Form 1

Record of Plot Length and Completion of Pre- and Post-Storm Survey

Community Name:			
Date Pre-Storm Survey Completed:		**Date Post-Storm Survey Completed:**	
_____ ÷ _____ × 100 = _____ %			
Total Plot Length (in Miles)[1]	Total Street Miles[2]	**= Percent Street Miles**	

Plot Number	Plot Length (feet)	Pre-Storm Survey Completed		Post-Storm Survey Completed	
		Initials of Data Collector	Date Completed	Initials of Data Collector	Date Completed
Total Length[1]					

[1] Convert total plot length from feet to miles by dividing it by **5,280** before entering the amount at the top of the form.

[2] Total street mileage can be obtained from the engineering or public works department or can be scaled directly off the map. Only public streets that will be included in an actual storm cleanup should be in used to obtain total street mileage.

Form 2A

PRE-Storm Field Data Collection Sheet (Populated Areas)

Community Name:		
ON Street:		**Plot Number:**
FROM Street:	**TO Street:**	
Date:	**Plot Length (feet):**	
ROW Width (feet):	**Collected by:**	

Complete this section only if a blockside has multiple plots.	**Distance from intersection (low addresses) to beginning of plot (high addresses), in feet:**
Start of plot description:	
End of plot description:	

ON Right-of-Way Trees (Count trees on both sides of the street)							**OFF ROW Trees (within 50 feet of the back of ROW)**			
DBH Class	**Tally of ROW Trees[1]**	**Number of ROW Trees**	**Time per Tree for Removal[2]**	**Total Hours for Removal (total trees × time per tree)**	**Time Per Hazard Prune[3]**	**Total Hours Haz Prune (total trees × time per tree)**	**DBH Class**	**Tally Off ROW Trees**	**Total Off ROW Trees**	**TOTALS**
6-12			3.2		0.75		6-12			
13-18			5.1		1.0		13-18			
19-24			7.7		1.5		19-24			
25-30			10.2		2.0		25-30			
31-36			12.5		3.0		31-36			
37-42			20.4		4.0		37-42			
43+			28.0		5.0		43+			
Totals										

[1] Record each tree with a tally mark as described in Appendix F.

[2] Time for removal does not include stump removal. Additional information on the time per tree for removals in populated areas is provided in the text.

[3] Time for hazard pruning is for removal of broken or hazardous branches greater than 2 inches only. Additional pruning is not included. More information on hazard pruning in populated areas is provided in the text.

Form 2B

PRE-Storm Field Data Collection Sheet (Rural Areas)

Community Name:	
ON Road:	**Plot Number:**
Intersection nearest to plot start:	
Approximate distance to intersection:	
Date:	**Plot Length (mile):**
ROW Width (feet):	**Collected by:**

Indicate here permanent features (such as poles, signs, driveways, etc.) that help locate the plot.
Start of plot:
End of plot:

ON Right-of-Way Trees (Count trees on both sides of the road)					
Tally of ROW Trees[1]	**Number of ROW Trees**	**Avg. Time per Removal[2]**	**Total Hours Removal (total trees × time per removal)**	**Avg. Time Per Prune[3]**	**Total Hours Hazard Prune (total trees × time per prune)**
		6.2		2.5	
Totals					

[1] Record all trees >6" with a tally mark as described in Appendix F.

[2] Time reduced 50% from average urban rate to account for simpler procedure. It does not include stump removal. Additional information on the time per tree for removals is provided in the text.

[3] Time reduced 50% from average urban rate. It includes pruning of broken or hazardous branches greater than 4 inches only. Other pruning is not included. Additional information on hazard pruning is provided in the text.

Form 2C

PRE-Storm Field Data Collection Sheet (Non-linear Maintained Areas)

Community/Facility Name:		**Plot Number:**
Survey Area Location:		
Collected by:	**Date:**	

Indicate here a means to locate the plot	
Reference Point(s):	
Direction 1:	**Bearing 1:**
Direction 2:	**Bearing 2:**
Direction 3:	**Bearing 3:**
Permanent Plot Center Marker:	

Maintained Trees						
DBH Class	**Tally of Trees[1]**	**Number of Trees**	**Time per Tree for Removal[2]**	**Total Hours for Removal (total trees □ time per tree)**	**Time Per Hazard Prune[3]**	**Total Hours Haz Prune (total trees □ time per tree)**
6-12			3.2		0.75	
13-18			5.1		1.0	
19-24			7.7		1.5	
25-30			10.2		2.0	
31-36			12.5		3.0	
37-42			20.4		4.0	
43+			28.0		5.0	
Totals						

[1] Record all trees >6" with a tally mark as described in Appendix F.

[2] Time reduced 50% from average urban rate to account for simpler procedure. It does not include stump removal. Additional information on the time per tree for removals is provided in the text.

[3] Time reduced 50% from average urban rate. It includes pruning of broken or hazardous branches greater than 4 inches only. Other pruning is not included. Additional information on hazard pruning is provided in the text.

Form 2D

PRE-Storm Field Data Collection Sheet (Non-linear Unmaintained Areas)

Community/Facility Name:		**Plot Number:**
Survey Area Location:		
Collected by:	**Date:**	

Indicate here a means to locate the plot	
Reference Point(s):	
Direction 1:	**Bearing 1:**
Direction 2:	**Bearing 2:**
Direction 3:	**Bearing 3:**
Permanent Plot Center Marker:	

Unmaintained Trees					
Tally of Trees[1]	**Number of Trees**	**Avg. Time per Removal[2]**	**Total Hours Removal (total trees × time per removal)**	**Avg. Time Per Prune[3]**	**Total Hours Hazard Prune (total trees × time per prune)**
		6.2		2.5	
Totals					

[1] Record all trees >6" with a tally mark as described in Appendix F.

[2] Time reduced 50% from average urban rate to account for simpler procedure. It does not include stump removal. Additional information on the time per tree for removals is provided in the text.

[3] Time reduced 50% from average urban rate. It includes pruning of broken or hazardous branches greater than 4 inches only. Other pruning is not included. Additional information on hazard pruning is provided in the text.

Form 3
PRE-Storm Community Summary Data

Plot Number	Total Hours Removal[3]	Total Hours Prune	Total ROW Trees	Total All Trees (rural only on ROW)	Plot Length (feet)[2]	Tree Density per 100 ft. (total trees in plot 100 ÷ plot length)	Brush[7] (cubic yards per 100 feet)	Total Brush (plot length brush ÷ 100) (cubic yards)[5]
Totals								

Form 3 (Cont.)

PRE-Storm Community Summary Data

Community Name:			
State:	**Date:**	**Total Street Miles[1]:**	**Total Plot Length[2]:** (miles)

hrs	□	**mi**	÷	**mi**	=		**hrs**
Total Hours[3]		Total Street Miles		Total Plot Length		**Total Removal Hours**	
hrs	□	**$**	□	**0.2**	=	**$**	
Total Removal Hours		Cost per Hour[4]		Tree Removal Percentage		**Tree REMOVAL Cost**	

hrs	□	**mi**	÷	**mi**	=		**hrs**
Total Hours[3]		Total Street Miles		Total Plot Length		**Total Pruning Hours**	
hrs	□	**$**	□	**0.3**	=	**$**	
Total Pruning Hours		Cost per Hour[4]		Tree Pruning Percentage		**Tree PRUNING Cost**	

cu yd	□	**Mi**	÷	**mi**	=		**cu yd**
Total Brush[5]		Total Street Miles		Total Plot Length		**Total Brush**	
cu yd	□	**$**			=	**$**	
Total Brush		Cost per cubic yard[6]				**BRUSH Clean-Up Cost**	

$	+	**$**	+	**$**	=	**$**	
Tree Removal Cost		Tree Pruning Cost		Brush Clean-Up Cost		**Final Clean-Up Cost**	

[1] Total street miles in the community or in the area being surveyed.

[2] If total plot length is in feet at the bottom of the form, divide by 5280 feet to obtain miles.

[3] Enter the total hours for all plots from the bottom of the form.

[4] Cost can be provided by local community based on past experience or a default cost of $45–$65 **per man-hour** for a fully equipped crew can be used.

[5] Enter the total brush in cubic yards from the bottom of the form.

[6] Brush cleanup costs range typically between $10 and $25 per cubic yard. These costs may vary based on local conditions.

[7] Determine the brush in yards per foot based on tree density from Table G-1 in Appendix F. Be sure to use the last column in Table G-1. Also be sure to enter the estimated brush for each plot in the post-storm community summary data (Form 6) for use in the post-storm analysis.

Form 4

Local, State, and Federal Agency Contact Information

Local Contact	
Contact Name:	Telephone:
Office/Agency:	Fax:
Department:	E-mail:
Address:	Date Sent:
City/State/Zip:	Overnight Mail Carrier No.:

State Contact	
Contact Name:	Telephone:
Office/Agency:	Fax:
Department:	E-mail:
Address:	Date Sent:
City/State/Zip:	Overnight Mail Carrier No.:

Federal Contact	
Contact Name:	Telephone:
Office/Agency:	Fax:
Department:	E-mail:
Address:	Date Sent:
City/State/Zip:	Overnight Mail Carrier No.:

Other Contact	
Contact Name:	Telephone:
Office/Agency:	Fax:
Department:	E-mail:
Address:	Date Sent:
City/State/Zip:	Overnight Mail Carrier No.:

Form 5A

POST-Storm Field Data Collection Sheet (Populated Areas)

Community Name[1]:		
ON Street:		**Plot Number[1]:**
FROM Street:	**TO Street:**	
Date:	**Plot Length (feet):**	
ROW Width (feet):	**Collected by:**	

Start of plot description[1]:
End of plot description:

Right-of-Way Trees ONLY									Canopy Damage[2]	
Tree Removals					Tree Pruning					
DBH Class	Tally Number of Removal Trees	Total All Removal Trees	Time Per Tree (hours)	Total Hours for Removal (total trees × time per tree)	Tally Hazard Prune Trees	Total All Hazard Prune Trees	Time Per Tree (hours)	Total Hours Haz Prune (total trees × time per tree)	Rate in 100-Foot Segments	Canopy Damage Crown Loss (Rate in 10% Increments)
6-12			3.2				0.75		0-100	
13-18			5.1				1.0		101-200	
19-24			7.7				1.5		201-300	
25-30			10.2				2.0		301-400	
31-36			12.5				3.0		401-500	
37-42			20.4				4.0		501-600	
43+			28.0				5.0		601-700	
Totals									701-800	
									801-900	
									901-1050	
									Total	
									Average[3]	

[1] The street and plot information should be the same as in the pre-storm set up.

[2] Rate all trees as a group within 50 feet of edge of the right-of-way.

[3] Average Canopy Damage Crown Loss = Total Crown Loss ÷ number of 100-foot segments.

Form 5B

POST-Storm Field Data Collection Sheet (Rural Areas)

Community Name[1]:	
ON Road:	**Plot Number[1]:**
Intersection nearest to plot start:	
Approximate distance to intersection:	
Date:	**Plot Length (feet):**
ROW Width (feet):	**Collected by:**

Start of plot:
End of plot:

ON Right-of-Way Trees
(Count trees on both sides of the road)

Tally of hazardous removal ROW trees	Total Number of hazard-ous removal ROW Trees	Avg. Time[2] per Removal	Total Hours Removal (total trees × time per removal)	Tally of hazardous prune ROW trees	Total Number of hazardous prune ROW trees	Avg. Time[3] Per Prune	Total Hours Hazard Prune (total trees × time per prune)
		6.2				2.5	
Totals							

[1] Street and plot information should be the same as in the pre-storm set up.

[2] On rural roads, removals are only recorded for larger trees already in failure. Time has been reduced 50% from average urban rate, and does not include stump removal. Additional information on this topic is provided in the text.

[3] On rural roads, time per prune is for pruning of broken or hazardous branches greater than 4 inches only. Time has been reduced 50% from urban rate; it does not include other pruning. Additional information can be found in the text.

[4] Rate all trees as a group for each 100' segment.

[5] Average = Total Canopy Damage ÷ # of 100' segm

Canopy Damage[4]

Rate in 100-Foot Segments	Canopy Damage Crown Loss (Rate in 10% Increments)
0-100	
101-200	
201-300	
301-400	
401-500	
501-600	
601-700	
701-800	
801-900	
901-1050	
Total	
Average[5]	

Form 5C

POST-Storm Field Data Collection Sheet (Non-linear Maintained Areas)

Community/Facility Name:		**Plot Number[1]:**
Survey Area Location:		
Collected by:	**Date:**	

Indicate here a means to locate the plot	
Reference Point(s):	
Direction 1:	**Bearing 1:**
Direction 2:	**Bearing 2:**
Direction 3:	**Bearing 3:**
Permanent Plot Center Marker:	

Maintained Trees								
Tree Removals					**Tree Pruning**			
DBH Class	**Tally of Trees for Removal**	**Total All Removal Trees**	**Time Per Tree (hours)**	**Total Hours for Removal (total trees × time per tree)**	**Tally Hazard Prune Trees**	**Total All Hazard Prune Trees**	**Time Per Tree (hours)**	**Total Hours Haz Prune (total trees × time per tree)**
6-12			3.2				0.75	
13-18			5.1				1.0	
19-24			7.7				1.5	
25-30			10.2				2.0	
31-36			12.5				3.0	
37-42			20.4				4.0	
43+			28.0				5.0	
Totals								
Crown Loss:[2] _____ %								

[1]Plot information should be the same as on the setup Form 2C.

[2]Select a multiple of 10 to most accurately approximate the % crown loss for the whole plot.

Form 5D

POST-Storm Field Data Collection Sheet (Non-linear Unmaintained Areas)

Community/Facility Name:		**Plot Number:**
Survey Area Location:		
Collected by:	**Date:**	

Indicate here a means to locate the plot	
Reference Point(s):	
Direction 1:	**Bearing 1:**
Direction 2:	**Bearing 2:**
Direction 3:	**Bearing 3:**
Permanent Plot Center Marker:	

Unmaintained Trees							
Tally of Trees for Removal[2]	**Number of Trees for Removal**	**Avg. Time per Removal**	**Total Hours Removal (total trees time per removal)**	**Tally of Trees for Hazard Prune**	**Number of Trees for Hazard Prune**	**Avg. Time Per Prune**	**Total Hours Hazard Prune (total trees time per prune)**
		6.2				2.5	
Totals							
Crown Loss[4] _____ %							

[1]Street and plot information should be the same as in the pre-storm set up.

[2]On unmaintained plots, record only larger trees already in failure with a tally mark as described in Appendix F.

[3] On unmaintained plots, record hazard pruning for branches > 4" only when a likely target can be identified.

[4]Select a multiple of 10 to most accurately approximate the % crown loss for the whole plot.

Form 6
POST-Storm Community Summary Data

Plot Number	Plot Length (feet)	Total Removal (hours)[2]	Total Hazard Pruning (hours)[2]	Brush per 100 ft. (from the pre-storm analysis)	Average Canopy Loss	Adjusted Brush[5]	Total Brush (plot length Adjusted brush ÷ 100) (cu yd)[5]
Totals							

Form 6 (Cont.)
POST-Storm Community Summary Data

Community Name:			
State:	**Date:**	**Total Street Miles[1]:**	**Total Plot Length[1]:** (miles)

hrs	×	**mi**	÷	**mi**	=		**hrs**
Total Hours[3]		Total Street Miles		Total Plot Length		**Total Removal Hours**	
		hrs	×	**$**	=	**$**	
		Total Removal Hours		Cost per Hour[4]		**Tree REMOVAL Cost**	

hrs	×	**mi**	÷	**mi**	=		**hrs**
Total Hours[3]		Total Street Miles		Total Plot Length		**Total Pruning Hours**	
		hrs	×	**$**	=	**$**	
		Total Pruning Hours		Cost per Hour[4]		**Tree PRUNING Cost**	

cu yd	×	**mi**	÷	**mi**	=		**cu yd**
Total Brush[5]		Total Street Miles		Total Plot Length		**Total Adjusted Brush**	
		cu yd	×	**$**	=	**$**	
		Total Adjusted Brush		Cost per yard[4]		**BRUSH Clean-Up Cost**	

$	+	**$**	+	**$**	=	**$**	
Tree Removal Cost		Tree Pruning Cost		Brush Clean-Up Cost		**Final Clean-Up Cost**	

[1] Plot number, plot length, and total street miles should be filled in from pre storm data. If total miles and total plot lengths are different than original estimate, enter the new miles.

[2] Sum all the plot totals to obtain total hours of tree removal and hazard pruning cleanup.

[3] Cost per man-hour for a fully equipped crew to do removal and pruning work. Note that this hourly figure may be different than the $45–65 per man-hour range that was suggested in the pre-storm cleanup estimate.

[4] Average brush cleanup cost is between $10 and $25 per cubic yard. The post-storm cost may differ from these pre-storm estimates.

[5] Adjusted brush amounts are estimated from Table G-2 in Appendix F based on the Total Brush estimates made in the pre-storm survey and the average post-storm canopy loss in the plot.