

**REFORESTATION PLAN
APPLICATION**

for the

**NEW JERSEY TURNPIKE
INTERCHANGE 6 to 9 WIDENING PROGRAM
OPS NO. T3103**

**Townships of Mansfield, Bordentown, Chesterfield, Hamilton,
Robbinsville, East Windsor, Cranbury, Monroe, South Brunswick,
and East Brunswick, and the Borough of Milltown.
Burlington, Mercer, and Middlesex Counties, New Jersey**

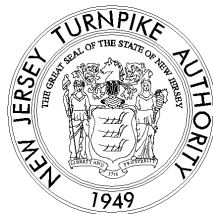
Submitted to:

**The New Jersey Department of Environmental Protection
Division of Parks and Forestry**

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Submitted by:

The New Jersey Turnpike Authority



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1.0 INTRODUCTION - PROJECT DESCRIPTION

The New Jersey Turnpike Authority (Authority) is currently widening the New Jersey Turnpike (the Turnpike) between the Pearl Harbor Memorial Turnpike Extension, commonly referred to as Interchange 6, in Mansfield Township, Burlington County and Interchange 9 in East Brunswick Township, Middlesex County. The New Jersey Turnpike Interchange 6 to 9 Widening Program spans three counties and eleven municipalities: the Townships of Mansfield, Bordentown and Chesterfield in Burlington County, the Townships of Hamilton, Robbinsville, and East Windsor in Mercer County and the Townships of Cranbury, Monroe, South Brunswick, East Brunswick and the Borough of Milltown in Middlesex County. The Widening Program consists of approximately 25 miles of road widening from south of Interchange 6 in Mansfield Township to the existing 10-lane dual-dual portion of the Turnpike at Interchange 8A in South Brunswick Township, including associated interchange improvements. Figure 1 indicates the location of the 35-mile project corridor. The Widening Program also entails the addition of a third lane to each of the outer roadways of the Turnpike for a distance of approximately 10 miles between Interchange 8A and Interchange 9 in East Brunswick Township and Milltown Borough. When complete, the Widening Program will result in a 12-lane (six in each direction) dual-dual roadway from Interchange 6 to Interchange 9, capable of accommodating projected traffic needs through the year 2032.

To construct the New Jersey Turnpike Interchange 6 to 9 Widening Program, forested areas over one-half acre in size will be deforested. The Authority, as an entity of the State of New Jersey, is required by the New Jersey No-Net Loss Reforestation Act (N.J.S.A. 13:1L-14.1 et seq.) to develop a plan to provide compensatory reforestation to address the impacts of deforestation resulting from the construction of this project. The reforestation plan for this project must be approved by the New Jersey Department of Environmental Protection's (NJDEP) Division of Parks and Forestry (DPF) after review and comment by the Community Forestry Council. A memorandum of agreement has been established between the Division of Parks and Forestry and the Authority relating to review and implementation of this reforestation plan under the No-Net Loss Reforestation Act. A copy of this agreement is included as Appendix A of this plan.

An initial coordination meeting between the Authority and the Division of Parks and Forestry was conducted on Monday, June 16, 2008 at the headquarters of the New Jersey Department of Environmental Protection in Trenton, New Jersey to discuss the reforestation requirements incurred by this project. In attendance were representatives from the DPF, the Authority, and the New Jersey Turnpike Interchange 6 to 9 Widening Program's Environmental Consultant.

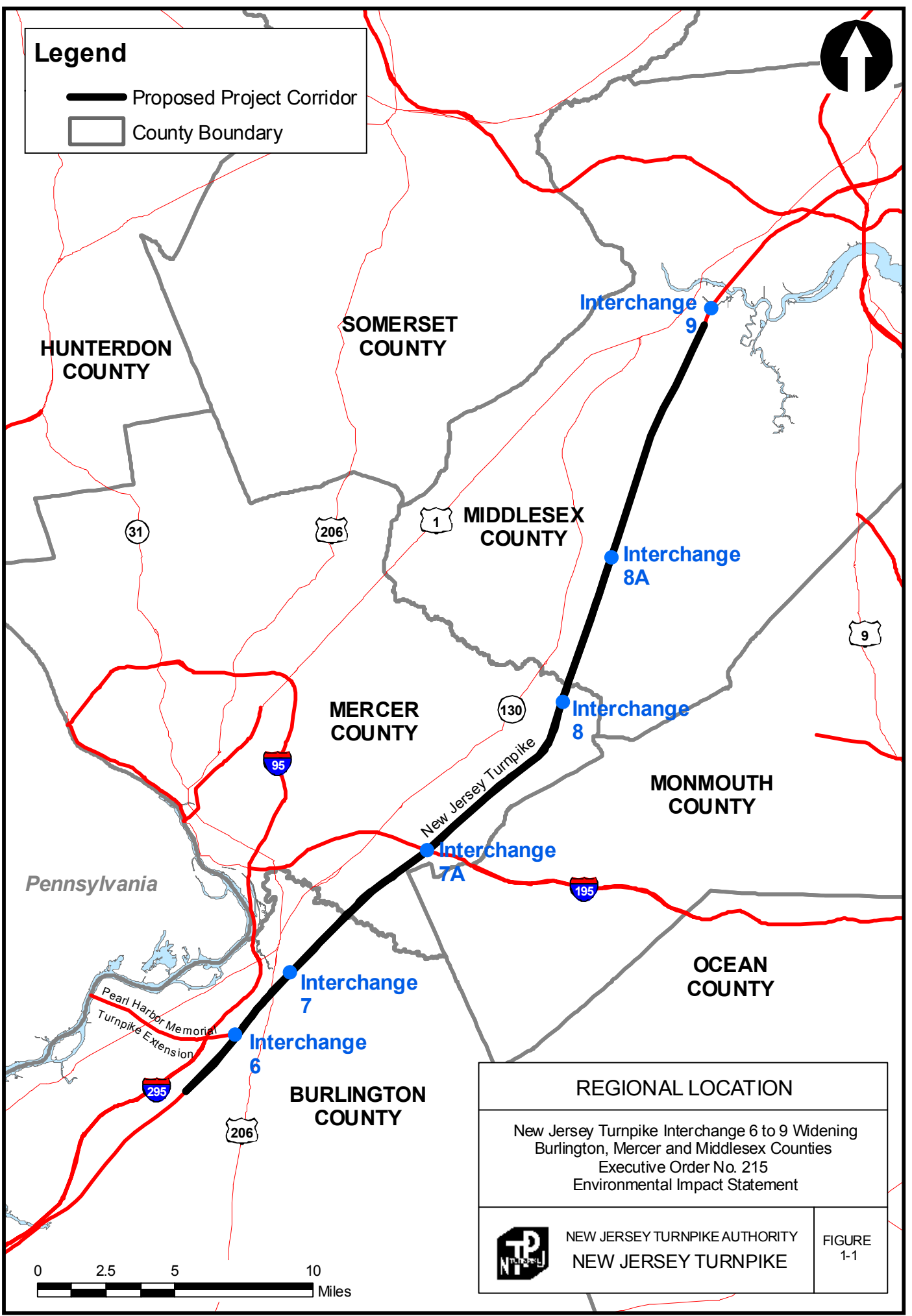
A second meeting was conducted on October 6, 2008, a third meeting was conducted on June 8, 2009 and a fourth meeting was held May 7, 2010 to discuss the reforestation plan requirements, including the plan outline and the timing of the application.

Meetings with seven municipalities to discuss reforestation options within each town were conducted in June and July of 2009.

A conditional approval was granted by the DPF to allow early tree removal on July 24, 2009. As discussed at the June 8, 2009 meeting between the DPF and the Authority, circumstances have prevented a complete tally of reforestation opportunities. Among these circumstances are the advancement of these contracts earlier than anticipated to generate jobs sooner rather than later in these difficult economic times (the justification), the continued identification of land for the future Turnpike right-of-way (ROW), and the identification of lands for wetlands and riparian zone mitigation (on which trees will be planted as part of the mitigation).

Legend

- Proposed Project Corridor
- County Boundary



HUNTERDON COUNTY

SOMERSET COUNTY

MIDDLESEX COUNTY

MERCER COUNTY

MONMOUTH COUNTY

OCEAN COUNTY

BURLINGTON COUNTY

Pennsylvania

Pearl Harbor Memorial Turnpike Extension

New Jersey Turnpike

Interchange 9

Interchange 8A

Interchange 8

Interchange 7A

Interchange 7

Interchange 6

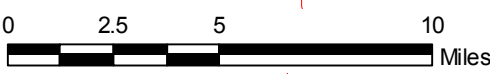
REGIONAL LOCATION

New Jersey Turnpike Interchange 6 to 9 Widening
Burlington, Mercer and Middlesex Counties
Executive Order No. 215
Environmental Impact Statement



NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE

FIGURE 1-1



2.0 FOREST IMPACTS TO WETLANDS AND UPLANDS

As part of the Reforestation Plan preparation process, proposed forest impacts accountable under the No-Net Loss Reforestation Act have been calculated to be 449.04 acres in size. Recent 2007 aerial photography was used in conjunction with the DPF's ½ acre grid overlay to estimate forest impacts. The total forest impacts are identified by municipality in Table 1 and are shown on Deforestation Mapping in Appendix F.

Table 1
Proposed Forest Impacts

County	Municipality	State Grid Forest Impact (Acres)
Burlington	Mansfield Township	65.57
Burlington	Bordentown Township	38.30
Burlington	Chesterfield Township	27.60
Mercer	Hamilton Township	42.78
Mercer	Robbinsville Township	114.94
Mercer	East Windsor Township	110.44
Middlesex	Cranbury Township	49.41
Middlesex	Monroe Township	0
Middlesex	South Brunswick Township	0
Middlesex	East Brunswick Township	0
Middlesex	Milltown Borough	0
Total		449.04

2.1 Tree Species Impacted

A list of the dominant upland tree species proposed to be removed along the 35 mile corridor include: oaks, maples, white pine, black cherry, red mulberry, beech, tree of heaven, spruces, sassafras, white ash, tulip tree, and aspen.

A list of the dominant wetland tree species proposed to be removed along the 35 mile corridor include: green ash, birches, pin oak, sweet gum, red maple and willows.

The forest communities to be impacted include parcels along the Turnpike Right-of-Way that have been fragmented by farming, residences and commercial development, or are part of a larger forested system.

Site photographs showing representative samples of forested areas proposed to be removed are located in Appendix B of this report.

2.2 Tree Removal

Tree removal will be conducted by contractors who will cut the trees and either chip or remove salvageable logs from the site. Trees that are chipped on site will have the chips used on-site or disposed of/recycled at an off-site area. Salvaged logs will be taken to a sawmill for use in developing wood products or lumber.

3.0 DEFORESTATION AND REFORESTATION IN MUNICIPALITIES

The estimated deforestation of 449 acres will occur along the 35-mile project corridor. N.J.S.A. 13:1L-14.2 states that reforestation efforts should be directed to the area adjacent to where deforestation has occurred within the project area, namely the NJ Turnpike Right-of-Way. If tree planting adjacent to the deforested area is not feasible, reforestation must be conducted in the following order: within the municipality in which the deforestation occurred, within five miles of the site of deforestation, or off-site.

The replacement of trees was determined by the Tree Replacement Factor and was based on the accepted forestry research and practices. The New Jersey Forest Service's *New Jersey No-Net Loss Reforestation Act Program Guidelines – September 2007 Revision* advocates the use of 2" – 2 ½ " caliper (trunk diameter) trees for reforestation, at a density of 204 trees per acre. N.J.S.A. 13:1L – 14.2b(9) states that diversity in species selection is required to reduce the risk of widespread loss of trees to insect or disease infestation. As a result, no more than 30% of the total planting is comprised of a single tree species.

- **Tree Species to be Planted**

The proposed list of upland tree species to be planted will be comprised of similar species removed along the 35 mile corridor. These species include: red oak, red maple, sugar maple, shagbark hickory, tulip poplar, eastern white pine, spruces, quaking aspen, black cherry, white oak, black locust, mulberry, sassafras and American beech. Refer to the Laurel Run Reforestation planting specifications in Appendix E for an example of species to be planted along the Turnpike Right-of-Way (ROW).

The proposed list of wetland tree species to be planted will be comprised of similar species removed along the 35 mile corridor. These species include: pin oak, sweet gum, green ash, red maple, river birch, black gum, swamp white oak and willows.

The availability of these proposed trees could dictate the amount planted over the next few years. The Authority has coordinated with the New Jersey State Forest Nursery in Jackson Township to supply a portion of the trees for the Authority's wetland mitigation sites, which include both wetland and upland tree species. These tree species include: black gum, willow oak, pin oak, swamp white oak, green ash, northern red oak, white oak, scarlet oak, persimmon, tulip poplar, pitch pine and white pine. These state nursery trees can be planted at the five wetland mitigation sites located in Mansfield, Robbinsville and Monroe Townships. Additional larger size trees from local commercial nurseries will be planted in the wetland mitigation sites. The purchase of trees from local commercial nurseries is necessary because the State Nursery does not supply larger size trees.

- **Reforestation within NJ Turnpike Authority Right-of-Way**

Using 2007 NJDEP aerial photography, the Authority has identified areas where trees could be planted within its ROW for reforestation purposes. An example of this methodology is located in Appendix D. This appendix contains figures illustrating acreages available for reforestation on aerial photography within the ROW. A total of 92 potential reforestation sites within existing Authority ROW, or lands anticipated to be purchased by the Authority, were identified. There are approximately 98 acres of plantable area within the 92 sites in the municipalities of Mansfield Township, Bordentown Township, Hamilton Township, Chesterfield Township, Robbinsville Township, East Windsor Township and Cranbury Township. Table 2 provides a summary of potential reforestation areas available within the Authority ROW in each municipality. Table 3 identifies each potential site available for reforestation within Turnpike ROW.

**Table 2:
Summary of Potential Reforestation within Authority Right-of-Way**

Municipality	Potential Reforestation available in Authority ROW (acres)
Mansfield Township	8.3
Bordentown Township	22.99
Chesterfield Township	2.64
Hamilton Township	12.04
Robbinsville Township	20.9
East Windsor Township	29.4
Cranbury Township	1.76
Total	98.03

**Table 3:
Potential Sites Available for Reforestation within Authority Right-of-Way**

Design Section	Approx. Mile Post	Municipality	+/- Acres
Section 1	48.9	Mansfield	0.1
	49.8	Mansfield	0.1
	49.85	Mansfield	0.2
	50.2	Mansfield	0.4
	50.5	Mansfield	0.4
	50.6	Mansfield	0.1
	50.85	Mansfield	0.2
	50.9	Mansfield	0.4
	50.9	Mansfield	1.5
	50.9	Mansfield	0.5
	50.95	Mansfield	1.3
	51.1	Mansfield	0.2
	51.1	Mansfield	0.6
	51.2	Mansfield	0.2
	51.2	Mansfield	0.9
	51.2	Mansfield	0.6
	51.2	Mansfield	0.6
	52	Mansfield	<0.1
	52	Mansfield	<0.1
Section 2	53.2	Bordentown Twp.	0.27
	53.3	Bordentown Twp.	0.84
	53.35	Bordentown Twp.	1.02
	53.3	Bordentown Twp.	0.42
	53.35	Bordentown Twp.	0.27

Table 3 Continued

Design Section	Approx. Mile Post	Municipality	+/- Acres
Section 2	53.3	Bordentown Twp.	0.87
	53.3	Bordentown Twp.	1.72
	53.5	Bordentown Twp.	0.2
	53.6	Bordentown Twp.	0.32
	53.7	Bordentown Twp.	1.85
	53.7	Bordentown Twp.	1.39
	53.7	Bordentown Twp.	0.86
	53.88	Bordentown Twp.	0.55
	53.88	Bordentown Twp.	0.65
	53.88	Bordentown Twp.	2.38
	53.88	Bordentown Twp.	8.38
	53.9	Bordentown Twp.	1
	55.8	Chesterfield	0.49
	56.5	Chesterfield	0.57
56.5	Chesterfield	0.25	
Section 3	56.55	Chesterfield	1.33
	57.5	Hamilton	1.08
	57.6	Hamilton	6.29
	57.7	Hamilton	2.41
	58.6	Hamilton	2.26
Section 4	60.4	Robbinsville	4.1
	60.5	Robbinsville	5.7
	60.7	Robbinsville	3
	61.8	Robbinsville	8.1
Section 5	No areas available.		
Section 6	67	East Windsor	0.12
	67	East Windsor	0.15
	67.1	East Windsor	0.84
	67.15	East Windsor	0.2
	67.2	East Windsor	0.58
	67.2	East Windsor	0.34
	67.2	East Windsor	0.18
	67.3	East Windsor	1.58
	67.4	East Windsor	0.27
	67.58	East Windsor	0.35
	67.58	East Windsor	0.34
	67.6	East Windsor	0.17
	67.6	East Windsor	0.39
	67.6	East Windsor	1.58
	67.6	East Windsor	0.18

Table 3 Continued

Design Section	Approx. Mile Post	Municipality	+/- Acres
Section 6	67.6	East Windsor	0.04
	67.65	East Windsor	0.15
	67.65	East Windsor	0.2
	67.65	East Windsor	0.24
	67.65	East Windsor	2.51
	67.65	East Windsor	0.68
	67.65	East Windsor	0.23
	67.65	East Windsor	1.94
	67.7	East Windsor	0.44
	67.7	East Windsor	0.05
	67.8	East Windsor	0.26
	67.8	East Windsor	1.77
	67.8	East Windsor	1.01
	67.8	East Windsor	0.57
	67.8	East Windsor	1.09
	67.8	East Windsor	0.84
	67.82	East Windsor	4.31
	67.82	East Windsor	0.27
	67.82	East Windsor	0.21
	67.9	East Windsor	0.56
	68	East Windsor	0.94
	68.1	East Windsor	1.38
	68.2	East Windsor	1.7
68.2	East Windsor	0.19	
68.2	East Windsor	0.55	
Section 7	No areas available.		
Section 8	72.2	Cranbury	0.19
	71.4	Cranbury	0.46
	71.4	Cranbury	0.18
	71.5	Cranbury	0.93
Total=			98.03 acres

- **Reforestation within Authorities Wetland Mitigation Sites**

In addition to plantings within the Turnpike ROW along the mainline and interchanges, the Authority has identified tree plantings areas at its five wetland mitigation sites associated with the Widening Program. In discussions with the DPF, a percent credit will be given for each habitat type planted at the wetland mitigation sites due to the planting of smaller size tree species than recommended in the DPF guidelines. Refer to Table 4 illustrating the available reforestation credit at the wetland mitigation sites.

**Table 4
 Wetland Mitigation Sites Tree Plantings**

Devils Brook Site

Habitat	Acres Planted	Percent Credit given by NJDEP	Acres of Reforestation Credit
Wetland Forest	3.02	50%	1.51
Vernal Pool Outer Tree Ring	0.92	100%	0.92
Upland Forest	6.5	25%	1.625

Reforestation Credit = 4.06

Upper Crafts Creek Site

Habitat	Acres Planted	Percent Credit given by NJDEP	Acres of Reforestation Credit
Wetland Forest	7.98	50%	3.99
Vernal Pool Outer Tree Ring	0	100%	0
Upland Forest	16.76	25%	4.19

Reforestation Credit = 8.18

Lower Crafts Creek Site

Habitat	Acres Planted	Percent Credit given by NJDEP	Acres of Reforestation Credit
Wetland Forest	4.84	50%	2.42
Vernal Pool Outer Tree Ring	0.92	100%	0.92
Upland Forest	10	25%	2.50

Reforestation Credit = 5.84

Back Creek Site

Habitat	Acres Planted	Percent Credit given by NJDEP	Acres of Reforestation Credit
Wetland Forest	23.16	50%	11.58
Vernal Pool Outer Tree Ring	0.11	100%	0.11
Upland Forest	21.37	25%	5.3425

Reforestation Credit = 17.03

Brookland Site

Habitat	Acres Planted	Percent Credit given by NJDEP	Acres of Reforestation Credit
Wetland Forest	58.7	50%	29.35
Vernal Pool Outer Tree Ring	0	100%	0
Upland Forest	87.3	25%	21.825

Reforestation Credit = 51.18

Total Available Credit = 86.28 acres

3.1 Mansfield Township

The estimated area of deforestation in Mansfield Township, calculated using the ½ acre grid system, is approximately 65.6 acres.

An estimated 8 acres will be reforested within Authority-owned ROW along the proposed project corridor in Mansfield Township. Approximately 1,632 trees with a 2” to 2.5” caliper diameter will be planted at a density of 204 trees per acre in this 8 acres.

In addition, a Widening Program wetland mitigation site is located in Mansfield Township. The Upper Crafts Creek Wetland Mitigation Site will be used to partially satisfy the reforestation effort. The Upper Crafts Creek site is estimated to yield 8.2 acres of reforested wetland and upland (Table 4). Thus the potential total for reforestation is 16.2 acres within Authority owned properties (8 acres plus 8.2 acres) in Mansfield Township. Refer to Appendix D which identifies the wetland mitigation sites planting areas.

As the planting within the ROW (including wetland mitigation sites) does not completely satisfy reforestation requirements within Mansfield Township, a portion of the remaining acreage could be achieved by planting trees within the Township through Reforestation Monetary Contribution to NJDEP.

Discussions with the Township have resulted in the identification of up to 23 acres within the Township that can be planted with trees. Refer to Appendix A for correspondence from the Township where they have identified areas suitable for tree planting.

Accounting for planting in Authority ROW (16.2 acres), the 49.4 acres of remaining reforestation required will be achieved through Reforestation Monetary Contribution to NJDEP (23 acres) and use of additional reforestation credit from other Authority owned sites (wetland mitigation & Laurel Run) (26.4 acres) located outside of Mansfield Township. Refer to Table 5 for a summary of reforestation proposed in Mansfield Township.

Table 5
Mansfield Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	8	
Upper Crafts Creek Site	8.2	
Reforestation Monetary Contribution to NJDEP	23	
Other Authority Property	26.4	
Total	65.6	65.6

3.2 Bordentown Township

The estimated area of deforestation proposed in Bordentown Township, calculated using the ½ acre grid system, is approximately 38.3 acres.

An estimated 23 acres will be reforested within the ROW along the proposed project corridor in Bordentown Township. Approximately 4,692 trees with a 2” to 2.5” caliper diameter will be planted at a density of 204 trees per acre in this 23 acres.

Bordentown Township approached the Authority requesting that trees be planted on a 15.41 acre municipally-owned parcel, commonly known as the Laurel Run Site, as part of the reforestation effort associated with the Widening Program. This municipally-owned open space, identified on the Bordentown Township municipal tax maps as Block 93, Lots 3, 9.01 and 10, is located between the New Jersey Turnpike and the Clifton Mill residential development. Refer to Appendix C for the Off-Site Reforestation Form and Appendix E for the Laurel Run Reforestation planting plans. The reforestation work at the Laurel Run Site was completed in June of 2010.

In addition to reforestation, the plantings are also intended to serve as a form of local noise mitigation for a local development. The inclusion of coniferous trees (which comprise up to 2/3 of the plantings) for their winter leaf retention qualities, would be used to provide potential noise level reduction throughout the year.

The 15.41 acre Laurel Run Site was planted with 5,770 trees at a density of 374 trees per acre to aid in satisfying the Authority's obligation to provide compensatory reforestation within the Township of Bordentown for deforestation impacts resulting from the Widening Program while also intending to provide noise mitigation for the Clifton Mill residential development. As the planting density is 374 trees per acre, which is higher than the normal planting density of 204 trees per acre, the reforestation acreage credit can be calculated by dividing the total number of trees planted by the normal planting density (5,770 trees/204 trees per acre), which yields 28 acres could be used as the calculated acreage for reforestation credit.

The 28 acres of reforestation to be accomplished at the Laurel Run Site will be coupled with the reforestation of 23 acres of available Authority ROW located elsewhere within Bordentown Township. The combination of these two approaches will yield a total 51 acres of reforestation, which exceeds the reforestation impacts in this municipality by 12.7 acres. Refer to Table 6 for a summary of reforestation proposed in Bordentown Township.

Table 6
Bordentown Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	23	
Laurel Run Reforestation Site	28	
Total	51	38.3

3.3 Chesterfield Township

The estimated area of deforestation proposed in Chesterfield Township, calculated using the ½ acre grid system, is approximately 27.6 acres.

An estimated 3 acres will be reforested within the ROW along the proposed project corridor in Chesterfield Township. Approximately 612 trees with a 2" to 2.5" caliper diameter will be planted at a density of 204 trees per acre in this 3 acres.

In addition, a Widening Program wetland mitigation site is located in Chesterfield Township. The Lower Crafts Creek Wetland Mitigation site will be used to partially satisfy the reforestation effort. The Lower Crafts Creek site is estimated to yield 5.8 acres of reforested wetland and upland. Thus the potential total

for reforestation is 8.8 acres within Authority owned properties (3 acres plus 5.8 acres) in Chesterfield Township. Refer to Appendix D which identifies the wetland mitigation sites planting areas.

As the planting within the Turnpike ROW (including wetland mitigation sites) does not completely satisfy reforestation requirements within Chesterfield Township, a portion of the remaining acreage could be achieved by planting trees within the Township through Reforestation Monetary Contribution to NJDEP.

Discussions with the Township have identified up to 25.4 acres within the Township that can be planted with trees. Refer to Appendix A for correspondence from the Township where they identify areas suitable for tree planting.

Accounting for planting in Authority ROW (8.8 acres), the 18.8 acres of remaining reforestation required will be achieved through Reforestation Monetary Contribution to NJDEP (11.3 acres) and use of additional reforestation credit from other Authority owned sites (wetland mitigation & Laurel Run) (7.5 acres) located outside of Chesterfield Township. Refer to Table 7 for a summary of reforestation proposed in Chesterfield Township.

Table 7
Chesterfield Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	3	
Lower Crafts Creek Site	5.8	
Reforestation Monetary Contribution to NJDEP	11.3	
Other Authority Property	7.5	
Total	27.6	27.6

3.4 Hamilton Township

The estimated area of deforestation proposed in Hamilton Township, calculated using the ½ acre grid system, is approximately 42.8 acres.

An estimated 12 acres will be reforested within the ROW along the proposed project corridor in Hamilton Township. Approximately 2,448 trees with a 2” to 2.5” caliper diameter will be planted at a density of 204 trees per acre in this 12 acres.

Hamilton Township approached the Authority requesting that trees be planted on five parcels within the Township, totaling 4.86 acres in size, to provide some noise mitigation for landowners along Crosswicks-Hamilton Square Road. The Authority owns three parcels (Block 2725, Lots 2, 3 & 8), with the remaining two privately-owned (Block 2725, Lots 4 and 5). The inclusion of coniferous trees (which could comprise up to 2/3 of the plantings) for their winter leaf retention qualities, is designed to provide potential noise level reduction throughout the year. It is understood that only Authority-owned land will earn the reforestation credit within the Township (3.6 acres). Refer to Appendix C for the Off-Site Reforestation Form.

The 3.6 acres of Authority-owned land near Crosswicks-Hamilton Square Road could be planted with 734 trees at a density of 204 trees per acre. Reforestation of these parcels would aid in satisfying the

Authority's obligation to provide compensatory reforestation within Hamilton Township associated with deforestation impacts resulting from the Widening Program while also intending to provide noise mitigation for local residents.

The 3.6 acres of reforestation would be coupled with the reforestation of 12 acres of available Authority-owned land located elsewhere within Hamilton Township. The combination of these two approaches would yield a total 15.6 acres of reforestation on Authority owned land.

Discussions with the Township have identified up to 27.5 acres within the Township that can be planted with trees. Refer to Appendix A showing correspondence from the Township where they identify areas suitable for tree planting. The Authority is contracting with Hamilton Township for Hamilton Township to reforest the equivalent of 7.2 acres of public land (1,466 trees) in the Township at a cost of \$439,932.

Accounting for planting in Authority ROW (15.6 acres) and on public land in Hamilton Township (7.2 acres), the 20 acres of remaining reforestation required will be achieved through Reforestation Monetary Contribution to NJDEP (20 acres) Refer to Table 8 for a summary of reforestation proposed Hamilton Township.

Table 8
Hamilton Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	12	
Crosswicks-Hamilton Sq. Road	3.6	
Reforestation Monetary Contribution to NJDEP	20	
Public Land in Hamilton Twp.	7.2	
Total	42.8	42.8

3.5 Robbinsville Township

The estimated area of deforestation proposed in Robbinsville Township, calculated using the ½ acre grid system, is approximately 114.9 acres.

An estimated 21 acres will be reforested within the ROW in Robbinsville Township along the proposed project corridor. Approximately 4,284 trees with a 2" to 2.5" caliper diameter will be planted at a density of 204 trees per acre in this 21 acres.

In addition, a Widening Program wetland mitigation site is located in Robbinsville Township. The Back Creek Wetland Mitigation Site will be used to partially satisfy the reforestation effort. The Back Creek site is estimated to yield 17 acres of forested wetland upland (Table 4). Thus the potential total for reforestation is 38 acres within Authority owned properties (21 acres plus 17 acres) in Robbinsville Township. Refer to Appendix D which identifies the wetland mitigation sites planting areas.

As the plantings within Turnpike ROW (including wetland mitigation sites) does not satisfy reforestation requirements within Robbinsville Township a portion of the remaining acreage could be achieved by plantings within the Township through Reforestation Monetary Contribution to NJDEP.

Discussions with the Township have identified up to 117 acres within the Township that can be planted with trees. Refer to Appendix A showing correspondence from the Township where they identify areas suitable for tree planting. The Authority is contracting with Robbinsville Township for Robbinsville Township to reforest the equivalent of 20.3 acres of public land (4,146 trees) in the Township at a cost of \$1,243,666.

Accounting for planting in Authority ROW (38 acres) and on public land in Robbinsville Township (20.3 acres), the 56.6 acres of remaining reforestation required will be achieved through Reforestation Monetary Contribution to NJDEP (56.6 acres). Refer to Table 9 for a summary of reforestation proposed in Robbinsville Township.

Table 9
Robbinsville Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	21	
Back Creek Mitigation Site	17	
Reforestation Monetary Contribution to NJDEP	56.6	
Public land in Robbinsville Twp.	20.3	
Total	114.9	114.9

3.6 East Windsor Township

The estimated area of deforestation proposed in East Windsor Township, calculated using the ½ acre grid system, is approximately 110.4 acres.

An estimated 29 acres will be reforested within the ROW along the proposed project corridor in East Windsor Township. Approximately 5,998 trees with a 2” to 2.5” caliper diameter will be planted at a density of 204 trees per acre within this 29 acres.

As the planting within the Turnpike ROW does not satisfy reforestation requirements within East Windsor Township, a portion of the remaining acreage could be achieved by plantings within the Township through Reforestation Monetary Contribution to NJDEP.

Discussions with the Township have resulted in the identification of up to 100 acres within the Township that can be planted with trees. Refer to Appendix A for correspondence from the township where they identify sites suitable for tree planting. The Authority is contracting with East Windsor Township for East Windsor Township to reforest the equivalent of 21.5 acres of public land (4,388 trees) in the Township at a cost of \$1,316,442.

Accounting for planting in Authority ROW (29 acres)) and on public land in East Windsor Township (201.5 acres), the 59.9 acres of remaining reforestation required will be achieved through Reforestation Monetary Contribution to NJDEP (59.9 acres). Refer to Table 10 for a summary of reforestation proposed in East Windsor Township.

Table 10
East Windsor Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	29	
Reforestation Monetary Contribution to NJDEP	59.9	
Public land in East Windsor Twp.	21.5	
Total	110.4	110.4

3.7 Cranbury Township

The estimated area of deforestation proposed in Cranbury Township, calculated using the ½ acre grid system, is approximately 49.4 acres.

An estimated 2 acres will be reforested within the ROW along the proposed project corridor in Cranbury Township. Approximately 408 trees with a 2” to 2.5” caliper diameter will be planted at a density of 204 trees per acre in this 2 acres.

As the planting within the Turnpike ROW does not satisfy the reforestation requirements within Cranbury Township, a portion of the remaining acreage could be achieved by planting trees within the Township through Reforestation Monetary Contribution to NJDEP.

Discussions with the township have resulted in the identification of up to 35.7 acres within the Township that can be planted with trees. Refer to Appendix A for correspondence from the Township where they identify areas suitable for tree planting.

Accounting for planting in Authority ROW (2 acres), the 45.4 acres of remaining reforestation required will be achieved through Reforestation Monetary Contribution to NJDEP (35.7 acres) and use of additional reforestation credit from other Authority owned sites (wetland mitigation & Laurel Run) (11.7 acres) located outside of Cranbury Township. Refer to Table 11 for a summary of reforestation proposed in Cranbury Township.

Table 11
Cranbury Township Reforestation Summary

	Acreage of Reforestation	Acreage of Deforestation
Reforested within ROW	2	
Reforestation Monetary Contribution to NJDEP	35.7	
Other Authority Property	11.7	
Total	49.4	49.4

3.8 Monroe Township

No impacts to land under the No-Net Loss Reforestation Act’s guidelines (1/2 acre grids) is proposed to occur in Monroe Township. Although not currently used to satisfy Widening Program reforestation, there is a proposed wetland mitigation site in Monroe Township, commonly known as the Brookland Wetland Mitigation Site. This site is located less than five miles east of the Turnpike, and can be used to satisfy a

portion of the Widening Program's reforestation requirements. The Brookland site is anticipated to yield 51.2 acres of tree planting credit. Refer to Table 4 for wetland mitigation sites acreage.

3.9 South Brunswick Township

No impacts to land under the No-Net Loss Reforestation Act's guidelines (1/2 acre grids) is proposed to occur in South Brunswick Township. Although not currently used to satisfy Widening Program reforestation requirements, there is a proposed wetland mitigation site in South Brunswick Township, known as the Devils Brook Wetland Mitigation Site. This site is located less than five miles west of the Turnpike and can be used to satisfy a portion of the Widening Program's reforestation requirements. The Devils Brook site is anticipated to yield 4.1 acres of tree planting credit. Refer to Table 4 for wetland mitigation sites acreage.

3.10 East Brunswick Township

No impacts to forested land under the No-Net Loss Reforestation Act's guidelines (1/2 acre grids) is proposed to occur in East Brunswick Township.

3.11 Milltown Borough

No impacts to forested land under the No-Net Loss Reforestation Act's guidelines (1/2 acre grids) is proposed to occur in Milltown Borough.

4.0 PLANTING AND MAINTENANCE PLAN

An example of Tree Planting Specifications and Tree Maintenance Specifications used for the Laurel Run Reforestation site in Bordentown Township is located in Appendix E of this report. The Authority will place these reforestation specifications in their roadway contractor specifications to be followed for reforestation within the Turnpike Right-of-Way and off-site areas outside ROW.

The following text is an excerpt from the *New Jersey No Net Loss Reforestation Act, Program Guidelines (revised September 2007)*:

Reforestation Protection and Care Methods

The Forest Service and a representative of the state entity shall inspect the reforestation project after two years to determine the health and vitality of the reforestation stock.

Seedling reforestation stock shall have an 80% survival rate.

Whip or container reforestation shall have a 90% minimum survival rate.

Balled and Burlapped reforestation stock shall have a 95% minimum survival rate.

Projects that do not meet the minimum survival rate percentage shall have all the unhealthy stock replaced within 120 days of receiving notification for the NJ Forest Service. Inspections and replacement plantings shall continue with the same time frames until the minimum survival rate is achieved.

If the survival percentages are significantly lower than the minimum for each kind of tree reforestation stock, the Forest Service will review the planting and maintenance methods and the state entity may be required to make modifications to them.

The Forest Service may make field inspections during the two-year establishment period to insure that the tree maintenance program is adequate for the trees.

Pirone's Tree Maintenance (Oxford University Press) is to be the reference for tree planting and maintenance practices not specifically outlined in the appendixes. The most recent edition shall be used.

5.0 MONETARY CONTRIBUTION

If the on-site or off-site planting does not fully satisfy the reforestation requirements for the project, the Authority can make a monetary payment in lieu of planting additional trees if the municipalities impacted by deforestation have identified public lands to plant trees. This payment program is referred as Reforestation Monetary Contribution. The monetary Contribution option allows for the state entity to satisfy the requirements of the Act without having to administer and manage a tree-planting project. The Division of Parks and Forestry will use the funds to satisfy the reforestation requirements and interact with municipal, county or other state agencies on whose lands the trees will be planted. Refer to Table 12 below for the summary of the anticipated Reforestation Monetary Contribution credit to be provided to the NJDEP Division of Parks and Forestry.

The amount of money paid to the NJDEP Division of Parks and Forestry for each acre impacted is calculated using the following formula:

$$204 \text{ trees per acre (2" to 2.5" caliper)} \times \$300 \text{ per shade tree} = \$61,200/\text{acre}$$

An administrative fee is also included in Table 12 to support the Division of Parks and Forestry in review of the Reforestation Plan Application and to conduct inspections of tree plantings.

**New Jersey Turnpike Authority
Interchange 6 to 9 Widening Program
No Net Loss Reforestation
Summary**

Municipalities	Forest Impacts (acres)	Reforested within NJTA ROW (acres)	Reforested within Wetland Mitigation Sites (acres)	Wetland Mitigation Site	Reforested by NJTA on Public Lands (acres)	Public Lands Site	Total Turnpike Reforestation Credits (acres)	Total NJDEP / Municipality Credits (acres)	Monetary Compensation Per Municipality [\$61,200 Per Acre]
Mansfield Township	65.6	8	8.2	Upper Crafts Creek Site	0		16.2	49.4	\$ 3,023,280.00
Bordentown Township	38.3	23	0.0		28	(Laurel Run Reforestation Site)	38.3	0.0	\$ -
Chesterfield Township	27.6	3	5.8	Lower Crafts Creek Site	0		8.8	18.8	\$ 1,150,560.00
Hamilton Township	42.8	12	0.0		10.8	(Crosswicks-Hamilton Square Road Site)	22.8	20.0	\$ 1,224,000.00
Robbinsville Township	114.9	21	17.0	Back Creek Site	20.3		58.3	56.6	\$ 3,463,920.00
East Windsor Township	110.4	29	0.0		21.5		50.5	59.9	\$ 3,665,880.00
Cranbury Township	49.4	2	0.0		0		2.0	47.4	\$ 2,900,880.00
Monroe Township	0.0	0	51.2*	Brookland Site	0		0.0	0.0	\$ -
South Brunswick Township	0.0	0	4.1*	Devils Brook Site	0		0.0	0.0	\$ -
East Brunswick Township	0.0	0	0.0		0		0.0	0.0	\$ -
Milltown Borough	0.0	0	0.0		0		0.0	0.0	\$ -
Totals	449.0	98.0	31.0		80.6		196.9	252.1	\$ 15,428,520.00
								Proposed Monetary Compensation @ \$61,200 / Acre =	\$15,428,520.00
								5 % Administration =	\$771,426.00
* Subject to preparation of Final Design, actual acreage may vary.								Total	\$16,199,946.00
** Allocation of funds paid by NJTA to be in accordance with "Stipulation of Settlement" agreement								Say	\$16,200,000.00
***Reforestation on Public Lands includes Reforestation performed by Hamilton, Robbinsville and East Windsor as contractors of NJTA									

6.0 SUMMARY

The combination of the approaches identified below will satisfy the No-Net Loss Reforestation Act requirements for the 449 acres of deforestation which will occur due to the New Jersey Turnpike Interchange 6 to 9 Widening Program. Refer to Table 12 for the No-Net Loss Reforestation Summary of deforestation impacts and proposed reforestation. In summary, the reforestation approaches include:

1. Plant 98 acres of trees on Authority Right-of-Way in seven municipalities (Mansfield, Bordentown Township, Hamilton, Chesterfield, Robbinsville, East Windsor and Cranbury).
2. Plant 86.3 acres within the Authority's five new wetland mitigation sites.
3. Plant 15.41 acres of trees in Bordentown Township on municipal property adjacent to the Clifton Mill development (Laurel Run Reforestation site) for reforestation and to aid in potential local noise mitigation.
4. Plant 3.6 acres of trees in Hamilton Township on Authority-owned land adjacent to Crosswicks-Hamilton Square Road for reforestation and to aid in potential local noise mitigation.
5. Contract with Robbinsville, East Windsor and Hamilton Townships to plant the equivalent of 49 acres (10,000 trees) on public land in those municipalities.
6. Contribute money to the NJDEP Reforestation Monetary Contribution fund.

Although local municipalities have identified an excess of available public land to plant trees, only that amount necessary to comply with the Widening Program reforestation plan will be advanced for inclusion in the Reforestation Monetary Contribution program administered by NJDEP's Division of Parks and Forestry.