Restoration—Restoration efforts under alternative C could include the installation of stream/stormwater outfall energy dissipation modifications as needed at the ends of any outfalls identified as requiring repair to remediate for erosive forces. If needed, these areas may be determined in the future. Alternative C would include techniques that disturb smaller areas of land and water compared to alternative B. For example, alternative C would not include stream daylighting or seawall breaks as described in alternative B; these techniques normally impact more natural resources and require more involved construction activities.

Cultural/Educational—Under alternative C, and similar to other management alternatives, this alternative includes an increase in educating the public through wetland programs and interpretive activities that present Anacostia River history, traditional ranger-led programs, interpretive waysides and printed material, that include the evolution of the Anacostia River watershed. These efforts would include wetland restoration work and associated issues, challenges, and current management activities. This alternative would not include constructing new boardwalks or trails as described under alternative B.

Park Management and Operations—Under alternative C, park management and operations to improve the quality of wetlands could include the same techniques as alternative B. Figures 8 through 10 show potential locations for reducing impervious areas.

RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES

Lethal Control—Under alternative C, lethal control of the resident Canada goose population at Anacostia Park would include a less intensive population reduction when compared to alternative B. Alternative C proposes population reduction for the resident Canada goose within the park, through removal of 40 to 60 percent of the resident Canada goose population within the first year of the plan/EIS as the first phase towards meeting the initial goal of 54 resident Canada geese. Although monitoring may be conducted yearly, lethal control of 40 to 60 percent of the resident Canada goose population would only be used up to five times throughout the life of this plan/EIS following the initial reduction, and only if the population exceeds the initial goal of 54 resident Canada geese within the park or if vegetation monitoring and adaptive management indicate a different resident Canada goose population goal is appropriate. Subsequent management may not require lethal control if population goals are being met using other non-lethal methods and tools. The technique used to reduce the population would include round-up, capture, and euthanasia. Lethal removal by shooting would not be used under this alternative. The population would be maintained at a sustainable resident Canada goose population goal using a similar lethal method. Locations for goose round ups are shown on figures 8 through 10. Goose round-ups would occur during the summer months when adult geese are molting and flightless (starting June 15 in Mid-Atlantic) and when young-of-the-year (juveniles less than 1 year old) are considered self-sufficient but unable to fly. Young-of-the-year resident Canada geese that remain in the park after the roundups would be expected to survive on their own.

Habitat Modification—Management techniques would be the same as alternative B except that new shoreline buffers would only be planted along Kingman Marsh and the Anacostia River Fringe Wetland areas (new buffers in fewer locations compared to alternative B). These areas are shown on figures 8 through 10. An additional technique that may be implemented under alternative C to prevent geese from grazing within the turf areas, could include applying approved goose repellents to problem areas. Goose repellents are typically products applied to vegetation so that geese find it inedible. Repellents, such as Goose Chase, could be used according to the label instructions and would not be harmful to humans. If the use of the repellent on the turf area drives the geese to the wetland areas, then the use of the repellent would be discontinued.

Scare and Harassment—A less intensive scare and harassment technique program could be implemented under alternative C as needed. The scare and harassment techniques are similar to those in alternative B; however, they would only be implemented in areas closest to the restored wetlands (only two locations) and techniques would be rotated less often compared to alternative B if implemented. Locations where scare and harassment techniques may be implemented are shown in figures 8 through 10. Scare and harassment techniques would be implemented in the spring to deter resident Canada geese from nesting at the park. Additional scare and harassment techniques may be implemented as new technologies become available.

Reproductive Control—Following the initial reduction in population size using lethal controls (killing), the current egg management program would be intensified to allow more time and effort. The NPS may hire two additional seasonal staff dedicated to work in this program each spring during the remaining years of the management plan to focus their time on egg management techniques. Application of goose hatch control materials (OvoControl® G) may be implemented annually if needed. Alternative C would not include implementing scare tactics prior to the nesting season.

IMPLEMENTATION COST

The total cost of implementing alternative C includes both wetland and resident Canada goose management techniques over the life of this plan/EIS. Estimates of these costs are included in the table below.

Alternative C Cost Estimate

#	Action	Assumptions	Implementation of Technique (one-time cost)*	Implementation of Technique (annual cost)	Cost for the 15-year Planning Period†
1	Vegetation monitoring and invasive plant species management	Same as alternative B	$30, 125 (first year only)	$386,370 (labor + annual costs)	$5,825,675
2	Population Monitoring	Same as alternative B	$0	$10,000	$150,000
3	Hydrology techniques	Cost does not include design and permitting; some costs encompassed in salary of labor from #1 above	$1,244,000	$0	$1,244,000
4	Vegetation techniques		$1,474,392	$26,630	$1,873,842
5	Wetland restoration	No techniques proposed	$0	$0	$0
6	Park Operations and Maintenance		$268,820	$9,970	$418,370
7	Lethal Control**	Includes year 1 one costs only	$12,408	Unknown	$12,408
8	Habitat modification		$890,181	$0	$890,181
9	Scare and harassment**	Includes year 1 one costs only	$8,581	Unknown	$8,581
10	Reproductive Control**	Includes year 1 one costs only	$14,100	Unknown	$14,100

#	Action	Assumptions	Implementation of Technique (one-time cost)*	Implementation of Technique (annual cost)	Cost for the 15-year Planning Period†
11	Cultural/Educational	Some costs encompassed in salary of labor from #1 above	$5,000 (signage)	N/A	$5,000
TOTAL COST FOR ALTERNATIVE C					**$10,442,157‡**

* Exact year of implementation unknown at this time; cost does not include maintenance or repair, if applicable.

** Includes cost for year 1 only; adaptive management would determine if technique would be required and to what extent in subsequent years.

† One-time cost + (annual cost*15 yrs)

‡ Total cost for 15 years assumes all proposed wetland and resident Canada goose management techniques would be implemented during the life of the plan/EIS.

ALTERNATIVE D: LOW LEVEL OF WETLANDS MANAGEMENT WITH LOW RESIDENT CANADA GOOSE MANAGEMENT

This alternative combines less aggressive wetlands management options with a lethal resident Canada goose management option performed one time during the plan/EIS and only if necessary. This offers the lowest management effort for both wetlands and resident Canada geese.

This alternative combines less aggressive wetlands management options with lethal resident Canada goose management option performed one time during the life of the plan.

WETLAND MANAGEMENT TECHNIQUES

Hydrology—Under alternative D, management techniques that could be implemented may include the removal of structures or obstacles that are resulting in severe erosion of the shoreline or wetland areas. The park could conduct yearly clean-ups for items such as logs and debris, which clog the openings of the marshes throughout the park. Alternative D would not include using erosion control techniques, creating tidal guts, enforcing wake zones, investigating extreme water level change, or altering water elevations as described in alternative B.

Vegetation—Under alternative D, the NCR-EPMT would continue to manage invasive plant species, but at a reduced level. If more money and staff become available, the NPS may manage invasive plant species including common reed and purple loosestrife at a minor level at a minor level if needed. To allow natural seedbanks to regenerate the park could use only passive methods of regeneration. There would be no mechanical seedbank regeneration associated with this alternative. Locations for potential use of natural seedbank regeneration are shown on figures 11 through 13.

Restoration—There is no new wetland restoration efforts associated with alternative D. Conditions would continue to be similar to the no action alternative.

Cultural/Educational—There is no new cultural/educational efforts associated with alternative D.

Park Management and Operations—Alternative D would only include the installation of new rain gardens as discussed in "Techniques Common to All Action Alternatives" above. This alternative would not include trash management or reducing impervious areas as described in alternative B.

RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES

Lethal Control—Under alternative D, there would be no initial lethal resident Canada goose population reduction activities. If the other goose management techniques discussed below do not keep the resident Canada goose population at the goose population goal, a one-time population reduction using lethal controls of 40 to 60 percent of the resident Canada goose population would be performed during the life of the management plan but only if necessary. Lethal control may not be required if population goals are being met using other non-lethal methods and tools. The lethal control technique during this one time reduction would include round-up, capture, and euthanasia; no shooting of resident Canada geese would occur under alternative D. If lethal control is needed, potential round-up locations are illustrated on figures 11 through 13. Goose round-ups would occur during the summer months when adult geese are molting and flightless (starting June 15 in Mid-Atlantic) and when young-of-the-year (juveniles less than 1 year old) are considered self-sufficient but unable to fly. Young-of-the-year geese that remain in the park after the roundups would be expected to survive on their own.

Habitat Modification—Alternative D would be similar to alternative B and C because existing vegetative buffers would be widened and new vegetative buffers would be planted to act as barriers to the geese; however, buffers would be planted in the following areas and are shown on figures 11 through 13:

- West bank of the Kingman Marsh along the RFK stadium parking lots.
- Shoreline buffers along the Anacostia River Fringe Wetlands (excluding Langston Golf Course)

Goose exclusion fencing would be installed and maintained and new plantings less desirable to geese would be planted. All goose habitat modification elements would be implemented within the first 5 years of this plan/EIS.

Scare and Harassment—No scare and harassment techniques would be implemented under alternative D.

Reproductive Control—The current egg oiling program described in alternative A, the no action alternative would continue under alternative D. Egg addling and oiling would occur during the April nesting season along the tidal Anacostia River corridor from Bladensburg to Poplar Point. No additional reproductive control management techniques would be used under alternative D.

IMPLEMENTATION COST

The total cost of implementing alternative D includes both wetland and resident Canada goose management techniques over the life of this plan/EIS. Estimates of these costs are included in the table below.

FIGURE 11: ALTERNATIVE D - LOCATIONS OF WETLAND AND RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES, NORTH AREA

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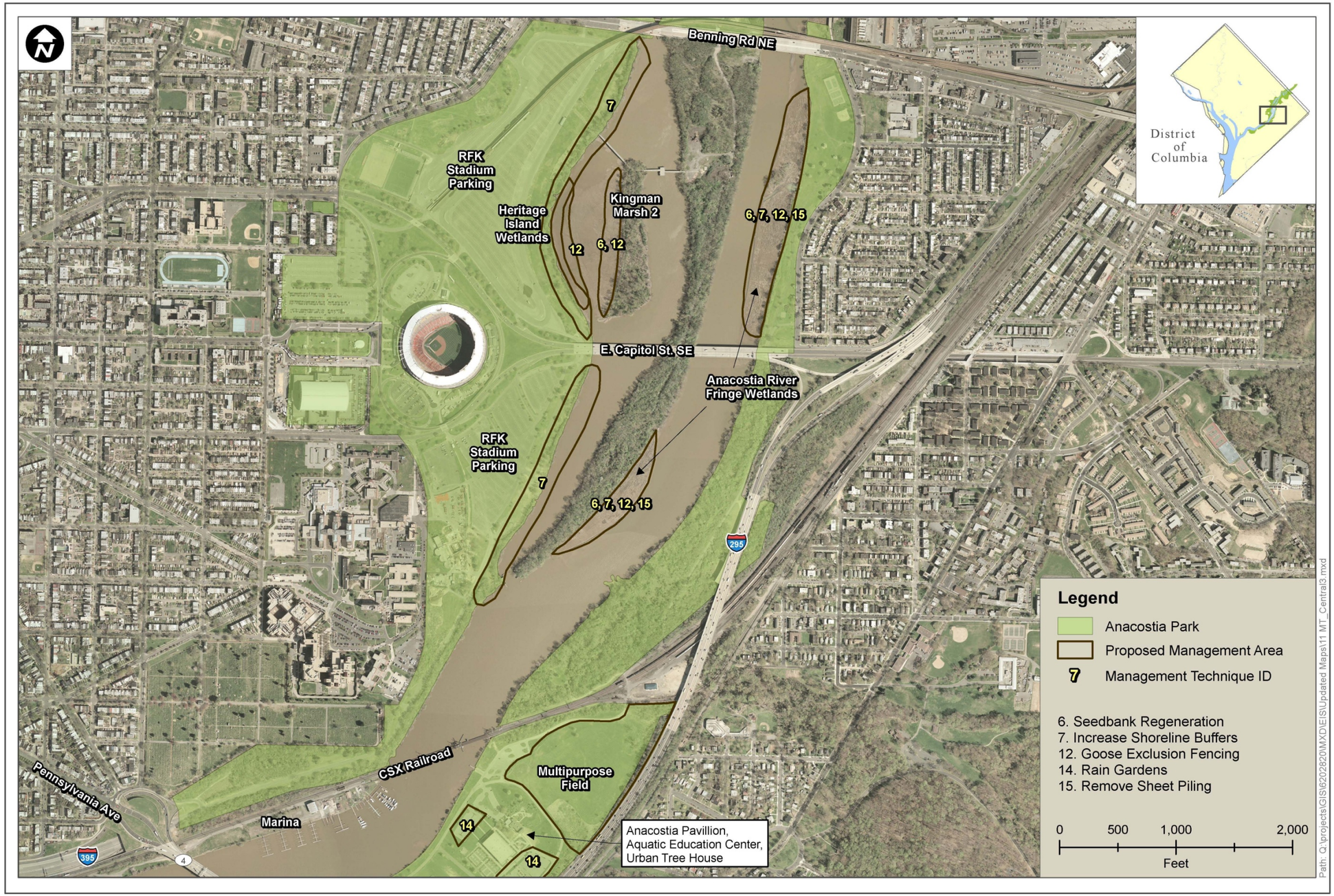

FIGURE 12: ALTERNATIVE D - LOCATIONS OF WETLAND AND RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES, CENTRAL AREA

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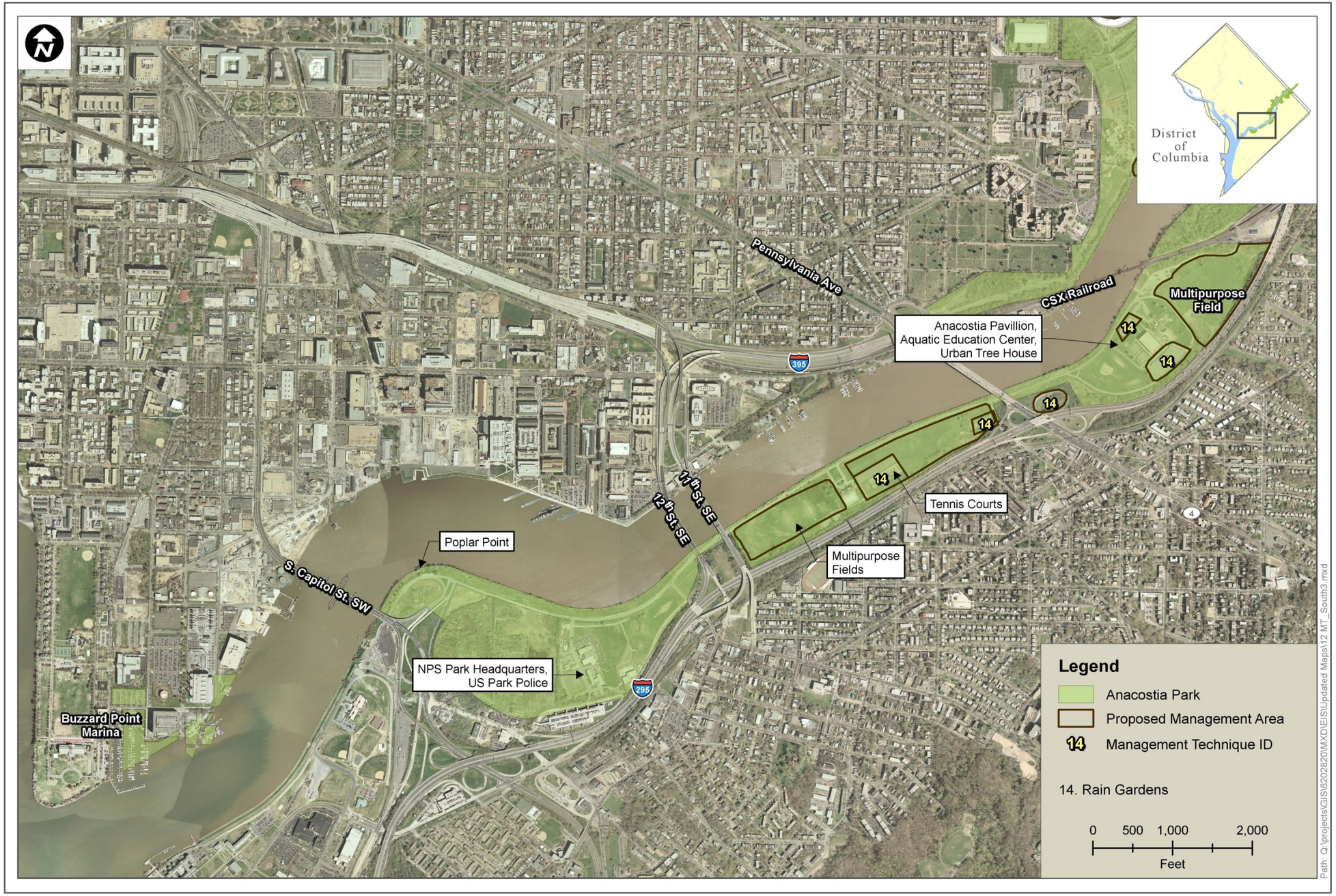

FIGURE 13: ALTERNATIVE D. LOCATIONS OF WETLAND AND RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES, SOUTH AREA

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Alternative D Cost Estimate

#	Action	Assumptions	Implementation of Technique (one-time cost)*	Implementation of Technique (annual cost)	Cost for the 15-year Planning Period†
1	Vegetation monitoring and invasive plant species management		$30,125 (first year only)	$243,370 (labor + annual costs)	$3,680,675
2	Population Monitoring	Same as alternative B	$0	$10,000	$150,000
3	Hydrology techniques	Cost does not include design and permitting; some costs encompassed in salary of labor from #1 above	$32,500	$0	$32,500
4	Vegetation techniques		$946,000	$7,989	$1,065,835
5	Wetland restoration	No techniques proposed	$0	$0	$0
6	Park Operations and Maintenance		$116,940	$0	$116,940
7	Lethal Control**	Includes year 1 one costs only	$12,408	$0	$12,408
8	Habitat modification		$548,813	$0	$548,813
9	Scare and harassment	No techniques proposed	$0	$0	$0
10	Reproductive Control**	Includes year 1 one costs only	$4,970	Unknown	$4,970
11	Cultural/Educational	Some costs encompassed in salary of labor from #1 above	$5,000 (signage)	N/A	$5,000
TOTAL COST FOR ALTERNATIVE D					**$5,617,141‡‡**

* Exact year of implementation unknown at this time; cost does not include maintenance or repair, if applicable.

** Includes cost for year 1 only; adaptive management would determine if technique would be required and to what extent in subsequent years.

† One-time cost + (annual cost*15 yrs)

‡‡ Total cost for 15 years assumes all proposed wetland and resident Canada goose management techniques would be implemented during the life of the plan/EIS.

ALTERNATIVE E: HIGH LEVEL OF WETLAND MANAGEMENT WITH MODERATE RESIDENT CANADA GOOSE MANAGEMENT WITH NO LETHAL CONTROL

This alternative combines aggressive wetland management techniques with moderately intensive resident Canada goose management activities; however, there is no lethal control.

This alternative combines aggressive wetland management techniques with moderately intensive resident Canada goose management activities; however, there is no lethal control.

WETLAND MANAGEMENT TECHNIQUES

Hydrology—Under alternative E, management techniques for hydrology would be similar to alternative B. Potential locations for these management techniques are shown on figures 14 through 16.

Vegetation—Under alternative E, management techniques for vegetation would be similar to alternative B. Potential locations for the vegetative management techniques are shown in figures 14 through 16.

Restoration—Under alternative E, management techniques for wetland restoration would be similar to alternative B. Potential locations for these management techniques are shown in figures 14 through 16.

Cultural/Educational—Under alternative E, cultural/educational management techniques would be similar to those of alternative B.

Park Management and Operations—Park management and operations would be similar to those described under alternative B. Potential locations for reducing impervious areas are shown in figures 14 through 16.

RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES

Lethal Control—There would be no initial or follow-up lethal resident Canada goose population reduction associated with alternative E.

Habitat Modification—Management techniques affecting goose safety or habitat preference would be similar to alternative B, except that no existing vegetative buffers would be widened. Principal areas for shoreline plantings or enhancements include the following and are shown in figures 14 through 16:

- The entire west bank of the Anacostia River beginning, from the Capitol Street Railroad Bridge, up to the District/Maryland boundary.
- West bank of the Kingman Marsh along the RFK stadium parking lots.
- All gaps in the existing buffer along the Langston Golf Course.
- Seawall along the west shore of the Anacostia River near Deane Avenue Northeast.
- To reduce the ease of resident Canada goose access to the plantings for feeding, single or double-stacked coir fiber logs could be installed around the perimeter of all planted areas in the restored wetlands. There would be no repellent applications on turf feeding zones associated with this alternative.

FIGURE 14: ALTERNATIVE E - LOCATIONS OF WETLAND AND RESIDENT CANADA GOOSE MANAGEMENT TECHNIQUES, NORTH AREA

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