A Plan for Troy's Community Forest

Welcome & Intros

PLANIT GEO
mapping a greener future

Chris Peiffer, Project Manager

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CITY OF TROY, NY

Viestarts Zubkovs
Street Tree Advisory Board

Supporting City Staff

Welcome & Intros

Funding for this Tree Inventory and Community Forest Management Plan project was provided by the New York State Department of Environmental Conservation under Title 11 of the Environmental Protection Fund

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

CITY OF TROY, NY

Support From:

City of Troy Planning Department

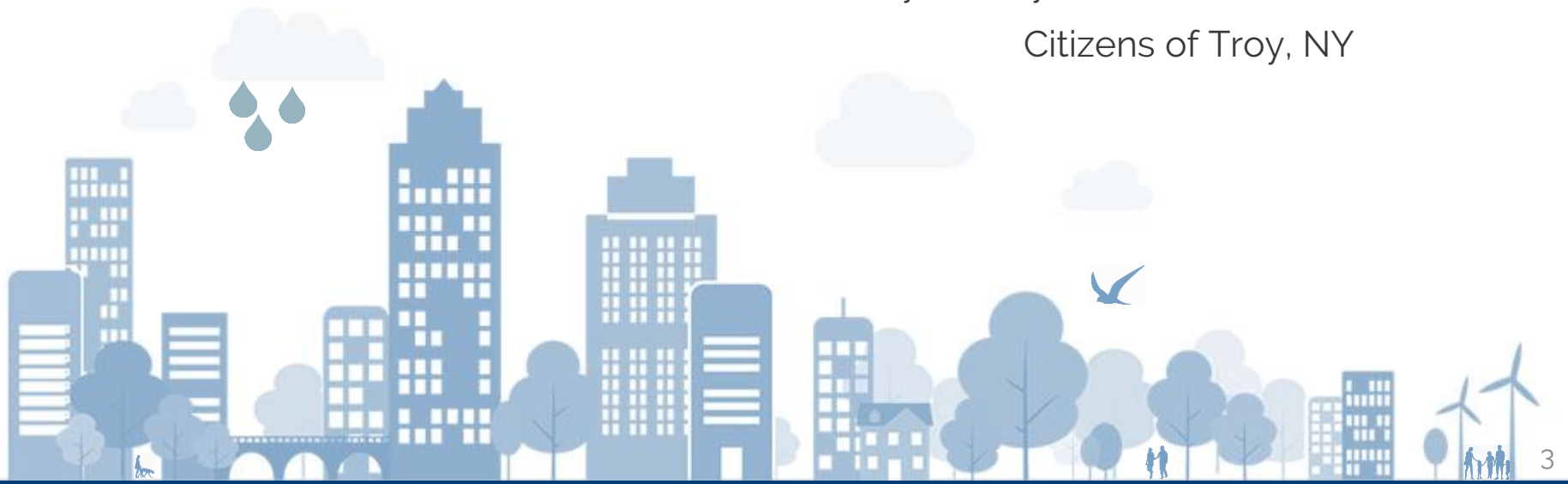
Troy's Street Tree Advisory Board

City of Troy Historic District Commission

City of Troy Planning Commission

City of Troy Environmental Commission

Citizens of Troy, NY



Tonight's Agenda

- Welcome & Intros
- Benefits of Troy's Trees
- Project Overview
- CFMP Results & Recommendations
- Open Discussion & Closing Remarks

Benefits of the Trees in Troy

"Urban trees and forests are considered integral to the sustainability of cities as a whole. Yet, sustainable urban forests are not born, they are made. They do not arise at random, but result from a community-wide commitment to their creation and management."
Clark et al.: Urban Forest Sustainability

Benefits of the Trees in Troy

Benefits of the Trees in Troy

See the CFMP and The Nature Conservancy's *Outside Our Doors* report for more detail

Inspires Physical Activity

Well Being

Air Quality

Boosts Economy

Stormwater Reduction

Neighborhood Safety

Wildlife

Reduced Heat Islands

Energy Savings

Property Values

Erosion Control

Aesthetics

Water Quality

Improves Focus

Benefits of the Trees in Troy

See the CFMP and itreetools.org for more information

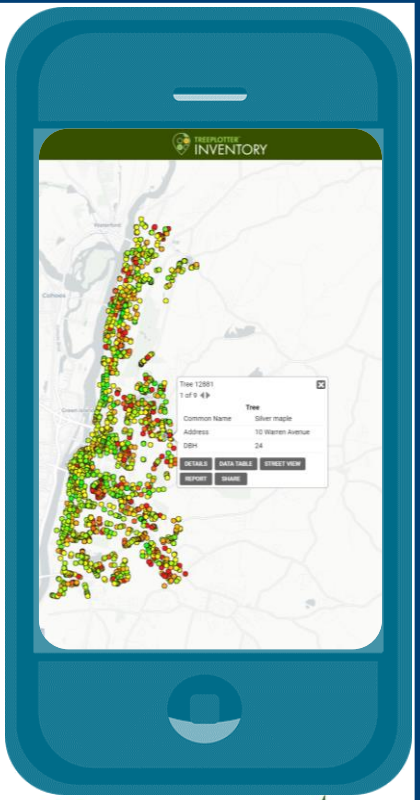
Property Value	Air Quality	Stormwater	Energy Use	Carbon	Total Value
$$$$	$$$$	$$$$	$$$$	$$$$	$$$$
Value added to properties	Filter and absorb pollutants	Reduce gallons treated	Reduce kilowatt hours	Store and sequester carbon	Total Annual Value

Project Overview

Street and Park Inventory

Street rights-of-way, 14 pocket parks, 4 major parks
Trees, potential planting sites, stumps
14,132 points

- 10,820 street points (7,083 live trees)
- 3,312 park points (2,938 live trees)



Staff
PlanIT Geo's ISA Certified Arborists & TRAQ qualified

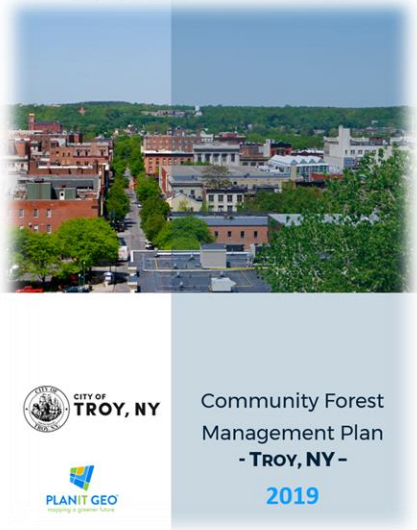
Inventory Program
PlanIT Geo's TreePlotter software (www.pg-cloud.com/TroyNY)

Timeline
May – August 2019

Project Overview

Community Forest Management Plan (CFMP)

Existing Conditions & Operations Audit
Inventory Analysis
Information Gathering
Tree Management Recommendations
Community Outreach Recommendations
Tree Service Requests Recommendations
Shared Maintenance Recommendations
Action Strategies & Recommendations
Implementation Timetable
Supporting Appendices



Project Overview

CFMP Approach

Existing Conditions & Operations Audit

Inventory Analysis
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USFS Urban Forest Sustainability & Management Audit Categories and...

The CF Criteria & Indicators

Criteria	Resource Management – Performance Indicators				Key Objective
	Low	Moderate	Good	Optimal	
R1 Citywide funding	Funding for reactive management	Consistent funding for minimal proactive management	Consistent funding to provide for net increase in urban forest benefits	Consistent private and public funding to sustain maximum urban forest benefits	*Develop and maintain adequate and consistent funding to implement the urban forest management plan*
R2 City urban forestry staffing	No training for urban forestry staff	Certified arborist on staff with regular professional development	Certified arborist and professional forester on staff with regular professional development and support staff	Multi-disciplinary professional team within the urban forestry unit	*Employ and train adequate Professional staff to implement citywide urban forest management plan*
R3 Management of publicly and privately-owned natural areas	Limited or no information about publicly or privately owned natural areas	Publicly and privately owned natural areas are identified in a generalized "natural area survey" or similar document	Ecosystem structure and function in publicly and privately-owned natural areas is documented	The ecological structure and function of all publicly owned and privately-owned natural areas are documented and used in making management decisions	*Management decisions are based upon a detailed understanding of the ecological structure and function of all publicly and privately-owned natural areas*
R4 Urban forest protection policy development and enforcement	No urban forest protection policy	Policies in place to protect public portion of the urban forest	Policies in place to protect public and private portions of the urban forest with enforcement	Integrated municipal wide policies that ensure the protection of the urban forest on both public and private land and are consistently enforced and supported	*The benefits derived from the urban forest are ensured by the implementation and enforcement of the urban forest management plan*

Project Overview

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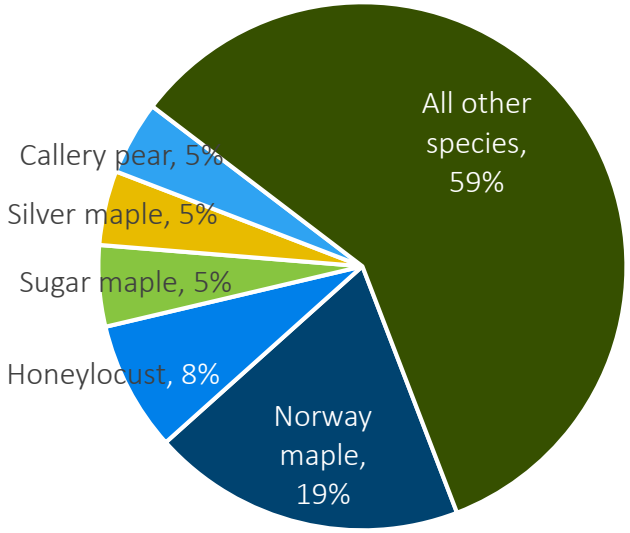
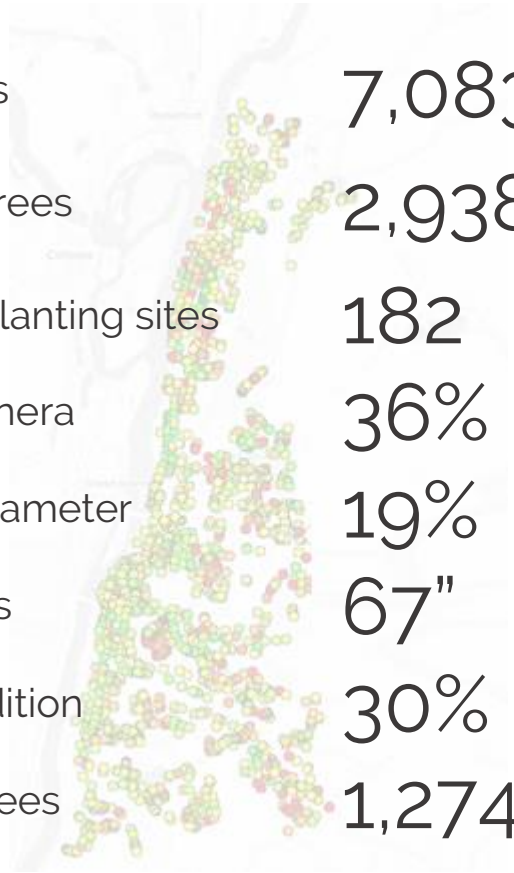
Tree & Vacant Site Inventory Analysis



CFMP Results & Recommendations

Tree & Vacant Site Inventory Summary

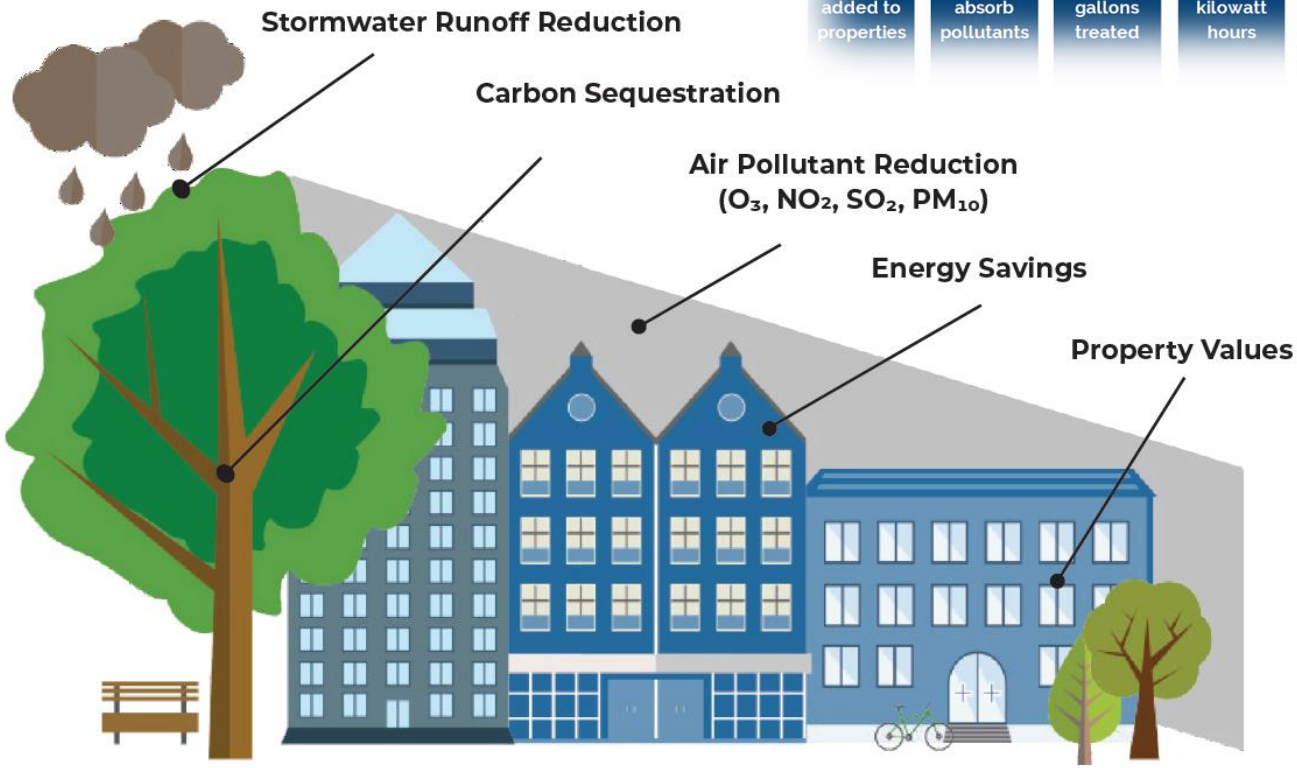
14,132	Data points	7,083	Live street trees (71%)
10,021	Total live trees	2,938	Live park trees (29%)
3,558	Potential planting sites	182	Unique tree species
75	Unique genera	36%	Maple (*Acer*) trees
14.3"	Average diameter	19%	Norway maples
27%	12-18" trees	67"	Largest diameter
42%	Good condition	30%	Infrastructure conflict
140	Priority 1 trees	1,274	Priority 2 trees



See www.pg-cloud.com/TroyNY for more details

CFMP Results & Recommendations

Ecosystem Benefits



CFMP Results & Recommendations

Ecosystem Benefits

Overall Value

Benefits	Total ($)	Quantity	$/tree	$/capita
Aesthetic/Other	$512,116	N/A	$55.47	$10.22
Stormwater	$155,211	19.4 million gallons	$16.81	$3.10
CO2	$15,194	4.5 million pounds	$1.65	$0.30
Energy	$569,857	904 MWh, 314,761 Therms	$61.72	$11.37
Air Quality	$107,742	21,000 pounds	$11.67	$2.15
Total Benefits	**$1,360,121**		**$147.31**	**$27.13**

*Distribution of benefits per tree and per capita based on 9,233 trees and a population of 50,129 people

CFMP Results & Recommendations

Ecosystem Benefits

Most Common Trees*	# of ROW Trees** & %	Canopy Cover	Benefits Provided by Street Trees					Imp. Value+	Repl. Value	RPI++
			Aesthetic or Other	Storm-water	Net CO_2 Benefits	Energy	Air Quality			
Common Name		(acres)	Average $/Tree					(IV)	($)	
Norway maple	1,405, 20%	50	81	19	3	70	14	21.37	$7,767,264	0.92
Honeylocust	642, 9%	24	65	17	2	84	15	9.21	$3,609,936	1.08
Silver maple	356, 5%	24	40	47	3	123	26	10.01	$1,974,503	0.88
Sugar maple	227, 3%	15	76	30	2	83	15	7.77	$1,743,012	0.99
Green ash	233, 3%	10	54	18	2	78	15	3.93	$1,034,523	0.79
Northern red oak	77, 1%	11	61	32	3	99	19	3.89	$2,101,294	1.11
Red maple	257, 4%	7	37	16	1	61	11	3.31	$1,812,649	1.02
Pin oak	150, 2%	9	80	27	3	82	17	3.35	$812,251	1.05
Littleleaf linden	289, 4%	4	34	8	1	44	7	2.23	$1,291,384	1.13
Tree of heaven	59, 1%	3	77	11	1	64	10	1.43	$144,599	0.97
Norway spruce	176, 2%	4	19	13	1	45	9	1.81	$1,326,913	1.11
Callery pear	407, 6%	3	62	4	1	19	4	2.38	$334,141	1.13
Other trees	2,805, 40%	57	5,895	1,776	158	6,790	1,270	29.30	$8,471,335	N/A
ROW TOTAL	**7,083**	**220**	**6,583**	**2,019**	**179**	**7,641**	**1,431**	**100**	**$32,423,805**	**1.00**

CFMP Results & Recommendations

Ecosystem Benefits

Most Common Trees* Common Name	# of ROW Trees** & %
Norway maple	**1,405, 20%**
Honeylocust	642, 9%
Silver maple	356, 5%
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Red maple	257, 4%
Pin oak	150, 2%
Littleleaf linden	289, 4%
Tree of heaven	59, 1%
Norway spruce	176, 2%
Callery pear	407, 6%
Other trees	2,805, 40%
ROW TOTAL	**7,083**

CFMP Results & Recommendations

Ecosystem Benefits

Most Common Trees*	Benefits Provided by Street Trees				
	Aesthetic or Other	Storm-water	Net CO_2 Benefits	Energy	Air Quality
Common Name	Average $/Tree				
Norway maple	81	19	3	70	14
Honeylocust	65	17	2	84	15
Silver maple	40	47	3	123	26
Sugar maple	76	30	2	83	15
Green ash	54	18	2	78	15
Northern red oak	61	32	3	99	19
Red maple	37	16	1	61	11
Pin oak	**80**	**27**	**3**	**82**	**17**
Littleleaf linden	34	8	1	44	7
Tree of heaven	77	11	1	64	10
Norway spruce	19	13	1	45	9
Callery pear	**62**	**4**	**1**	**19**	**4**
Other trees	5,895	1,776	158	6,790	1,270
ROW TOTAL	**6,583**	**2,019**	**179**	**7,641**	**1,431**

CFMP Results & Recommendations

Ecosystem Benefits

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Norway maple	**21.37**	**$7,767,264**	0.92
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Sugar maple	7.77	$1,743,012	0.99
Green ash	3.93	$1,034,523	**0.79**
Northern red oak	3.89	$2,101,294	1.11
Red maple	3.31	$1,812,649	1.02
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Littleleaf linden	2.23	$1,291,384	**1.13**
Tree of heaven	1.43	$144,599	0.97
Norway spruce	1.81	$1,326,913	1.11
Callery pear	2.38	$334,141	**1.13**
Other trees	29.30	$8,471,335	N/A
ROW TOTAL	**100**	**$32,423,805**	**1.00**

CFMP Results & Recommendations

Tree Maintenance Needs

CFMP Results & Recommendations

Tree Maintenance Needs

Tree Maintenance Recommendations

REMOVAL	476 (115) (361)	Total Trees Critical Removals Immediate Removals	Year 1-3
PRIORITY PRUNING	25 913	Critical Pruning Immediate Pruning	Year 1-3
ROUTINE STREET TREE PRUNING CYCLE	5,252 (750)	Total Street Trees Trees Per Year	7-year Cycle @ Year 3
ROUTINE PARK TREE PRUNING CYCLE	2,280 (326)	Total Park Trees Trees Per Year	7-year Cycle @ Year 3
YOUNG TREE TRAINING CYCLE	1,204 (401)	Total Young Trees Trees Per Year	3-year Cycle @ Year 1
TREE PLANTING	68 200	Trees Per Year (minimum) Trees Per Year (natural mortality & recommendation to increase canopy)	Year 1-7

CFMP Results & Recommendations

Tree Maintenance Needs

Count of young trees for young tree training pruning (street & park)

Estimated Costs for Each Activity			2020		2021		2022		2023		2024		2025		2026		7-Year Cost
Activity	Dia. Class	Cost / Tree	# of Trees	Total Cost	# of Trees	Total Cost	# of Trees	Total Cost	# of Trees	Total Cost	# of Trees	Total Cost	# of Trees	Total Cost	# of Trees	Total Cost	
Priority 1 (Critical) Removals* (addressed in first 3 years)	0-3"	$100	1	$100	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$100
	3-6"	$175	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$0
	6-12"	$300	2	$600	7	$2,100	16	$4,800	0	$0	0	$0	0	$0	0	$0	$7,500
	12-18"	$850	3	$2,550	12	$10,200	31	$26,350	0	$0	0	$0	0	$0	0	$0	$39,100
	18-24"	$1,275	1	$1,275	4	$5,100	11	$14,025	0	$0	0	$0	0	$0	0	$0	$20,400
	24-30"	$1,550	1	$1,550	3	$4,650	8	$12,400	0	$0	0	$0	0	$0	0	$0	$18,600
	>30"	$2,100	1	$2,100	4	$8,400	10	$21,000	0	$0	0	$0	0	$0	0	$0	$31,500
Activity Total(s)			**9**	**$8,175**	**30**	**$30,450**	**76**	**$78,575**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**$117,200**
Priority 2 (Immediate) Removals* (addressed in first 3 years)	0-3"	$100	1	$100	3	$300	8	$800	0	$0	0	$0	0	$0	0	$0	$1,200
	3-6"	$175	1	$175	4	$700	8	$1,400	0	$0	0	$0	0	$0	0	$0	$2,275
	6-12"	$300	6	$1,800	25	$7,500	62	$18,600	0	$0	0	$0	0	$0	0	$0	$27,900
	12-18"	$850	8	$6,800	33	$28,050	80	$68,000	0	$0	0	$0	0	$0	0	$0	$102,850
	18-24"	$1,275	4	$5,100	18	$22,950	43	$54,825	0	$0	0	$0	0	$0	0	$0	$82,875
	24-30"	$1,550	2	$3,100	7	$10,850	16	$24,800	0	$0	0	$0	0	$0	0	$0	$38,750
	>30"	$2,100	2	$4,200	9	$18,900	21	$44,100	0	$0	0	$0	0	$0	0	$0	$67,200
Activity Total(s)			**24**	**$21,275**	**99**	**$89,250**	**238**	**$212,525**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**$323,050**

CFMP Results & Recommendations

Tree Maintenance Needs

Count of young trees for young tree training pruning (street & park)

Year / Activity	2020	2021	2022	2023	2024	2025	2026	TOTAL
Priority 1 Removals	$8,175	$30,450	$78,575	$0	$0	$0	$0	$117,200
Priority 2 Removals	$21,275	$89,250	$212,525	$0	$0	$0	$0	$323,050
Stump Removals	$2,488	$10,062	$24,468	$0	$0	$0	$0	$37,018
Priority 1 Pruning	$1,020	$2,080	$3,740	$0	$0	$0	$0	$6,840
Priority 2 Pruning	$11,250	$41,990	$102,915	$0	$0	$0	$0	$156,155
Street Tree Routine Pruning	$0	$0	$109,180	$109,180	$109,180	$109,180	$109,180	$545,900
Park Tree Routine Pruning	$0	$0	$58,640	$58,640	$58,640	$58,640	$58,640	$293,200
Training Prune	$10,430	$10,430	$10,430	$10,430	$10,430	$10,430	$10,430	$73,010
Replacement Plantings	$21,080	$21,080	$21,080	$21,080	$21,080	$21,080	$21,080	$147,560
Replacement Tree Training	$0	$0	$0	$13,600	$13,600	$13,600	$13,600	$54,400
Annual Mature Tree & Planting Mortality	$93,200	$93,200	$93,200	$93,200	$93,200	$93,200	$93,200	$652,400
TOTAL	**$168,918**	**$298,542**	**$714,753**	**$306,130**	**$306,130**	**$306,130**	**$306,130**	**$2,406,733**

CFMP Results & Recommendations

Community Engagement

CFMP Results & Recommendations

Community Engagement

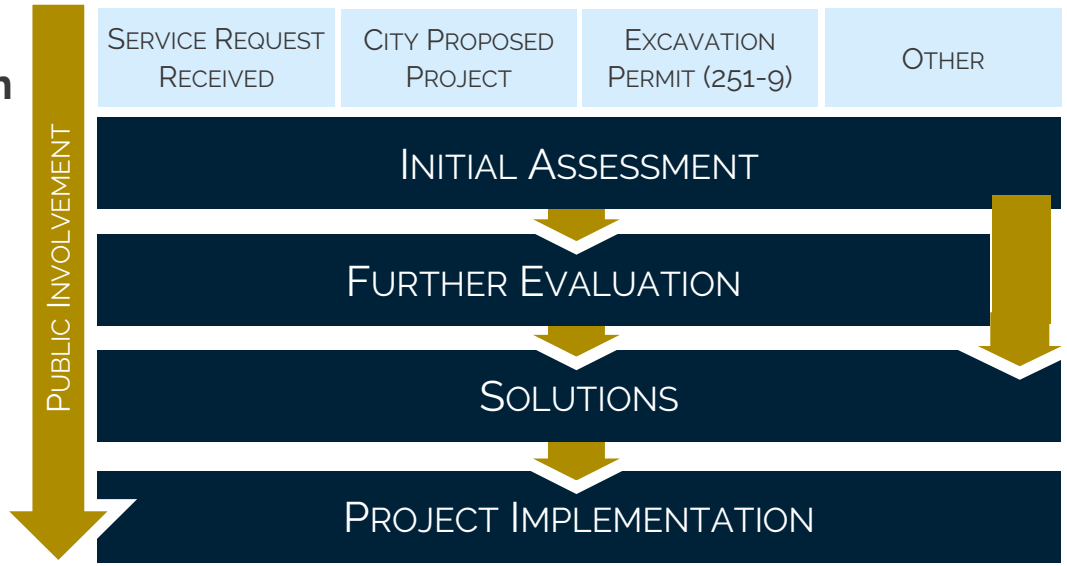
1. **Community Meetings.** Discuss the Plan, projects, and issues with residents throughout the City.
2. **Public Surveys.** Conduct surveys to gather rich insights into public perception on the importance of trees.
3. **Non-profit Partnerships.** Utilize the Citizen Pruners to create or improve partnerships.
4. **Social Media.** Post Plan implementation progress, announcements, and opportunities on social media.
5. **Fliers & News Articles.** Distribute to raise awareness and gather support.
6. **Press Releases.** Share projects, events, and studies in The Record.
7. **Canvassing of Homes.** ID street blocks and areas for spreading community forestry awareness.
8. **Email Listserv.** Keep the community up-to-date on Plan implementation and events.

CFMP Results & Recommendations

Community Engagement: Tree Removal Requests

1. **Preparation**
2. **Implement Updated Approach**
3. **Tracking, Reporting, Prevention**
4. **Growth & Preservation**

Proposed Decision Matrix for Tree Removal Requests

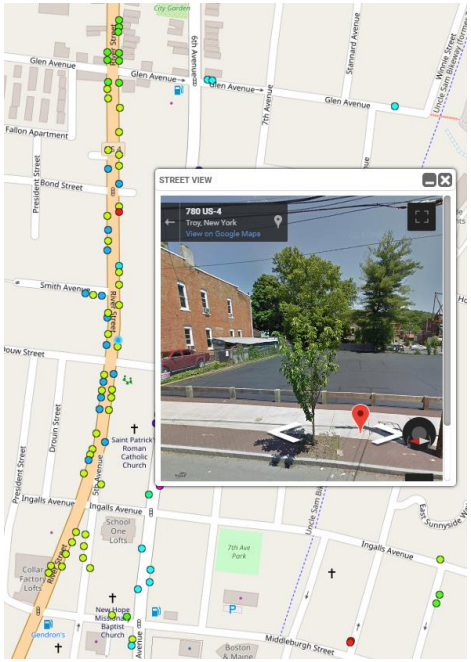


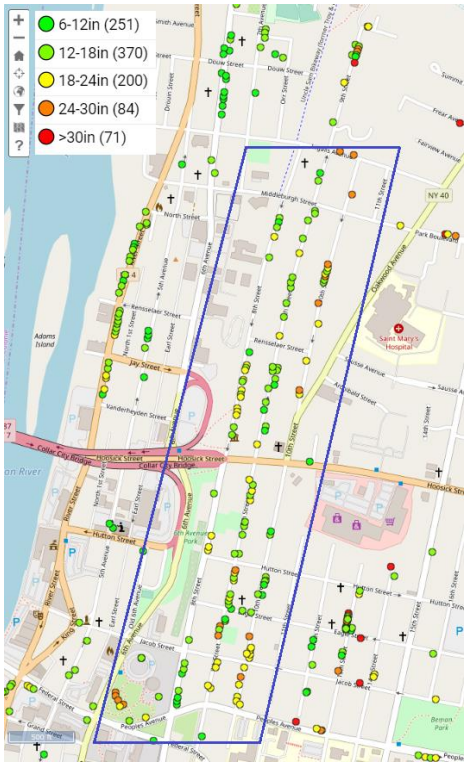
CFMP Results & Recommendations

Community Engagement: Maintenance Responsibility

1. **Volunteers**
2. **Tree Maintenance Alignment**
3. **Maintenance by City Staff**
4. **Priority Maintenance Corridors**

Concentration of trees <6 inches DBH with a Maintenance Priority of Priority 4 (Young).





Example priority corridor to address Priority 1 and Priority 2 maintenance needs

CFMP Results & Recommendations

Action Strategies

Action Strategy One:

Maximize the efficiencies in maintaining trees

A. Manage Risk Trees
B. Establish a Routine Street and Park Tree Pruning Cycle
C. Acquire Maintenance Support & Prioritize Maintenance Corridors
D. Plant and Maintain Young Trees
E. Continue to Monitor
F. Evaluate Community Forest Demands and Staffing Levels

CFMP Results & Recommendations

Action Strategies

Action Strategy Two:

Use planning, legislation, & enforcement to integrate trees more fully

A. Update and Acquire Approval of the Street Tree Ordinance
B. Update the Tree Service Requests and Permit System
C. Establish a Heritage Tree Program
D. Integrate Community Forestry with Plans and Policy

CFMP Results & Recommendations

Action Strategies

Action Strategy Three:
Implement BMPs for the health and benefits of trees

A. **Develop and Implement Tree Planting Plans**
B. **Adhere to Best Management Practices and Standards in Tree Care**

Action Strategy Four:
Foster support for the community forest

A. **Educate and Engage the Community**

CFMP Results & Recommendations

Implementation Timetable (example)

Action Item	Action description	Action Year(s)	Collaborative Partners (DPW = Department of Public Works, STAB = Street Tree Advisory Board)	Notes
1A	Manage risk trees	2019 - 2022	DPW	Continue to monitor and manage risk beyond 2022
1B	Routine pruning Cycles	2022	DPW, Planning	Establish the program and priorities. Identify shared responsibility opportunities
1C	Acquire maintenance support and/or priority corridors	2019	DPW, STAB, Planning	Alleviate the routine and young tree maintenance pressures and demands
1D	Plant and maintain young trees	2019 – 2026	STAB, Planning, DPW, Capital Roots, Citizen Pruners	Minimum of 68 trees per year. Apply for DEC grants
1E	Continue to monitor	2019 – 2016	DPW, Planning, Citizen Pruners	Continue to use TreePlotter and create accounts for other partners to monitor street and park trees
1F	Evaluate staffing levels	2019	Planning, DPW	Consider a City Arborist position

Questions & Open Discussion

Closing Remarks

Address maintenance
Apply for grants
EAB Plan
Share the CFMP
CFMP online
Citizen Pruners
Community outreach
Plan monitoring
State of the CF
Maintain the inventory
(www.pg-cloud.com/TroyNY)

Source: Downtown Troy BID (Facebook)

Thank You!

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Support from: *New York State Department of Environmental Conservation under Title 11 of the Environmental Protection Fund*

"Without a plan, the governments and individuals responsible for taking care of an urban forest will not be effective in meeting the true needs of the trees and the community. A plan establishes a clear set of priorities and objectives related to the goal of maintaining a productive and beneficial community forest."
American Public Works Association, 2007