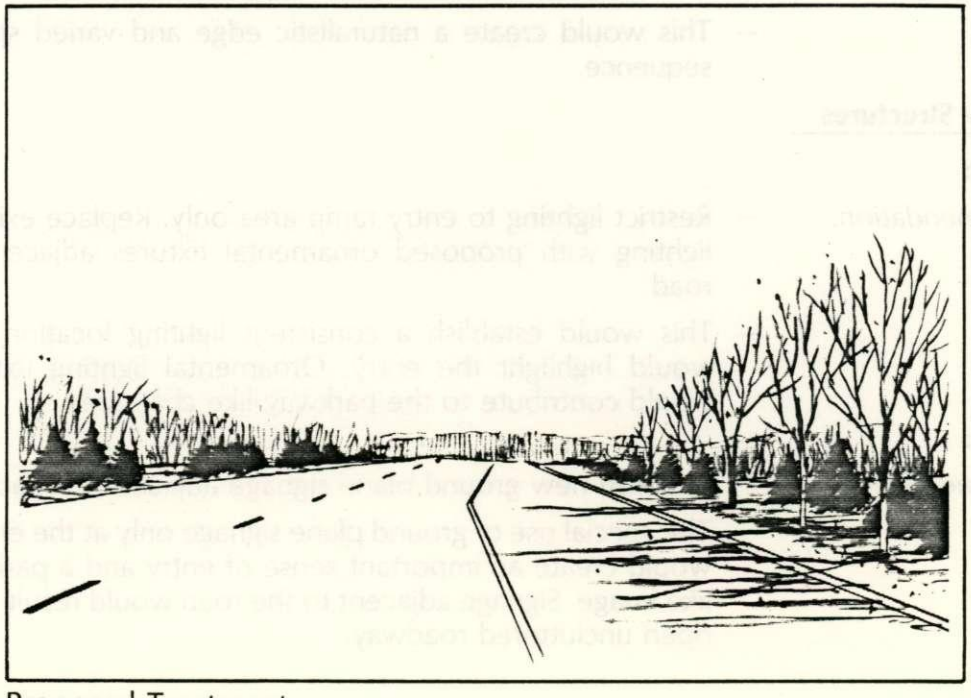
Recommendation: – Establish new ground plane signage adjacent to road.

Effect: – The special use of ground plane signage only at the entries would create an important sense of entry and a parkway like image. Signage adjacent to the road would result in an open uncluttered roadway.

Figure III-30
INTERSTATE 295, NORTHBOUND #20



Existing Condition



Proposed Treatment

DESIGN TREATMENT – INTERSTATE 295, NORTHBOUND #20

CONDITIONS:

C. Natural Woodland
D. Incompatible Adjacent Land Uses
G. Medians

Planting

Recommendation: – Plant evergreen and deciduous trees in front of fence at western edge of roadway (see recommended plant list for Condition D; to be planted by Blue Plains Treatment Facility.)

Effect: – Planting against the fence would make the fence less prominent and would integrate the fence into the parkway like environment.

Recommendation: – Plant median with informally massed evergreen and deciduous trees (see recommended plant list for Condition G).

Effect: – This would repeat the naturalistic character of the eastern edge and enhance the parkway like character of this segment. It would be an attractive treatment of the median.

Freeway Structures

Fencing/Railing:

Recommendation: – Remove fence at eastern edge since there are no incompatible adjacent land uses.

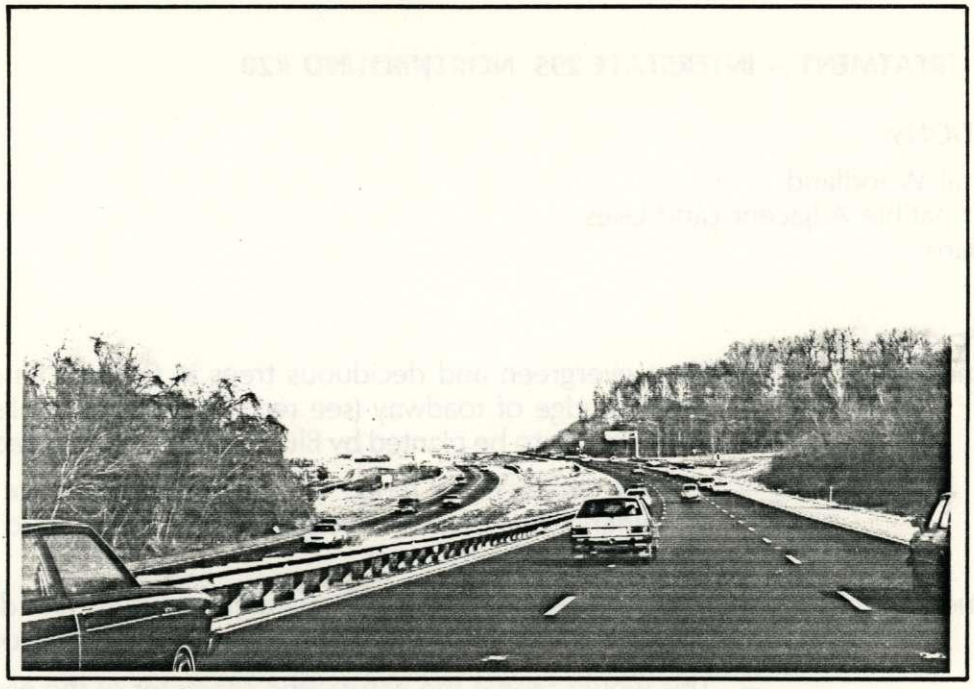
Effect: – This would integrate the road with the landscaped environment rather than separating the landscape from the road.

Curbing:

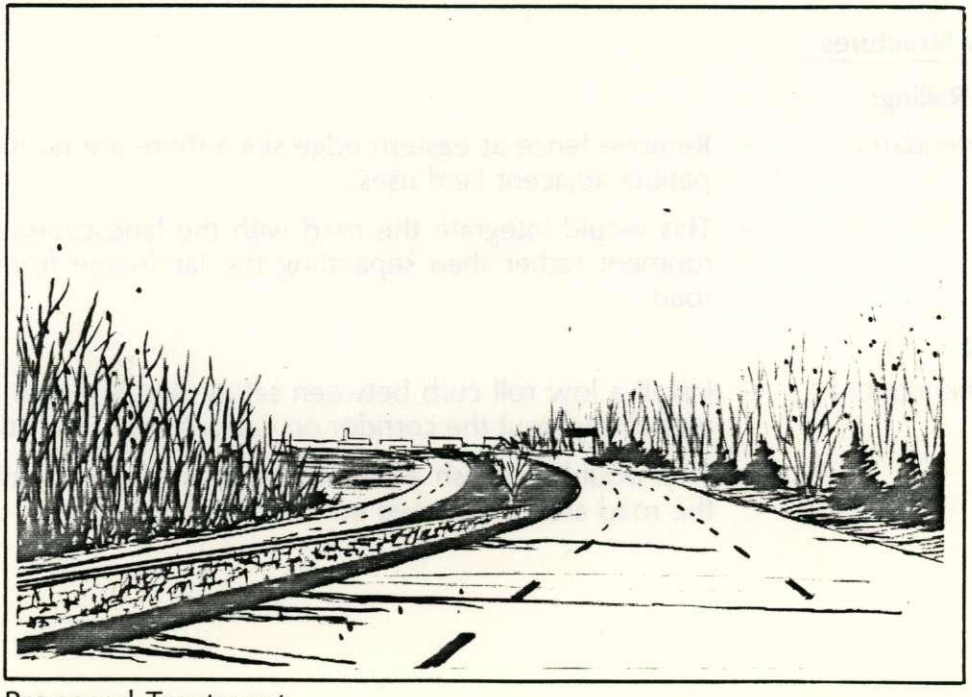
Recommendation: – Install a low roll curb between safety shoulder and lawn area throughout the corridor on eastern edge of roadway.

Effect: – This would establish a defined edge treatment between the road and landscaped environment.

Figure III-31
INTERSTATE 295, NORTHBOUND #21



Existing Condition



Proposed Treatment

DESIGN TREATMENT – INTERSTATE 295, NORTHBOUND #21

CONDITIONS:

C. Natural Woodland
E. Views/Vistas
G. Medians

Planting

Recommendation: – Cut back edges of existing woodland and develop naturalistic planting edge. Establish lawn edge of roadway shoulders.

Effect: – This would open the roadway corridor and dramatize distant views of the Capitol and monuments.

Recommendation: – Plant median with informally massed low shrubs.

Effect: – This would be an attractive treatment of the median and would help reduce glare of oncoming traffic at night. Low shrub planting would not block views of the monuments.

Freeway Structures

Fencing/Railing:

Recommendation: – Remove center lane guardrail. Install stone retaining wall.

Effect: – This would be an attractive and consistent treatment of center lane median.

Maintenance

Recommendation: – Thin woodland edge.

Effect: – Maintenance of the woodland edge would promote healthy tree growth.

IV. COST ESTIMATE

IV. COST ESTIMATE

A. SUMMARY

The cost estimate for the Anacostia Freeway Corridor was developed on a cost per mile. This amount was multiplied by the number of miles in each zone and a cost per zone was developed. By adding the costs of each zone, a total cost for the corridor was determined.

Items	Zone 1	Zone 2	Zone 3	Total
PLANTING	$604,320	$1,567,764	$3,510,540	$5,682,624
LIGHT FIXTURES	105,000	87,500	150,000	342,500
SIGNAGE:	143,000	423,000	6,000	572,000
FENCING	126,720	468,864	570,240	1,165,824
RAILING	1,410,750	1,975,200	187,000	3,572,950
BARRIERS:				
New Jersey		1,074,480		1,074,480
Stone Wall			480,000	480,000
BRIDGE MAINTENANCE:*				
Painting & Sandblasting	59,670	54,000	19,800	133,470
Total Cost	**$2,449,460**	**$5,650,808**	**$4,923,580**	**$13,023,848**
Total Cost per mile	**$979,184**	**$1,510,911**	**$1,103,942**	**$1,217,182**

*There may be other issues relative to maintenance, like road resurfacing and curbing, that have not been included in this estimate.

I. ZONE I: KENILWORTH AVENUE

Items	Materials or Condition	Quantity	Unit Cost	Total Cost
Plant Material	Total plant material* applied to 80% of Zone	10,072 lf*	$60 lf	$604,320
Lighting	Remove & replace	42 ea	2,500 ea	105,000
Signage				
Posts & Maintaining	Road level	10 ea	300 ea	3,000
	Overhead	2 ea	70,000 ea	140,000
Fencing	Black vinyl	10,560 lf	12 lf	126,720
Railing	Bridge:			
	Remove and replace	4,950 lf	85 lf	420,750
	New Jersey Barrier	13,200 lf	75 lf	990,000
	Guardrail			
Barriers	New Jersey Barriers			
	Stone Walls			
Bridge Maintenance	Paint & Sand Blast	119,340 sf	.50 sf	59,670
Total Cost				**$2,449,460**

*Planting Material per 100 feet	Materials	Unit Quantity	Total Cost	Cost
	Canopy Trees	4	$240 ea	$960
	Evergreen Trees	7	80 ea	560
	Shrubs	75	35 ea	2,625
	Lawn/Ground Cover	2,400	1 sf	2,400
				$6,545

***lf = linear feet**

2. ZONE II: ANACOSTIA FREEWAY

Items	Materials or Condition	Quantity	Unit Cost	Total Cost
Plant Material	Total Plant Material* apply to 75% of Zone	14,652	$107 lf	$1,567,764
Lighting	Remove & replace	35	2,500	87,500
Signage				
Posts & Mounting	Road Level	10	300	3,000
	Overhead Signage	6	70,000	420,000
Fencing	Black vinyl	39,072 lf	12 lf	468,864
Railing	Bridge	6,000 lf	85 lf	510,000
	New Jersy Barrier	19,536 lf	75 lf	1,465,200
	Guardrail			
Barriers	New Jersey Barriers	19,536 sf	55 lf	1,074,480
	Stone Wall			
Bridge Maintenance	Paint & Sand Blast	108,000 sf	.50 sf	54,000
Total Cost				**$5,650,808**

*Plant Material per 100 ft	Materials	Unit Quantity	Total Cost	Cost
	Canopy Trees	2	$240 ea	$480
	Flowering Trees	2	80 ea	160
	Evergreen Trees	8	122 ea	976
	Shrubs	30	35 ea	1,050
	Groundcover (wildflowers, grass, bulbs, perennials)	8,000 sf	1 sf	8,000
				$10,666

3. ZONE III: INTERSTATE 295

Items	Materials or Condition	Quantity	Unit Cost	Total Cost
Plant Material	Total Plant Material* applied to 75% of Zone	17,820	197	$3,510,540
Lighting	Remove & replace	60	2,500	150,000
Signage Posts & Maintaining	Overhead	20	300	6,000
Fencing	Black vinyl chain link	47,520 lf	12 lf	570,240
Railing	Bridge New Jersey Barrier Guardrail	2,200 lf	85 lf	187,000
Barriers	New Jersey Barriers Stone Wall	15,000 sf	32 sf	480,000
Bridge Maintenance	Paint & Sandblast	39,600 sf	.50 sf	19,800
Total Cost Zone 3 I-295				**$4,923,580**

*Planting Material per 100 ft	Materials	Unit Quantity	Total	Cost
	Canopy Trees	3	$240 ea	$720
	Flowering Trees	5	80 ea	400
	Evergreen Trees	5	122 ea	610
	Ground Cover (grass, wildflowers, perennials, bulbs)	18,000 sf	1 sf	18,000
				$19,730

APPENDICES

APPENDIX A

BIBLIOGRAPHY

U.S. Department of Agriculture, *Scenic Road: Basis for Its Planning, Design, Management,* 1970.

U.S. Department of Commerce, *Programs for Scenic Roads and Parkways,* 1966.

U.S. Department of Transportation, Federal Highway Administration, *Visual Values for the Highway User,* 1973.

STATE, REGIONAL AND VICINITY PUBLICATIONS

American Association of State Highway and Transportation Officials, *Highway Design and Operational Practices Related to Highway Safety,* 1974.

District of Columbia Department of Transportation, *Plans of Proposed Guide Sign Improvements on the Freeway System,* 1982.

District of Columbia Department of Transportation, *Standard Specifications for Highways and Structures,* 1974.

District of Columbia Department of Transportation, *Supplemental Specifications, June 1, 1981, to Standard Specifications for Highway and Structures, 1974,* 1981.

REFERENCE PUBLICATIONS

Eckbo Dean Austin & Williams, *Landscape Design Guide for Highways and Expressways,* County of Santa Clara Department of Public Works, CA., 1970.

Eckbo Dean Austin & Williams, *Landscape Design Details and Specifications,* County of Santa Clara Department of Public Works, CA., 1970.

Halprin, Lawrence, *Freeways,* Reinhold Publishing Corporation, N.Y., 1966.

Kerr, Kathleen, *Cost Data for Landscape Construction,* Kerr Associates, Inc., Minn., 1982.

Lynch, Kevin, *The Image of the City,* M.I.T. Press, Cambridge, MA., 1960.

Means, Robert Snow, *Means Site Work Cost Data, 1982, Robert Snow Means Company, Inc., MA., 1982.*

Mumford, Lewis, The Urban Prospect, Harcourt, Brace and World, N.Y., 1968.

Whyte, William H., *The Last Landscape,* Doubleday & Company, Inc., N.Y., 1970.

APPENDIX B

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