Eagle Creek Forest Legacy Initiative
Project Design Document

Table of Contents

INSTRUCTIONS 2
PROJECT OVERVIEW 3
DEFINING THE PROJECT AREA (Section 1.3 and 1.4) 3
OWNERSHIP OR ELIGIBILITY TO RECEIVE POTENTIAL CREDITS (Section 1.5) 4
PROJECT DURATION (Section 2.2) 4
PRESERVATION COMMITMENT (Section 4.1) 5
DEMONSTRATION OF THREAT OF LOSS (Section 4.2, 4.3, and 4.4) 5
ATTESTATION OF NO DOUBLE COUNTING OF CREDITS AND NO NET HARM (Section 5) 7
ADDITIONALITY (Section 6) 7
CARBON QUANTIFICATION DOCUMENTATION (Section 11) 8
CO-BENEFITS QUANTIFICATION DOCUMENTATION (Section 11.5) 11
SOCIAL IMPACTS (Section 12) 12
MONITORING AND REPORTING (Section 8) 12
PROJECT OPERATOR SIGNATURE 13
ATTACHMENTS 14
PROTOCOL REQUIREMENTS 15

INSTRUCTIONS

Project Operators must complete and submit this Project Design Document (PDD) to request credits. City Forest Credits (CFC) then reviews this PDD as part of the validation process along with all other required project documents. An approved third-party verifier then does an independent check of all documents and compliance with the Protocol known as verification.

The Protocol Requirements at the end of this document are a list of eligibility requirements for informational purposes which are also found in more detail in the CFC Tree Preservation Protocol Version 12.40, dated February 22, 2023.

Project Operators should enter data and supporting attachments starting on page 3 under Project Overview where you find "[Enter text here]" as thoroughly as possible and provide numbered attachments for maps and other documentation (ex: 1 – Regional Map). Keep all instructions in the document.

Below is a list of documents that are needed to complete a successful project:

- *Geospatial Location Map*
- *Regional Map*
- *Project Area Map*
- *Proof of Land Ownership or Agreement to Transfer Credits*
- *Preservation Commitment*
- *Land Use Regulations*
- *Land Use/Zoning Map*
- *Overlay Zones or Restrictions*
- *Threat of Loss Demonstration*
- *Attestation of No Double Counting and No Net Harm*
- *Attestation of Additionality*
- *Carbon Quantification Calculator*
- *iTree Canopy Report and raw data*
- *Forest Composition Report*
- *Forest Age Imagery*
- *Stand Map*
- *Co-Benefit Quantification Calculator*
- *Social Impacts*

PROJECT OVERVIEW

Project Name: Eagle Creek Forest Legacy Initiative
Project Number: 52
Project Type: Preservation Project (under the Tree Preservation Protocol – version 12.100, dated February 22, 2023)
Credit Commencement Date: August 28, 2024
Project Location: Indianapolis, Indiana

Project Operator Name: City of Indianapolis, Department of Parks and Recreation
Project Operator Contact Information: Phyllis Boyd, Director, Phyllis.Boyd@Indy.gov, Andre Denman, Principal Park Planner, Andre Denman@Indy.gov, Brenda Howard, DPW Office of Land Stewardship Senior Ecologist, Brenda.Howard@Indy.gov

Project Description:
Describe overall project details and goals as summarized in application. Include information about where the Project is located, Project Area acreage and other relevant background. If the Project Area is part of a larger program or preservation effort, include one sentence with more information (2 paragraphs).

The Eagle Creek Forest Legacy Initiative is in Eagle Creek Park, owned by the City of Indianapolis, Department of Parks and Recreation, the city's largest park (4785 acres). The park is home to a diverse array of wildlife that depend on the quality of its habitat, one of the primary forested areas in central Indiana. It's a haven for resident flora and fauna and a premier destination for the visitors who come specifically to see rare species of birds that are attracted to the forests and planted meadow habitats. The park has a history of land transfers and leases and forest removal impacts. The 100-year commitment is to preserve, protect, and ecologically manage the forests and ecosystem services they provide. This is a commitment that will help ensure forested areas in this program are protected and sustainably managed for future generations. The parkland is zoned as Park District (PK 1/PK2). The project area is 184.3 acres and zoned PK1.

The Park Board approved Resolution No. 22, 2023 with the goal of preserving forests located on the east and west sides of the park, ~480 acres total, if future opportunities arise. This phase of the project would preserve a total of 184.3 acres located on the east side of the park.

DEFINING THE PROJECT AREA (Section 1.3 and 1.4)

Project Area Location
Describe the city, town, or jurisdiction where the Project is located. State which urban location criteria is met from Protocol Section 1.3.

The project area lies in the City of Indianapolis urban area, northwest Indianapolis, in Pike Township, Marion County in central Indiana.

Project Area Parcel Information
List parcel(s) in the Project Area.

Municipality	**Parcel Number**	**Notes** *Include total acres and acres included in Project Area*
Indianapolis, Indiana	6004924	20.2 acres out of 51.4 acres
Indianapolis, Indiana	6004923	29.0 acres out of 372.9 acres
Indianapolis, Indiana	6004928	135.1 acres out of 708.5
	Total Project Area	184.3 acres

Project Area Maps
Provide three maps of the Project Area that illustrate the location: geospatial location, regional, and detailed. Maps should include project title, relevant urban or town boundaries, defined Project Area, and legend.

- Geospatial Location Map
  Show the boundaries of the Project Area in a KML, KMZ, or shapefile format
  Attachment: *1 Eagle Creek Forest Project Shapefile*

- Regional Map
  Show where the Project Area is located in relation to the state and/or region
  Attachment: *2 Eagle Creek Forest Regional Map*

- Detailed map of Project Area
  Show the Project Area and parcel boundaries.

Attachment: *3 Eagle Creek Forest Project Map*

OWNERSHIP OR ELIGIBILITY TO RECEIVE POTENTIAL CREDITS (Section 1.5)

Project Operator must demonstrate ownership of potential credits or eligibility to receive potential credits. If Project Operator is the landowner, attach a deed showing ownership and explanation of when the property was acquired. If the Project Operator is not the landowner, provide the Agreement between Project Operator and landowner authorizing Project Operator to execute this project.

Name of landowner of Project Area and explanation
City of Indianapolis, Department of Parks & Recreation

Attachment: *4 Eagle Creek Forest Deed*

PROJECT DURATION (Section 2.2)

Project Operator commits to the 40- or 100-year project duration requirement through a signed Project Implementation Agreement with City Forest Credits and agrees to the statement below.

Project Operator has committed to the 100-year project duration and signed a Project Implementation Agreement with City Forest Credits on August 1, 2024.

PRESERVATION COMMITMENT (Section 4.1)

Describe the Preservation Commitment terms and attach a complete copy of the recorded document. If Project Area does not have the same boundaries as Preservation Commitment, please state the reasons why.

Preservation Term: 100 years

Date recorded: August 28, 2024

Preservation Commitment Explanation: The City of Indianapolis recorded a deed restriction for 100 years to protect the trees in the Project Area. The deed restriction specifically states that the "Declarant shall not cut down, destroy, or remove trees located on the Property, except as required by law, as necessary to control or prevent hazard, disease or fire, or as needed to improve forest health. Recreational non-motor-use trails have negligible or de minimis impacts on biomass and carbon stock and are permissible."

Attachment: *5 Declaration of Development Restrictions*

DEMONSTRATION OF THREAT OF LOSS (Section 4.2, 4.3, and 4.4)

Demonstrating the Threat of Loss is shown in several ways: land use designation that allows a non-forest use, overlay zones, existing restrictions, and one of three conditions that illustrate pressure to convert the Project Area to a non-forest use.

Note: The online ordinance source is: *REVISED CODE of the Consolidated City and County INDIANAPOLIS/MARION, INDIANA*
This Code of Ordinances and/or any other documents that appear on this site may not reflect the most current legislation adopted by the Municipality.

Land use designation
Describe the land use designation, including what types of non-forest use it allows. Attach a copy of the relevant land use designations, which may include development regulations such as zoning ordinances. Include a map depicting the designation of the relevant municipality, with the Project Area boundaries clearly indicated on the map.

The Project Area is located within an area zoned PK-1, a Park District. All permitted uses are subject to all use-specific standards unless waived during the Development Plan approval process. Permitted PK-1 include non-forest uses such as playgrounds and greenways. In addition, wireless communication facilities are permitted. There are other specific exemptions, requiring an Administrator's approval. Chapter 742 – 1 Park Development Districts references park zoning.

The forest stands within the project area not protected from removal. The permit processes for the removal of trees and/or park to non-park land uses changes are permitted. The Chapter 241 – Department of Parks and Recreation, 241-307 references real estate changes. Chapter 701 – Trees and Flora references permits related to tree removal. There are no recorded deed restrictions specific to forest protection or otherwise in the project area. The forests within the project area are not protected by Indiana Code.

Attachments: *6a Eagle Creek Forest Zoning Map, 6b Eagle Creek Forest Zoning Ordinances*

Overlay zones or other restrictions
Describe any overlay zones that prohibit development or forest clearance such as critical areas, wetlands, or steep slopes and their protection buffers. Describe any legal encumbrances or other pre-existing tree/forest restrictions that may have hindered removal of the Project Trees (in the pre-Preservation Commitment condition). If present, attach a copy of the applicable restriction and a map depicting the overlay boundaries, with the Project Area boundaries clearly indicated on the map.

The Project Area is not within any state or federal overlay protection areas such as wetland and floodplain.

The Project Area is within a local zoning overlay called, Environmental Sensitive Areas (ES). Marion County Land Use Plan – Pattern Book, Page 43: "ENVIRONMENTALLY SENSITIVE AREAS (ES) *The Environmentally Sensitive Areas (ES) Overlay is intended for areas containing high quality woodlands, wetlands, or other natural resources that should be protected. The purpose of this overlay is to prevent or mitigate potential damage to these resources caused by development. This overlay is also appropriate for areas that present an opportunity to create a new environmental asset. This overlay is not intended for the preservation of open space."*

Attachment: 7*a Eagle Creek Forest Overlay Zones, 7b Eagle Creek Forest Local ES Overlay Zones*, *7c Demonstrated Forest Loss in ES Overlay Zones*

Threat of loss demonstration (Section 4.4 A, B, or C)
Describe one of the three threat of loss conditions that are applicable prior to the Preservation Commitment. Provide supporting evidence such as maps, sale or assessed value documentation, or appraisal information.

A) *Developed or improved uses surrounding at least 30% of perimeter of Project Area*
    - *A map depicting the Project Area with parcel boundaries, perimeter of developed or improved uses, and calculation of the border with these uses*
B) *Sold, conveyed, or assessed in past three years at value greater than $8K/acre for bare land*
    - *A settlement statement, assessor statement, or other evidence of land transaction*
C) *Fair market value higher after conversion to a non-forested use*
    - *A "highest and best use" study from a state certified general real estate appraiser stating that the Project Area would have a fair market value after conversion to a non-forested "highest and best use" greater than the fair market value after preservation*

Section 4.4 A – Road, park, and commercial development is a threat to the project area; project area is in PK-1 zoning and land uses change or development is permitted such as, parking lots, buildings, or recreational sports fields. This leaves about 12.66% of the boundary which could be considered non-threatened.

Type of Threat at Parcel Boundary	Length (ft)	Length (m)	% of Total Boundary
Road Developments	9954	3034	47.24%
Park Developments	8448	2575	40.10%
Non-Threat	2666	813	12.66%

Attachment: *8a Eagle Creek Forest Threat of Loss Map, 8b Eagle Creek Park Development Threats*

ATTESTATION OF NO DOUBLE COUNTING OF CREDITS AND NO NET HARM (Section 5)

Complete and attach the following attestation: Attestation of No Double Counting of Credits and Attestation of No Net Harm. Provide any additional notes as relevant. Provide a map that includes both the Project Area and the closest registered urban forest Preservation Project based on the registered urban forest preservation database KML/Shapefile provided by CFC to demonstrate that the Project does not overlap with any existing urban forest carbon preservation projects.

Project Operator has mapped the Project Area against the registered urban forest preservation project database and determined that there is no overlap of Project Area with any registered urban forest preservation carbon project.

Project Operator has signed the Attestation of No Double Counting of Credits and No Net Harm on July 9, 2024.

Attachment: *9a Eagle Creek Forest Attestation of No Double Counting and No Net Harm, 9b Eagle Creek Forest No Double Counting Map*

ADDITIONALITY (Section 6)

Additionality is demonstrated by the Project in several ways, as described in the City Forest Credits Standard Section 4.9.1 and Tree Preservation Protocol.

Project Operator demonstrates that additionality was met through the following:

- Prior to this project, the trees in the Project Area were not protected via easement or recorded encumbrance or in a protected zoning status that preserves the trees
    - See Demonstration of Threat of Loss section above
- The land use designation/zoning in the Project Area must currently allow for a non-forest use
    - See Demonstration of Threat of Loss section above
- The trees in the Project Area face some threat risk of removal or conversion out of forest

    - See Demonstration of Threat of Loss section above
- The Project Operator records in the public land records an easement, covenant, or deed restriction specifically protecting the trees for the project duration of 40 years or 100 years (40 or 100 years depending on the Protocol version)
    - See Preservation Commitment section above

Taken together, the above elements allow crediting only for unprotected trees at risk of removal, which are then protected by a Project action of preservation, providing additional avoided GHG emissions.

Additionality is also embedded in the quantification methodology. Projects cannot receive credits for trees that would have remained had development occurred, nor can they receive soil carbon credits for soil that would have been undisturbed had development occurred. Leakage is prevented by a deduction for displaced development in Protocol Section 11.4.

Project Operator has signed an Attestation of Additionality on July 9, 2024.

Attachment: *10 Eagle Creek Forest Attestation of Additionality*

CARBON QUANTIFICATION DOCUMENTATION (Section 11)

Follow detailed instructions in the Protocol for conducting quantification and use the Carbon Quantification Calculator to show calculations. CFC will provide the Carbon Quantification Calculator and Forest Composition Report Template. Ensure that your requested credit issuance schedule (issuance dates) is accurate and complete in the calculator. Project Operators should describe and appropriately reflect in their carbon quantification any and all planned future activities that may affect the percent canopy or carbon stocking.

Summary numbers from Carbon Quantification Calculator

Project Area (acres)	**184.3**
Percent tree canopy cover within Project Area	**92%**
Project stock (tCO_2e)	**17,876**
Accounting Stock (tCO_2e)	**14,301**
On-site avoided biomass emissions (tCO_2e)	**12,858**
On-site avoided soil carbon emissions (tCO_2e)	**0**
Deduction for displaced biomass emissions (tCO_2e)	**2,353**
Deduction for displaced soil emissions (tCO_2e)	**0**
Credits from avoided biomass emissions (tCO_2e)	**10,505**
Credits from avoided soil emissions (tCO_2e)	**0**
Total credits from avoided biomass and soil emissions (tCO_2e)	**10,505**
Credits attributed to the project (tCO_2e), excluding future growth	**10,505**
Contribution to Registry Reversal Pool Account	**1,051**
Total credits to be issued to the Project Operator (tCO_2e) *(excluding future growth)*	**9,455**

GHG Assertion:
Project Operator asserts that the Project results in GHG emissions mitigation of 9,455 tons CO_2e issued to the project.

Approach to quantifying carbon
Describe the forest conditions and general approach used to quantify carbon (e.g. 11.1.A with the US Forest Service General Technical Report NE-343 Tables). Attach the Carbon Quantification Calculator.

The City of Indianapolis conducted an on-site forest composition study (see below and Attachment 13) and then followed the 11.1.A. methodology using the afforestation tables in the Northern Prairie states, including B14 maple-beech-birch, B15 oak-hickory, and B16 oak-pine from the US Forest Service General Technical Report NE-343 document.

Attachment: *11 Eagle Creek Forest Carbon Quantification Calculator*

Accounting Stock Measurement Method
Provide an overview to describe quantification methods, including which method was used to assess canopy cover (e.g. i-Tree, inventory, other), forest type, and data sources.

The Accounting Stock was estimated according to 11.1.A, using USFS GTR NE-343 for the Northern Prairie states, maple-beech-birch (B14), oak-hickory (B15), and oak-pine (B16) stands. Assessment of forest composition was completed by the City of Indianapolis staff to confirm forest types. Canopy cover was confirmed using the i-Tree Canopy tool. Because this estimate is from the GTR table, the standard 20% deduction was made to calculate the Accounting Stock from the GTR non-soil carbon estimates.

Canopy Cover
Describe which method was used to assess canopy cover (e.g. i-Tree Canopy, LiDAR, or other method approved by Registry). Provide the i-Tree Canopy report or other canopy cover assessment that shows estimated percentage of tree cover for the Project Area.

Average canopy cover over the entire project site is 92%. Canopy cover for the project area was estimated using the i-Tree Canopy tool for each of the five forest stands. Below is a chart based on canopy cover per forest stand:

Forest Stand	Acreage	Canopy Cover
Stand 1	140	93%
Stand 2	9.1	87%
Stand 3	17.3	91%
Stand 4	15.2	89%
Stand 5	2.7	90%

Attachment: *12a Eagle Creek Forest i-Tree Canopy Reports, 12b Eagle Creek Forest i-Tree Canopy Raw Data*

Forest Composition
Summarize the forest composition and attach the Forest Composition Report.

The forest composition across all five stands at Eagle Creek Forest is comprised of 41% maple, 21% elm, 14% oak, 7% cherry, and 17% other.

Stand 1	Stand 2	Stand 3	Stand 4	Stand 5
Maple (40%)	Maple (66%)	Oak (34%)	Maple (29%)	Pine (74%)
Elm (29%)	Oak (24%)	Maple (22%)	Tulip (22%)	Boxelder (7%)
Oak (11%)	Beech (4%)	Malus (22%)	Oak (14%)	Oak (4%), Elm (4%), Tulip (4%), Malus (4%)
Cherry (10%)	Hackberry (3%)	Elm (11%)	Catalpa (14%)	Ash (3%)
Other (10%)	Walnut (3%)	Catalpa (11%)	Elm (7%), Sycamore (7%), Mulberry (7%)	

Attachment: *13 Eagle Creek Forest Composition Report*

Forest Age
Describe the forest age and how it was determined. Provide historical imagery or other materials as supporting evidence.

A series of historic aerial images were referenced as an indication of forest age. An old second-growth forest remnant appears in the earliest aerial image on record, July 1936. The GIS has a 1941 geo-referenced. The year 1938 imagery was selected to compare with 2023 imagery to determine that the forest age is 85 years. Large white and chinkapin oaks are estimated to be 145 years plus based on annual growth rate estimations. The younger age of Stand 4 is reflective of emerald ash borer decline (25 years).

Attachment: *13 Eagle Creek Forest Composition Report*

Stand Maps
Describe the methods used to determine forest stands (e.g. GIS) and provide a map.

The forest stand descriptions are based on eight site visits for data collection – March 21, 28, May 1-2, and June 8-10, 24, 2024. Initial observations were made using current and historical imagery from the desktop. Plot points were placed with the goal of capturing all variations based on disturbance and growing conditions. Data was collected at each plot recording tree species 5” and above.

Attachment: *13 Eagle Creek Forest Composition Report*

Area Expected to Remain in Trees after Potential Development (11.2)
Describe the land use designation, any restrictions, and the method used to determine the area expected to remain in trees after potential development (fraction at risk of removal). If residential land use, follow 11.2.B. and provide the calculation showing which percentage of accounting stock at risk of removal is appropriate to include.

Eagle Creek Forest Project Area is zoned Park District 1. Section 11.2.A in CFC's Tree Preservation Protocol allows for 90% of the Accounting Stock on the Project Area is the "Avoided Biomass Emissions" on other primarily non-residential lands.

Quantification of Soil Carbon - Existing Impervious Area and Impervious Limits (11.4)
The Project may claim avoidance of emissions from soil carbon caused by conversion of soils to impervious surfaces. Describe applicable land use designation and development rules, any restrictions, existing impervious area and maximum fraction impervious cover.

Eagle Creek Forest Project Area is not claiming avoided impervious surface credits for this project.

Future Planned Project Activities
Describe future activities that may affect the percent canopy or carbon stocking in any way. Describe maintenance and stewardship activities that could improve the carbon stock.

It is anticipated that invasive shrubs will be controlled, and oak and other hardwoods will be planted to improve long-term forest regeneration. These stewardship efforts are typically conducted over an extended period, which lessens the immediate impact of woody shrub loss. The chips or brush from the removed shrubs are left on the ground to cycle back into the soil. Some areas are heavily impacted by bush honeysuckle, which is a major stressor to forest health. Forested tracts with the heaviest infestations were not included in the project area. Ecological management often includes introducing a native graminoid component to foster soil health and fungal relationships. It is not anticipated that the restoration will open up the canopy since most of the canopy trees are native.

CO-BENEFITS QUANTIFICATION DOCUMENTATION (Section 11.5)

Summarize co-benefit quantification per year and provide supporting documentation. CFC will provide a Co-Benefits Quantification calculator for quantifying rainfall interception, reduction of certain air compounds, and energy savings.

Ecosystem Services	***Resource Units***	***Value***
Rainfall Interception (m3/yr)	39,953.6	$65,445.86
Air Quality (t/yr)	1.1448	$476.82
Cooling – Electricity (kWh/yr)	46,372	$3,153.29
Heating – Natural Gas (kBtu/yr)	66,674	$644.42
Grand Total ($/yr)		**$69,720.39**

Co-benefits were quantified using CFC's Co-Benefits Quantification Calculator. These ecosystem services represent values in avoided costs of $69,720.39 annually and $6,972,039 over 100 years.

Attachment: *14 Eagle Creek Forest CoBenefit Calculator*

SOCIAL IMPACTS (Section 12)

Project Operators shall use the Carbon Project Social Impacts template to evaluate how their Project aligns with the UN Sustainable Development Goals (SDGs). CFC will provide the template. Summarize the three to five main SDGs attributed to this Project.

The protection placed on Eagle Creek Forest will contribute to four SDGs, including Good Health and Well-Being, Clean Water and Sanitation, Climate Action, and Life on Land.

SDG 3 – Good Health and Well-Being: Protecting the trees within the project area enhances environmental quality by acting as natural filters and using shade to shield park users from UV exposure and negative heat effects. Parks contribute significantly to human health by offering accessible green spaces that promote physical activity, relaxation, and social interaction. With over a million park visitors each year, Eagle Creek Park has highly active hiking and birding groups, as well as regular park visitors who utilize trails through and adjoining the project area.

SDG 6 – Clean Water and Sanitation: Protecting the forested project area adjacent to Eagle Creek Reservoir will help mitigate stormwater runoff, improve flooding resilience, and ensure safe drinking water. Forests act as natural buffers, intercepting and absorbing rainwater and reducing the volume of runoff and soil erosion. This helps to maintain water quality and to preserve the reservoir as an essential source of drinking water.

SDG 13 – Climate Action: Protecting existing trees enhances air quality and creates vital shade that reduces urban heat island effects. The Forests in Cities' cooling study, which included Eagle Creek Park, showed not only the cooling benefits of forests but even greater benefits from high-quality forest. The Office of Land Stewardship engages Indianapolis residents in volunteer efforts to remove invasive plant species from the park during monthly workdays and other events. Results help improve the forests' resiliency to climate change.

SDG 15 – Life on Land: The mesic upland forest, central till plain flatwoods, and ephemeral wetlands of the Eagle Creek Park project area provide special habitat for many species. Woodlands are important migratory bird habitat as well as nesting habitat during breeding season. The park ecosystems are home to over twenty species listed in the Indiana Department of Natural Resources' Heritage Database as Rare, Threatened or Endangered, or listed as a Special Concern in their Wildlife Diversity Section such as American ginseng, broad-winged and red-shouldered hawks, northern leopard frogs, and eastern box turtles. Working with restoration specialists and volunteers to remove invasive species and restore native species promotes local biodiversity while sustainably managing forest ecosystems.

Attachment: *15 Eagle Creek Forest Social Impacts*

MONITORING AND REPORTING (Section 8)

Throughout the Project Duration, the Project Operator must report on tree conditions across the Project Area.

Monitoring Reports

Monitoring reports are due every three years determined by the date of the verification report. For example, if the verification report is dated January 1, 2023, the first report will be due by January 1, 2026 and every three years thereafter for the duration of the project. CFC will provide a list of dates to Project Operator after the first verification report is approved. Project Operators must submit reports in writing and must attest to the accuracy of the reports. The reports must contain any changes in eligibility status of the Project Operator and any significant tree loss. The information includes updates to land ownership, changes to project design, changes in implementation or management and changes in tree or canopy loss. The reports must be accompanied by some form of telemetry or imaging that captures tree canopy, such as Google Earth, aerial imagery, or LiDAR. The reports must estimate any loss of stored carbon stock or soil disturbance in the Project Area.

Monitoring Plans

Describe your monitoring plans. If Project Operator plans to claim credits for future growth, describe methods that will be used to quantify future growth.

Project Operator will submit the first report three years after the verification report. Operator will follow the requirements above (Monitoring Reports). Any canopy loss will be monitored at least annually using high resolution color imagery in the GIS, or shortly after event occurs.

PROJECT OPERATOR SIGNATURE

Signed on August 28, in 2024, by Phyllis Boyd, Director for the City of Indianapolis, Department of Parks and Recreation.

Signature

PHYLLIS BOYD

Printed Name

317-995-5326

Phone

phyllis.boyd@indy.gov

Email

ATTACHMENTS

1 – Eagle Creek Forest Project Shapefile
2 – Eagle Creek Forest Regional Map
3 – Eagle Creek Forest Project Area
4 – Eagle Creek Forest Deed
5 – Declaration of Development Restrictions
6a – Eagle Creek Forest Zoning Map
6b – Eagle Creek Forest Zoning Ordinances
7a – Eagle Creek Forest Overlay Zones
7b – Eagle Creek Forest Local ES Overlay Zones
7c – Demonstrated Forest Loss in ES Overlay Zones
8a – Eagle Creek Forest Threat of Loss Map
8b – Eagle Creek Park Development Threats
9a – Eagle Creek Forest Attestation of No Double Counting and No Net Harm
9b – Eagle Creek Forest No Double Counting Map
10 – Eagle Creek Forest Attestation of Additionality
11 – Eagle Creek Forest Carbon Quantification Calculator
12a – Eagle Creek Forest i-Tree Canopy Reports
12b – Eagle Creek Forest i-Tree Canopy Raw Data
13 – Eagle Creek Forest Composition Report
14 – Eagle Creek Forest CoBenefit Calculator
15 – Eagle Creek Forest Social Impacts

PROTOCOL REQUIREMENTS

Project Operator (Section 1.1)
Identify a Project Operator for the project. This is the entity or governmental body who takes responsibility for the project for the 100-year duration.

Project Duration and Project Implementation Agreement (Section 1.2, 2.2)
Project Operator must commit to a 100-year duration and sign a Project Implementation Agreement. This is a 100-year agreement between the Project Operator and City Forest Credits (the "Registry") for an urban forest carbon project.

Location Eligibility (Section 1.3)
Projects must be located in or along the boundary of at least one of the following criteria:

A. "Urban Area" per Census Bureau maps
B. The boundary of any incorporated city or town created under the law of its state;
C. The boundary of any unincorporated city, town, or unincorporated urban area created or designated under the law of its state;
D. The boundary of any regional metropolitan planning agency or council established by legislative action or public charter. Examples include the Metropolitan Area Planning Council in Boston, the Chicago Municipal Planning Agency, the Capital Area Council of Governments (CAPCOG) in the Austin area, and the Southeastern Michigan Council of Governments (SEMCOG)
E. Within the boundary of land owned, designated, and used by a municipal or quasi-municipal entity for source water or watershed protection. Examples include Seattle City Light South Fork Tolt River Municipal Watershed (8,399 acres owned and managed by the City and closed to public access);

Ownership or Right to Receive Credits Eligibility (Section 1.5)
Project Operator must demonstrate ownership of property and eligibility to receive potential credits by meeting one of the following:

A. Own the land and potential credits upon which the Project trees are located; or
B. Own an easement or equivalent property interest for a public right of way within which Project trees are located and accept ownership of those Project trees by assuming responsibility for maintenance and liability for them; or
C. Have a written and signed agreement from the landowner, granting ownership to the Project Operator of any credits for carbon storage, other greenhouse gas benefits, and other co-benefits delivered by Project trees on that landowner's land. If the Project Area is on private property, the agreements in this sub-section must be recorded in the public records in the county where the property is located. The recordation requirement can be satisfied if the agreements specified in this sub-section are contained in a recorded easement, covenant, or deed restriction on the property.

Demonstrate Tree Preservation (Section 4.1)
The Project Operator must show that the trees in the Project Area are preserved from removal by a recorded easement, covenant, or deed restriction (referred to hereafter as "Recorded Encumbrance")

with a term of at least 100 years. This action is referred to as the "Preservation Commitment." This Recorded Encumbrance must be recorded not later than 12 months after Registry approval of the Project's Application.

Demonstrate Threat of Loss (Section 4.2, 4.3, and 4.4):
The Project Operator must show that prior to the Preservation Commitment:

- Project trees were not preserved from removal through a Recorded Encumbrance or other prohibitions on their removal,
- The Project Area was:
    - In a land use designation that allowed for at least one non-forest use. Non-forest uses include industrial, commercial, transportation, residential, agricultural, or resource other than forest, as well as non-forest park, recreation, or open space uses.
    - Is not in an overlay zone that prohibits all development. Examples include critical areas or wetland designations.
- The Project Area met one of the following conditions:
    - Surrounded on at least 30% of its perimeter by non-forest, developed or improved uses, or
    - Sold, conveyed, or had assessed value within three years of preservation for greater than $8,000 average price per acre for the bare land. When the assessed value is a percentage of the appraised value, as determined by the local assessing authority, then the appraised value is the value to be used for this determination; or
    - Would have a fair market value after conversion to a non-forested "highest and best use" greater than the fair market value after preservation in subsection 4.1, as stated in a "highest and best use" study from a state certified general real estate appraiser in good standing

Additionality (Section 6)
Additionality is ensured through the following:

- Prior to the Preservation Commitment, the trees in the Project Area were not protected via easement or recorded encumbrance or in a protected zoning status that preserves the trees.
- Prior to the Preservation Commitment, the zoning in the Project Area must currently allow for a non-forest use
- Prior to the Preservation Commitment, the trees in the Project Area passed one of the three tests to show a threat or risk of removal or conversion out of forest
- The Project Operator records in the public land records an easement, covenant, or deed restriction specifically protecting the trees for the project duration of 40 years or 100 years (40 or 100 years depending on the protocol version)

Quantification for Credits (Section 11)
The full Protocol describes the following steps for carbon stock and soil carbon quantification in detail:

1. Stored carbon stock present in Project Area (Section 11.1)
   Estimate the biomass stock present and adjust for uncertainty to calculate the "Accounting Stock". This can be done using the US Forest Service General Technical Report NE-343 tables,

on-site inventory of some live trees with i-Tree methods and tools, or an on-site forest inventory

2. Areas expected to remain in trees after potential development (Section 11.2)
   Calculate the fraction of the Accounting Stock that likely would be emitted as a result of development, to calculate "Avoided Biomass Emissions"

3. Quantification of soil carbon (Section 11.3)
   Calculate "Avoided Soil Carbon Emissions" caused by conversion of soils to impervious surfaces in the Project Area

4. Deduction for displaced development (Section 11.4)
   Apply the deductions in Section 11.5 and Appendix B to Biomass and Soil Carbon calculations to adjust for development and emissions that would be displaced by the preservation of the Project Area (leakage deductions). This will reduce the creditable tonnes of Avoided Biomass Emissions and Avoided Soil Carbon Emissions to adjust for displaced development

5. Quantify Co-Benefits (Section 11.5)
   The Project Operator will calculate co-benefits separately from CO_2(e). The Registry will supply a spreadsheet template based on their climate zone, and will provide values for rainfall interception, reductions of air compounds, and energy savings.

6. Claiming additional credit for growth (Section 11.6)
   The Project Operator may elect to also account for ongoing growth of trees within the Project Area after Project Commencement

Social Impacts (Section 12)
The Project Operator will describe how the Project impacts contribute towards achievement of the global UN Sustainable Development Goals (SDGs). The Registry will supply a template to evaluate how the Project aligns with the SDGs.

Attestation of No Net Harm and No Double Counting (Section 5)
The Project Operator will sign an attestation that no project shall cause net harm and no project shall seek credits on trees, properties, or projects that have already received credits.

Validation and Verification by Third-Party Verifiers (Section 13)
Project compliance and quantification must be verified by a third-party Validation and Verification Body approved by the Registry.

Issuance of Credits to Project Operator (Section 7)
Ex-post credits are issued after the biomass is protected via a recorded encumbrance protecting the trees. Issuance is phased or staged over one and five years at the equivalent of 50 aces of crediting per year. This staged issuance reflects the likely staging of development over time if the Project Area were to have been developed.

After validation and verification, the Registry issues credits to the Project Operator based on the Project Area size:

- 50 acres or less: all credits are issued after validation and verification
- Greater than 50 but less than 200 acres: credits are issued in the equivalent of 50 acres per year
- Greater than 200 acres: credits are issued in equal amounts over five years

Credits for Reversal Pool Account (Section 7.3)
The Registry will issue 90% of Project credits earned and requested and will hold 10% in the Registry's Reversal Pool Account.

Understand Reversals (Section 9)
If the Project Area loses credited carbon stock, the Project Operator must return or compensate for those credits if the tree loss is due to intentional acts or gross negligence of Project Operator. If tree loss is due to fire, pests, or other acts of god (i.e., not due to the Project Operator's intentional acts or gross negligence), the Registry covers the reversed credits from its Reversal Pool Account of credits held back from all projects.

Monitoring and Reporting (Section 8)
The Project Operator must submit a report every three years for the project duration. The reports must be accompanied by some form of telemetry or imaging that captures tree canopy, such as Google Earth, aerial imagery, or LiDAR. The reports must estimate any loss of stored carbon stock or soil disturbance in the Project Area.

Attachments

Deed

Project Area Map

Regional Area Map

Preservation Commitment

Zoning Maps

Zoning Description(s)

Threat of Loss Demonstration

Attestation of No Double Counting and No Net Harm

Attestation of Additionality

Carbon Quantification Tool

iTree Canopy Reports & Data

Forest Composition Report and Site Photos

Cobenefit Calculator

Social Impacts

Deed

66 8053

DEED

THE STATE OF INDIANA, for and in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration paid to The Trustees of Purdue University, a body corporate created by the General Assembly of the State of Indiana, does hereby

CONVEY TO

THE CITY OF INDIANAPOLIS, INDIANA, for the use and benefit of its Park Department and its Board of Park Commissioners, the following described real estate in Marion County, Indiana, to-wit:

All of the following described real estate which lies above the Eight Hundred Fifteen Foot (815') contour established by the United States Geodetic Survey, containing Two Thousand Five Hundred Acres (2,500), more or less, and lying within Marion County, Indiana, namely:

RECEIVED FOR RECORD
1956 FEB 16 AM 8:53
MARCIA H. HAWTHORNE
RECORDER OF MARION COUNTY

DULY ENTERED
FOR TAXATION

COUNTY AUDITOR

66 8053

PARCEL ONE:

A part of the Southeast Quarter and the Northeast Quarter of Section 4, Township 16 North, Range 2 East and a part of the Southwest Quarter and the Northwest Quarter of Section 3, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southeast corner of the Southeast Quarter of said Section 4; running thence West on and along the South line thereof a distance of 1331.50 feet to a point; running thence North and parallel to the West line of the Southeast Quarter of said Southeast Quarter Section a distance of 198.0 feet to a point; thence West and parallel to the South line of the said Southeast Quarter Section a distance of 254.0 feet to a point; thence North and parallel to the West line of the said Southeast Quarter Section a distance of 47.0 feet to a point; thence West and parallel to the South line of the said Southeast Quarter Section a distance of 120.0 feet to a point; thence North no degrees 7 minutes East a distance of 1470.65 feet to a point; thence South 89 degrees 43 minutes East a distance of 359.0 feet to a point; thence North no degrees 6 minutes West a distance of 681.66 feet to a point; thence North no degrees 20 minutes West a distance of 1421.19 feet to a point; thence North 89 degrees 23 minutes East 599.14 feet to a point; thence South 22 degrees 52 minutes East 263.23 feet to a point; thence North 10 degrees 9 minutes East 28.0 feet to a point; thence South 27 degrees 28 minutes East 193.87 feet to a point; thence South 27 degrees 28 minutes East 575.08 feet to a point; thence South 20 degrees 12 minutes East 550.87 feet to a point; thence North 89 degrees 23 minutes East 54.91 feet to a point; thence North no degrees 53 minutes East 1041.58 feet to a point; thence North 88 degrees 17 minutes East 1050.70 feet to a point; thence South no degrees 53 minutes East a distance of 1041.58 feet to a point on the North line of the Southwest Quarter of said Section 3; thence East on and along the North line of the Southwest Quarter of said Section 3 a distance of 242.29 feet to a point; thence South 8 degrees 7 minutes West a distance of 191.79 feet to a point; thence North 84 degrees 30 minutes West a distance of 253.0 feet to a point; thence South 28 degrees 12 minutes West a distance of 121.0 feet to a point; thence South 19 degrees 18 minutes East a distance of 252.0 feet to a point; thence South 59 degrees 02 minutes East a distance of 427.0 feet to a point; thence South 60 degrees 26 minutes East a distance of 165.0 feet to a point; thence North 51 degrees 32 minutes East a distance of 148.0 feet to a point; thence South 78 degrees no minutes East a distance of 308.0 feet to a point; thence South 26 degrees 49 minutes East a distance of 372.0 feet to a point; thence South 51 degrees 22 minutes West a distance of 490.0 feet to a point; thence South 37 degrees 23 minutes West a distance of 352.36 feet to a point; thence South 14 degrees 45 minutes West a distance of 206.0 feet to a point; thence South 2 degrees 14 minutes East a distance of 149.0 feet to a point; thence South 31 degrees 30 minutes West a distance of 650.0 feet to a point in the South line of the Southwest Quarter of said Section 3; thence West on and along the South line of the said Southwest Quarter of Section 3 a distance of 1305.0 feet to the point or place of beginning.

Containing in all 216.38 acres, more or less.

66 8053

PARCEL TWO:

A part of Section 2, Township 16 North, Range 2 East; a part of Section 3, Township 16 North, Range 2 East; a part of Section 4, Township 16 North, Range 2 East; a part of Section 11, Township 16 North, Range 2 East; a part of Section 28, Township 17 North, Range 2 East, and a part of Section 33, Township 17 North, Range 2 East, all in Marion County, Indiana, and more particularly described as follows, to-wit:

Beginning at the Southeast corner of the Southeast Quarter of Section 4, Township 16 North, Range 2 East; running thence West on and along the South line thereof a distance of 1331.50 feet to a point; thence North and parallel to the West line of the said Southeast Quarter a distance of 198.0 feet to a point; thence West and parallel to the South line of the said Southeast Quarter Section a distance of 254.0 feet to a point; thence North and parallel to the West line of the said Southeast Quarter Section a distance of 47.0 feet to a point; thence West and parallel to the South line of the said Southeast Quarter Section a distance of 120.0 feet to a point; thence North no degrees 7 minutes East a distance of 1470.65 feet to a point; thence South 89 degrees 43 minutes East a distance of 359.0 feet to a point; thence North no degrees 43 minutes East 334.0 feet to a point; thence North no degrees 6 minutes West a distance of 681.66 feet to a point; thence North no degrees 20 minutes West a distance of 1421.19 feet to the point of beginning of this description; thence South 89 degrees 23 minutes West a distance of 1298.0 feet to a point; thence North no degrees 20 minutes West a distance of 1200.73 feet to a point; thence North 89 degrees 33 minutes East a distance of 527.40 feet to a point; thence North no degrees 7 minutes East a distance of 1652.99 feet to a point; thence North 89 degrees 40 minutes East a distance of 1320.0 feet to a point; thence North no degrees 7 minutes East a distance of 988.0 feet to a point; thence North no degrees 13 minutes East a distance of 2637.29 feet to a point; thence North 89 degrees 50 minutes West a distance of 39.45 feet to a point; thence North no degrees 20 minutes West a distance of 1322.10 feet to a point; thence North 89 degrees 47 minutes East a distance of 1326.92 feet to a point; thence South no degrees 30 minutes East a distance of 456.47 feet to a point; thence North 89 degrees 57 minutes East a distance of 803.70 feet to a point; thence South 12 degrees no minutes West a distance of 219.28 feet to a point; thence South 89 degrees 57 minutes West a distance of 48.07 feet to a point; thence South 18 degrees 55 minutes West a distance of 291.0 feet to a point; thence South 89 degrees 39 minutes West a distance of 156.0 feet to a point; thence South no degrees 15 minutes West a distance of 262.0 feet to a point; thence South 6 degrees 41 minutes West a distance of 126.0 feet to a point on the South line of Section 28, Township 17 North, Range 2 East; thence West on and along the South line of said Section 28 a distance of 47.50 feet to a point; thence South 14 degrees no minutes West a distance of 124.50 feet to a point; thence South 19 degrees no minutes West 164.0 feet to a point; thence South 6 degrees 15 minutes West 163.50 feet to a point; thence South 9 degrees 8 minutes East 374.18 feet to a point; thence South 14 degrees 18 minutes West 411.80 feet to a point; thence South 47 degrees

66 8053

15 minutes East 251.80 feet to a point; thence South 63 degrees 4 minutes East 733.30 feet to a point; thence North 88 degrees 55 minutes East 317.93 feet to a point; thence North 69 degrees 42 minutes East 669.02 feet to a point; thence South 76 degrees 28 minutes East 375.90 feet to a point; thence South 46 degrees no minutes East 380.33 feet to a point; thence South no degrees 40 minutes West a distance of 795.0 feet to a point; thence South no degrees 54 minutes West 159.1 feet to a point; thence South 39 degrees 45 minutes West a distance of 815.24 feet to a point; thence South no degrees 4 minutes East 511.50 feet to a point; thence South 66 degrees 28 minutes West 526.43 feet to a point; thence South 88 degrees 47 minutes West 325.0 feet to a point; thence South no degrees 39 minutes West 450.2 feet to a point; thence South 81 degrees 41 minutes West 280.02 feet to a point; thence South 78 Degrees 15 minutes West 332.0 feet to a point; thence South 60 degrees 36 minutes West 319.0 feet to a point; thence South 66 degrees 15 minutes West 302.0 feet to a point; thence South 33 degrees 29 minutes West 190.0 feet to a point; thence South 19 degrees 7 minutes West 120.83 feet to a point; thence South 19 degrees 7 minutes West 46.62 feet to a point; thence South 9 degrees 53 minutes East 130.0 feet to a point; thence South 42 degrees 44 minutes East 228.0 feet to a point; thence South 8 degrees 5 minutes East 206.0 feet to a point; thence South 57 degrees 53 minutes West 241.0 feet to a point; thence South 13 degrees 58 minutes West 225.0 feet to a point; thence South 5 degrees no minutes East 590.0 feet to a point; thence South 16 degrees 35 minutes East 134.68 feet to a point; thence South 88 degrees 17 minutes West 671.29 feet to a point; thence South no degrees 53 minutes West 1041.58 feet to a point; thence South 89 degrees 23 minutes East 54.91 feet to a point; thence North 20 degrees 12 minutes West 550.87 feet to a point; thence North 27 degrees 28 minutes West 575.08 feet to a point; thence continuing on the last described bearing 193.87 feet to a point; thence North 10 degrees 9 minutes East 220.0 feet to a point; thence South 89 degrees 23 minutes West 745.14 feet to the point or place of beginning.

PARCEL THREE:

The West half of the Northwest Quarter of Section 2, Township 16 North, Range 2 East, more particularly described as follows, to-wit:

Beginning at the Northwest corner of the Northwest Quarter of the aforesaid Section 2; running thence East on and along the North line thereof a distance of 1334.63 feet to the Northeast corner of the West half of the said Northwest Quarter Section; running thence South on and along the East line of the West half of the said Northwest Quarter Section 2504.70 feet to the Southeast corner of the West half of the said Northwest Quarter Section; running thence West on and along the South line of the West half of the said Northwest Quarter Section 1333.3 feet to a point in the West line of the West half of the said Northwest Quarter Section; running thence North on and along the West line of the said Fractional Quarter Section 2510.64 feet to the point or place of beginning.

PARCEL FOUR:

A part of the Southwest Quarter of the Southwest Quarter of said Section 2, more particularly described as follows, to-wit:

Beginning at the Northwest corner of the Southwest Quarter of the Southwest Quarter of said Section 2; running thence East on and along the North line thereof a distance of 1327.80 feet to a point, said point being the Northeast corner of the Southwest Quarter of the Southwest Quarter of said Section 2; running thence South on and along the East line of the said Fractional Quarter Section a distance of 1312.25 feet to the Southeast corner of the Southwest Quarter of the Southwest Quarter of said Section 2; running thence West on and along the South line of the said Fractional Quarter Section 995.25 feet to a point; running thence North and parallel to the West line of the said Southwest Quarter of the Southwest Quarter of said Section 2 a distance of 392.96 feet to a point; running thence West and parallel to the South line of the said Fractional Quarter Section 332.55 feet to a point on the West line of the Southwest Quarter of the Southwest Quarter of said Section 2; running thence North on and along the West line thereof 919.29 feet to the point or place of beginning.

PARCEL FIVE:

A part of the Northwest Quarter of Section 11, Township 16 North, Range 2 East, more particularly described as follows, to-wit:

Beginning at the Northwest corner of the Northwest Quarter of said Section 11; running thence East on and along the North line thereof a distance of 2001.22 feet to a point; running thence South and parallel to the East line of the said Northwest Quarter Section a distance of 2679.20 feet to a point in the South line of the said Northwest Quarter Section; running thence West on and along the South line of the said Northwest Quarter Section 2006.0 feet to the Southwest corner of the said Northwest Quarter Section; running thence North on and along the West line of the said Northwest Quarter Section 2665.90 feet to the point or place of beginning.

PARCEL SIX:

A part of the East half of the Southwest Quarter of Section 3, Township 16 North, Range 2 East, more particularly described as follows, to-wit:

Beginning at the Southwest corner of the Southwest Quarter of said Section 3; running thence East on and along the South line thereof a distance of 1305.0 feet to a point; thence North 31 degrees 30 minutes East a distance of 650.0 feet to a point; thence North 2 degrees 14 minutes West a distance of 149.0 feet to a point; thence North 14 degrees 45 minutes East 206.0 feet to a point; thence North 37 degrees 23 minutes East 261.0 feet to the point or place of beginning of this description; thence continuing North 37

degrees 23 minutes East 64.36 feet to a point; thence North 51 degrees 22 minutes East 393.14 feet to a point; thence South 49 degrees 48 minutes East 160.52 feet to a point; thence South 40 degrees 12 minutes West 450.0 feet to a point; thence North 49 degrees 48 minutes West 274.79 feet to the point or place of beginning.

PARCEL SEVEN:

Beginning at a point on the South line of Section 35, Township 17 North, Range 2 East, said point being the intersection of the South line of the aforesaid Section with the center line of U.S. Highway No. 52, as said highway is now located and established; running thence West on and along the aforesaid South line a distance of 487.85 feet to the Southwest corner of said Section 35, said point also being the Southeast corner of the aforesaid Section 34, Township 17 North, Range 2 East; running thence West on and along the South line of said Section 34 to the Southwest Corner of said Section 34; thence continuing in a westward direction and on the South line of Section 33, Township 17 North, Range 2 East a distance of 1323.75 feet to a point, said point being the Southwest corner of the Southeast Quarter of the Southeast Quarter of Section 33, Township 17 North, Range 2 East; running thence North on and along the West line of the Southeast Quarter of the Southeast Quarter of said Section 33, a distance of 556.60 feet to a point; thence South 86 degrees 19 minutes East a distance of 190.30 feet to a point; thence South 40 degrees one minute East a distance of 193.85 feet to a point; thence South 51 degrees 39 minutes East a distance of 124.40 feet; thence North 38 degrees 25 minutes East a distance of 1023.75 feet to a point; thence North 86 degrees 28 minutes East a distance of 277.18 feet to a point in the center of a county road known as the Delong Road; thence in a northeasterly and a northward direction in and along the center of said Delong Road a distance of 2992.35 feet to a point in the center line of West 69th Street, as now located and established in Marion County, Indiana; thence West in and along the center line of West 69th Street a distance of 1164.64 feet to a point; thence South a distance of 171.75 feet to the center of Eagle Creek; thence North 76 degrees 28 minutes West a distance of 231.57 feet in and along the center of said Eagle Creek; thence South 69 degrees 42 minutes West and in the center of said Eagle Creek a distance of 669.02 feet to a point; thence North and parallel to the East line of the Northwest Quarter of said Section 33 a distance of 1114.32 feet to a point; thence West and parallel to the North line of the Northeast Quarter of said Section 33 a distance of 1075.50 feet to a point in the center of the aforesaid Eagle Creek; thence in a northward and eastward direction and following the meanderings of said Eagle Creek a distance of 3458.30 feet to a point; thence North 75 degrees 38 minutes East a distance of 192.0 feet to a point; thence South and parallel to the East line of the East half of the Northeast Quarter of Section 28, Township 17 North, Range 2 East a distance of 80.46 feet to a point; thence North 63 degrees 58 minutes East a distance of 44.52 feet to a point; thence North and parallel to the West line of the East half of the aforesaid Northeast Quarter Section a distance of 68.80 feet to a point; thence North 78 degrees 46 minutes East a distance

of 148.26 feet to a point; thence South 47 degrees 46 minutes East a distance of 1295.01 feet to a point, said point being the intersection of the center line of U. S. Highway No. 52 with the West line of Section 27, Township 17 North, Range 2 East; thence continuing in a southeastward direction in and along the center line of U. S. Highway No. 52 a distance of 8916.00 feet to the point or place of beginning.

Containing in all 627.16 acres, more or less.

PARCEL EIGHT:

Beginning at the Southwest corner of the Northwest Quarter of said Section 1, Township 16 North, Range 2 East; running thence North on and along the West line thereof a distance of 255.60 feet to a point in the center line of U. S. Highway No. 52, thence in a southeastward direction and in the center line of U. S. Highway No. 52 a distance of 318.39 feet to a point of intersection of the center line of West 59th Street with the center line of U. S. Highway No. 52; thence West in and along the center of said West 59th Street a distance of 189.80 feet to the point or place of beginning.

Containing in all 0.55 acres, more or less.

PARCEL NINE:

A part of the Southwest Quarter of Section 1, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southwest corner of the Southwest Quarter of said Section 1; running thence on and along the West line thereof a distance of 2468.06 feet to a point; running thence East and parallel to the North line of the Southwest Quarter of said Section 1 a distance of 346.50 feet to a point in the center of U. S. Highway No. 52; thence South in and along the center of U. S.Highway No. 52 a distance of 667.37 feet to a point; thence West and parallel to the North line of the Southwest Quarter of said Section 1 a distance of 260.11 feet to a point; thence South and parallel to the West line of the Southwest Quarter of said Section 1 a distance of 610.76 feet to a point; thence East and parallel to the South line of the Southwest Quarter of said Section 1 a distance of 703.45 feet to a point in the center of U. S. Highway No. 52; thence in a southeastward direction in and along the center of said Highway No. 52 a distance of 1637.57 feet to a point; said point being the intersection of the South line of said Section 1 with the center line of U.S. Highway No. 52; running thence West in and along the South line of the Southwest Quarter of said Section 1 a distance of 2156.17 feet to the point or place of beginning.

Containing in all 64.12 acres, more or less.

PARCEL TEN:

A part of Section 2, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southeast corner of the Southeast Quarter of said Section 2; running thence West on and along the South line thereof a distance of 3994.38 feet to a point, said point being the Southeast corner of the Southwest Quarter of the Southwest Quarter of said Section 2; running thence North on and along the East line of the Southwest Quarter of the Southwest Quarter of said Section 2 a distance of 1312.25 feet to a point; thence West and parallel to the South line of the Southwest Quarter of the Southwest Quarter of said Section 2 a distance of 1327.80 feet to a point on the West line of the Southwest Quarter of said Section 2; thence North on and along the West line of the Southwest Quarter of said Section 2 a distance of 1390.43 feet to a point; thence East and parallel to the North line of the Northwest Quarter of said Section 2 a distance of 1333.30 feet to a point; thence North a distance of 2176.50 feet to a point; thence East and parallel to the North line of the Northwest Quarter of said Section 2 a distance of 1327.23 feet to a point; thence North and parallel to the West line of the Northwest Quarter of said Section 2 a distance of 328.20 feet to a point on the North line of the Northeast Quarter of said Section 2; thence East on and along the North line of the Northeast Quarter of said Section 2 a distance of 1047.85 feet to a point in the center of U. S. Highway No. 52, as now located and established in Marion County, Indiana; thence in a southeastward direction and on the center of the aforesaid U. S. Highway No. 52 a distance of 2736.45 feet to the point of intersection of the East line of the Northeast Quarter of said Section 2 with the center line of U. S. Highway No. 52; thence South on and along the East line of said Section 2 a distance of 2938.16 feet to the point or place of beginning.

Containing in all 465.50 acres, more or less

PARCEL ELEVEN:

Beginning at the Southeast corner of the Southeast Quarter of Section 3, Township 16 North, Range 2 East; running thence West on and along the South line thereof a distance of 1980.0 feet to a point; running thence North and parallel to the East line of said Southeast Quarter Section a distance of 1355.50 feet to a point; running thence East and parallel to the South line of said Southeast Quarter Section a distance of 24.75 feet to a point; running thence North and parallel to the East line of the said Southeast Quarter Section 165.0 feet to a point; running thence West and parallel to the South line of said Southeast Quarter Section 24.75 feet to a point; running thence North and parallel to the East line of said Southeast Quarter Section 1176.70 feet to a point by measurement and 1155.0 by deed, said point being on the North line of the Southeast Quarter of said Section 3; running thence East on and along the North line of said Southeast Quarter Section a distance

66 8053

of 990.0 feet to a point; running thence South and parallel to the East line of said Southeast Quarter Section a distance of 88.0 feet to a point; running thence East and parallel to the North line of said Southeast Quarter Section a distance of 990.0 feet to a point in the East line of said Southeast Quarter Section, said point being 88.0 feet South of the Northeast corner of said Southeast Quarter Section; running thence South on and along the East line of the said Southeast Quarter Section a distance of 132.0 feet to a point; running thence West and parallel to the North line of said Southeast Quarter Section a distance of 990.0 feet to a point; running thence South and parallel to the East line of said Southeast Quarter Section a distance of 308.0 feet to a point; running thence East and parallel to the North line of said Southeast Quarter Section a distance of 990.0 feet to a point in the East line of the said Southeast Quarter Section; running thence South on and along the East line of said Southeast Quarter Section a distance of 550.0 feet to a point; running thence West and parallel to the North line of said Southeast Quarter Section a distance of 990.0 feet to a point; running thence South and parallel to the East line of said Southeast Quarter Section a distance of 242.0 feet to a point; running thence East and parallel to the North line of said Southeast Quarter Section 990.0 feet to a point in the East line of said Southeast Quarter Section; running thence South in and along the East line of said Southeast Quarter Section a distance of 953.04 feet to a point; running thence East and parallel to the South line of the Southwest Quarter of Section 2, Township 16 North, Range 2 East, a distance of 332.55 feet to a point; running thence South and parallel to the West line of the Southeast Quarter of said Section 2 a distance of 392.96 feet to a point in the South line of said Southwest Quarter Section; running thence West on and along the South line of said Southwest Quarter Section a distance of 332.55 feet to the point or place of beginning, said point also being the Southeast corner of the Southeast Quarter of Section 3, Township 17, North, Range 2 East.

Containing in all 109.46 acres, more or less.

PARCEL TWELVE:

A part of the Northeast Quarter of Section 3, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at a point on the East line of said Northeast Quarter Section, said point being 337.10 feet South of the Northeast corner of said Northeast Quarter Section; running thence South on and along the East line of the said Northeast Quarter Section a distance of 1203.34 feet to a point; running thence West and parallel to the South line of said Northeast Quarter Section a distance of 1381.33 feet to a point; running thence North and parallel to the East line of said Northeast Quarter Section a distance of 1214.87 feet to a point; running thence East a distance of 1381.33 feet to the point or place of beginning.

Containing in all 38.34 acres, more or less.

PARCEL THIRTEEN:

A part of the Southeast Quarter and a part of the Northeast Quarter of Section 4, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southwest corner of the Southeast Quarter of said Section 4; running thence North on and along the West line thereof a distance of 2666.50 feet to the Northwest corner of the said Southeast Quarter Section; thence continuing on and along the West line of the Northeast Quarter of said Section 4 a distance of 1348.30 feet to a point; thence in an easterly direction a distance of 1298.0 feet to a point, said point being 1421.19 feet North of the South line of the said Northeast Quarter Section; running thence South and parallel to the West line of said Northeast Quarter Section a distance of 1421.19 feet to a point in the South line of said Northeast Quarter Section; thence continuing South a distance of 746.66 feet to a point, said point being 1320.0 feet East of the West line of the Southeast Quarter of said Section 4; running thence West and parallel to the North line of the said Southeast Quarter Section 825.0 feet to a point; running thence South and parallel to the West line of said Southeast Quarter Section a distance of 264.0 feet to a point; running thence East and parallel to the South line of said Southeast Quarter Section 466.0 feet to a point; running thence South a distance of 1715.65 feet to a point in the South line of the said Southeast Quarter Section; running thence West on and along the South line of said Southeast Quarter Section a distance of 965.0 feet to the point or place of beginning.

Containing in all 102.10 acres, more or less.

PARCEL FOURTEEN:

A part of the Northeast Quarter of Section 4, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at a point 1298.0 feet East of the West line and 1421.19 feet North of the South line of said Northeast Quarter of said Section 4; running thence North 89 degrees 23 minutes East a distance of 599.14 feet to the point or place of beginning of this description; thence continuing on the last described bearing 146.0 feet to a point; running thence South 10 degrees 9 minutes West a distance of 248.0 feet to a point; running thence North 22 degrees 52 minutes West a distance of 263.23 feet to the point or place of beginning.

Containing in all 0.41 acres, more or less.

PARCEL FIFTEEN:

A part of the Southeast Quarter of Section 32, Township 17 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

66 8053

Beginning at the Southeast corner of the said Southeast Quarter Section; running thence West on and along the South line thereof a distance of 1296.50 feet to a point; running thence North no degrees 27 minutes West 2645.88 feet to a point in the North line of said Southeast Quarter Section; thence East in and along the North line of said Southeast Quarter Section 200.5 feet to a point; thence South no degrees 7 minutes West a distance of 1320.0 feet to a point; thence North 89 degrees 44 minutes East a distance of 1122.0 feet to a point in the East line of said Southeast Quarter Section; running thence South in and along the East line of said Southeast Quarter Section a distance of 1322.59 feet to the point or place of beginning.

Containing in all 45.41 acres, more or less.

PARCEL SIXTEEN:

A part of the Southeast Quarter of the Southwest Quarter of Section 4, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at a point in the South line of the said fractional Quarter Section, said point being 198.0 feet West of the Southeast corner of the Southeast Quarter of the Southwest Quarter of said Section 4; thence continuing on and along the South line thereof a distance of 396.0 feet to a point; running thence North and parallel to the East line of the said Fractional Quarter Section a distance of 1320.0 feet to a point; running thence East and parallel to the South line of the said Fractional Quarter Section 396.0 feet to a point; running thence South and parallel to the East line of the said Fractional Quarter Section a distance of 1320.0 feet to the point or place of beginning. Containing in all 12.0 acres, more or less.

PARCEL SEVENTEEN:

A part of the Northwest Quarter of the Southeast Quarter and a part of the Northeast Quarter of the Southwest Quarter, Section 28, Township 17 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southwest corner of the Northwest Quarter of the Southeast Quarter of said Section 28, said point also being the Southeast corner of the Northeast Quarter of the Southwest Quarter of said Section 28; running thence West on and along the South line of the Northeast Quarter of the said Northwest Quarter Section a distance of 668.70 feet to a point; thence North no degrees 30 minutes West a distance of 704.50 feet to a point in the center line of the Wilson Road, as said road is now located and established in Marion County, Indiana; running thence North 83 degrees 11

minutes East and in the center of said Wilson Road 183.85 feet to a point; thence North 61 degrees 4 minutes East a distance of 595.45 feet to a point; thence North 89 degrees 39 minutes East 939.30 feet to a point; thence North 35 degrees no minutes East 270 feet to a point; thence North 78 degrees 30 minutes East 201.78 feet to a point; running thence South no degrees 30 minutes East 268.0 feet to a point; running thence South 89 degrees 47 minutes West 247.50 feet to a point; running thence South 12 degrees no minutes West 367.12 feet to a point; running thence South 89 degrees 47 minutes West 364.46 feet to a point; running thence South no degrees 30 minutes East 131.0 feet to a point; running thence North 89 degrees 47 minutes East 336.22 feet to a point; running thence South 12 degrees no minutes West 528.70 feet to a point in the South line of the Northwest Quarter of the Southeast Quarter of said Section 28; running thence West in and along the South line of said Fractional Quarter Section 861.46 feet to the point or place of beginning. Containing in all 35.23 acres, more or less.

PARCEL EIGHTEEN:

A part of the West half of the Northeast Quarter of Section 33, Township 17 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at a point 438.0 feet South of the Northeast corner of the West half of the said Northeast Quarter Section; running thence South on and along the East line of the West half of the said Northeast Quarter of said Section 1282.0 feet to a point; running thence South 88 degrees 55 minutes West 291.93 feet to a point; running thence North 63 degrees 4 minutes West 733.30 feet to a point; running thence North 47 degrees 15 minutes West 251.80 feet to a point; running thence North 14 degrees 18 minutes East 411.80 feet to a point; running thence North 9 degrees 08 minutes West 374.18 feet to a point; running thence East 1075.50 feet to the point or place of beginning. Containing in all 27.55 acres, more or less.

PARCEL NINETEEN:

A part of the Northeast Quarter and a part of the Southeast Quarter of Section 33, Township 17 North, Range 2 East and a part of the Northwest Quarter and the Southwest Quarter of Section 34, Township 17 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at a point in the South line of the Northwest Quarter of the aforesaid Section 34, said point being 753.50 feet East of the Southwest corner of the said Northwest Quarter Section; running thence North a distance of 1231.35 feet to a point; said point being the center of 68th Street, as said street is now located and established in Marion County, Indiana, said point also being 747.52 feet East of the West line of the Northwest Quarter of said Section 34; running thence in and along the center of said 68th Street

66 8053

1164.64 feet to a point, said point being 417.12 feet West of the East line of the Northeast Quarter of said Section 33; running thence South and parallel to the East line of the Northeast Quarter of said Section 33 a distance of 147.0 feet to a point, running thence South 76 degrees 28 minutes East 144.33 feet to a point; running thence South 46 degrees no minutes East 380.33 feet to a point in the East line of the Northeast Quarter of said Section 33; running thence South no degrees 40 minutes West and on the East line of the Northeast Quarter of said Section 33 954.10 feet to a point; running thence South 39 degrees 45 minutes West 815.24 feet to a point; running thence South no degrees 4 minutes East 511.50 feet to a point, running thence South 66 degrees 28 minutes West 526.43 feet to a point; running thence North 88 degrees 47 minutes East 982.50 feet to a point in the center of the Delong Road,as said road is now located and established in Marion County, Indiana; running thence in a northeasterly direction and in the center of said Delong Road a distance of 1709.62 feet to the point or place of beginning. Containing in all 47.73 acres, more or less.

PARCEL TWENTY:

A part of the Northeast Quarter of Section 3, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows:

Beginning at the Northeast corner of the Northeast Quarter of said Section 3, said point being 210.97 feet South of the Northeast corner of the Northeast Quarter of said Section; running thence West and parallel to the South line of the said Northeast Quarter Section a distance of 1381.33 feet to a point; running thence in a northerly direction and parallel to the East line of said Northeast Quarter Section a distance of 197.50 feet to a point, said point being 16.50 feet South of the North line of the said Northeast Quarter Section; running thence West and parallel to the North line of said Northeast Quarter Section 862.67 feet to a point; thence South 4 degrees 8 minutes West 700.0 feet to a point, said point being in the center line of the DeLong Road; running thence South 78 degrees 15 minutes East 932.80 feet to a point; running thence North and parallel to the East line of the said Northeast Quarter Section a distance of 565.62 feet to a point; running thence East and parallel to the South line of the said Northeast Quarter Section 1381.33 feet to a point in the East line of the said Northeast Quarter Section; running thence North on and along the East line of the said Northeast Quarter Section 126.13 feet to the point or place of beginning Containing in all 20.23 acres, more or less.

PARCEL TWENTY-ONE:

A part of the Northwest Quarter of the Southwest Quarter of Section 33, Township 17 North, Range 2 East, Marion County, Indiana, more particularly described as follows:

66 8053

Beginning at the Northeast corner of the West half of the Southwest Quarter of said Section; running thence West on and along the North line of said Quarter Section 577.50 feet to a point; thence South no degrees 7 minutes West 988.70 feet to a point; thence North 89 degrees 40 minutes East 577.50 feet to a point; thence North no degrees 7 minutes East 988.0 feet to the point or place of beginning. Containing in all 13.10 acres, more or less.

PARCEL TWENTY TWO:

A part of the Northeast Quarter, the Northwest Quarter, the Southwest Quarter and the Southeast Quarter of Section 3, Township 16 North, Range 2 East, Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southeast corner of the Northeast Quarter of said Section 3; running thence North on and along the East line thereof 970.20 feet to a point; running thence West and parallel to the South line of the said Northeast Quarter Section 1381.63 feet to a point; running thence North and parallel to the East line of the said Northeast Quarter Section 270.75 feet to a point; running thence West and parallel to the South line of the said Northeast Quarter Section 956.10 feet to a point in the center of the DeLong Road, as now located and established in Marion County, Indiana; thence in a southerly direction and in the center of the said DeLong Road a distance of 109.30 feet to a point; running thence East and parallel to the South line of the said Northeast Quarter Section 268.8 feet to a point; thence South and parallel to the East line of the said Northeast Quarter Section 162.0 feet to a point; running thence West and parallel to the South line of the said Northeast Quarter Section a distance of 285.30 feet to a point in the center line of the DeLong Road; thence North 5 degrees 29 minutes East and in the center of said DeLong Road 60.45 feet to a point; running thence West a distance of 1937.74 feet to a point, said point being 1015.45 feet North of the South line of the Southeast Quarter of said Northwest Quarter Section; running thence South no degrees 53 minutes East 1015.45 feet to a point in the South line of the Northwest Quarter of said Section 3; running thence North 88 degrees 17 minutes East and on the South line of the said Northwest Quarter Section 242.29 feet to a point; running thence South 8 degrees 7 minutes West 191.79 feet to a point; running thence North 84 degrees 30 minutes West 253.0 feet to a point; running thence South 28 degrees 12 minutes West 121.0 feet to a point; running thence South 19 degrees 18 minutes East 252.0 feet to a point; running thence South 59 degrees 2 minutes East 427.0 feet to a point; running thence South 60 degrees 26 minutes East 165.0 feet to a point; running thence North 51 degrees 32 minutes East 148.0 feet to a point; running thence South 78 degrees no minutes East 308.0 feet to a point; running thence South 26 degrees 49 minutes East 367.52 feet to a point; running thence North 72 degrees 28 minutes East 424.4 feet to a point in the center of the DeLong Road; running thence South 40 degrees 27 minutes East

66 8053

and in the center of said DeLong Road 217.0 feet to a point; running thence South 35 degrees 5 minutes West 113.78 feet to a point; running thence South 40 degrees 12 minutes West 770.30 feet to a point; running thence North 49 degrees 48 minutes West 274.79 feet to a point; running thence South 37 degrees 23 minutes West 261.0 feet to a point; running thence South 14 degrees 45 minutes West 73.0 feet to a point; running thence North 86 degrees 19 minutes East 192.87 feet to a point; running thence South 3 degrees 41 minutes East 730.85 feet to a point in the South line of the Southwest Quarter of said Section 3; running thence East in and along the South line of the Southwest Quarter and the Southeast Quarter of said Section 3 a distance of 1471.12 feet to a point; running thence North and parallel to the East line of the Southeast Quarter of said Section 3 a distance of 1355.50 feet to a point; running thence East and parallel to the South line of the said Southeast Quarter Section a distance of 24.75 feet to a point; running thence North and parallel to the East line of the Southeast Quarter of said Section 3 a distance of 165.0 feet to a point; running thence West and parallel to the South line of the Southeast Quarter of said Section 3 a distance of 24.75 feet to a point; running thence North and parallel to the East line of the Southeast Quarter of said Section 3 a distance of 797.20 feet to a point; running thence West and parallel to the South line of the Southeast Quarter of said Section 3 a distance of 514.35 feet to a point; running thence North 80 degrees 4 minutes West 274.60 feet to a point in the center of the aforesaid DeLong Road; running thence in a northeasterly direction and in the center of the said DeLong Road, having a bearing North 45 degrees 38 minutes East, a distance of 106.80 feet to a point; thence continuing in a northerly direction and in the center of said DeLong Road North 48 degrees 23 minutes East 76.70 feet to a point; running thence North 35 degrees 33 minutes East 336.35 feet to a point; thence continuing northerly in the center of said DeLong Road North 6 degrees 42 minutes East 124.0 feet to a point; thence South 71 degrees 45 minutes 24 seconds East 502.40 feet to a point in the North line of the Southeast Quarter of said Section 3; running thence East in and along the North line of the Southeast Quarter of said Section 3 a distance of 1930.0 feet to the point or place of beginning. Containing in all 189.27 acres, more or less.

PARCEL TWENTY THREE:

A part of the West half of Section 4, Township 16 North, Range 2 East; a part of the East half of Section 32, Township 17 North, Range 2 East; a part of the Southeast Quarter of Section 29, Township 17 North, Range 2 East; a part of the Southwest Quarter of Section 28, Township 17 North, Range 2 East; a part of the Northwest Quarter of Section 33, Township 17 North, Range 2 East; all in Marion County, Indiana, more particularly described as follows, to-wit:

Beginning at the Southwest corner of Section 4, Township 16 North Range 2 East; running thence North on and along the West line thereof (the same being the Marion-Hendricks County Line) a distance of 5162.46 feet to the Northwest corner of the Northwest Quarter of said Section 4; running

thence East on and along the North line of the Northwest Quarter of said Section 4 a distance of 773.70 feet to a point; said point being on the North line of said Section 4 and the South line of the Southeast Quarter of the aforesaid Section 32; running thence North 4 degrees 18 minutes West a distance of 1973.0 feet to a point; running thence North 3 degrees 29 minutes West a distance of 689.1 feet to the center of said Section 32; thence continuing in a northward direction and on the West line of the Northeast Quarter of said Section 32 a distance of 2643.95 feet to a point; thence continuing in a northward direction and on the West line of the Southeast Quarter of the aforesaid Section 29 a distance of 594.0 feet to a point; said point being the intersection of the West line of said Section 29 and the center line of the Fishback Road, as said Road is now located and established in Marion County, Indiana; running thence East in and along the center of said Fishback Road a distance of 757.20 feet to a point; running thence North and parallel to the West line of the Southeast Quarter of said Section 29 a distance of 1101.0 feet to a point; running thence West and parallel to the center of said Fishback Road a distance of 757.20 feet to a point in the West line of the Southeast Quarter of said Section 29; running thence North along the West line of the Southeast Quarter of said Section 29 a distance of 159.50 feet to a point; running thence North 87 degrees 45 minutes East a distance of 2640.10 feet to a pdnt in the East line of the Southeast Quarter of said Section 29; running thence North 87 degrees 26 minutes East a distance of 660.70 feet to a point, said point being in the Southwest Quarter of the aforesaid Section 28; running thence South no degrees 15 minutes West a distance of 575.0 feet to a point; running thence North 88 degrees 10 minutes West a distance of 345.0 feet to a point; running thence South 59 degrees 26 minutes West a distance of 140.0 feet to a point; running thence North 88 degrees 37 minutes West a distance of 194.6 feet to a point in the East line of the Southeast Quarter of said Section 29; running thence South in and along the East line of the said Section 29 and the West line of the Southwest Quarter of said Section 28 a distance of 1345.60 feet to a point in the South line of Sections 29 and 28; running thence North 89 degrees 55 minutes East a distance of 1334.0 feet to a point; running thence South no degrees 13 minutes West a distance of 2637.29 feet to a point; running thence West on and along the South line of the Northwest Quarter of the said Section 33 and the South line of the Northeast Quarter of the aforesaid Section 32 a distance of 2656.20 feet to a point; running thence South no degrees 27 minutes East 2645.88 feet to a point in the South line of the Southeast Quarter of said Section 32; running thence East in and along the South line of the said Section 32 a distance of 769.10 feet to a point, said point being the Northeast corner of the Northwest Quarter of the aforesaid Section 4; running thence South in and along the East line of the Northwest Quarter and the Southwest Quarter of said Section 4 a distance of 3895.53 feet to a point; thence West and parallel to the South line of the Southwest Quarter of Section 4 a distance of 1323.0 feet to a point; thence continuing in a westward direction a distance of 663.75 feet to a point, said point being 1328.20 feet North of the South line and 662.97 feet East of the West line of the Southwest Quarter of said Section 4; running thence South a distance of 1328.20 feet to a point in the South line of the Southwest Quarter of said Section 4; running thence West in and along the South line of the said Section 4 a distance of 663.96 feet to the point or place of beginning.

Containing in all 673.681 acres, more or less.

66 16- 8053

It is intended by this instrument to vest the GRANTEE with legal title in fee simple estate to all real estate which lies above the 815 Contour established by the United States Geodetic Survey acquired by The Trustees of Purdue University from Josiah K. Lilly, Jr. and Ruth B. Lilly, by deeds recorded in Deed Records: Book 1785, Page 640; Book 1788, Page 335; Book 1729, Page 605; Book 1733, Page 426; Book 1903, Page 573; Book 1964, Page 194; Book 1843, Page 80; Book 1974, Page 557; Book 1903, Page 577; Book 1974, Page 560 in the office of the Recorder of Marion County, Indiana and GRANTOR does hereby convey all that part of the lands so acquired by said deeds in Pike Township, Indiana, which lies above the 815' Contour line.

This conveyance is made subject to the following rights, grants, easements, restrictions, liens, conditions and exceptions:

A. The real estate and interests therein conveyed by the State of Indiana to Texas Eastern Transmission Corporation by deed, No. 84425, dated July 18, 1962, recorded in Deed Record 1950, page 327, on September 13, 1962, in the office of the Recorder of Marion County, Indiana.

B. The real estate and interests therein conveyed by The Trustees of Purdue University to the State of Indiana, by deed, No. 5978, dated November 2, 1960, recorded in Deed Record 1845, page 710, on January 23, 1961, in the office of the Recorder of Marion County, Indiana.

C. The real estate and the interests therein conveyed by The Trustees of Purdue University to the State of Indiana, by deed, No. 5979, dated November 2, 1960, recorded in Deed Record 1845, page 712, on January 23, 1961, in the office of the Recorder of Marion County, Indiana.

D. The real estate and interests therein conveyed by The Trustees of Purdue University to the State of Indiana, by deed, No. 5980, dated November 2, 1960, recorded in Deed Record 1845, page 714, on January 23, 1961, in the office of the Recorder of Marion County, Indiana.

E. A Right of Way Grant dated March 6, 1962, and supplemented May 22, 1962, from The Trustees of Purdue University to the Indiana State Highway Commission pertaining to 0.181 acres of land in Marion County, Indiana, on 58th Street near Interstate 465 Overpass.

F. A Right of Entry dated December 18, 1962, from The Trustees of Purdue University to the State of Indiana for highway construction purposes on the highway project in Marion County, Indiana, known as I-65-3 (17).

G. The Right of Way Grants from The Trustees of Purdue University to Marion County, Indiana, dated January 18, 1963, granting a permanent right of way of 0.065 acres and a temporary right of way of 0.014 acres along the north side of 56th Street in Marion County, Indiana.

H. An easement dated August 21, 1963, granted by The Trustees of Purdue University to The Buckeye Pipe Line Company, on Ohio Corporation, granting a perpetual right of way and easement over and to a strip of land thirty-three feet (33') in width, lying sixteen and one-half feet (16 1/2') on either side of the following described centerline, being a part of the west half of section 4, township 16 north, range 2 east and a part of the east half of section 32, township 17 north, range 2 east and a part of the southeast quarter of section 29, township 17 north, range 2 east, all in Marion County, Indiana, more particularly described as follows:

66 8053

Beginning at a point on the West line of the aforesaid Section 4, Township 16 North, Range 2 East, and said point being 619.48 feet North of the Southwest corner of aforesaid Section 4; run thence Eastwardly making an angle with the aforesaid West line as measured from South to East of 89°31' a distance of 287.76 feet; thence Northeastwardly deflecting left 45°25' a distance of 34.87 feet; thence Northwardly deflecting left 45°00' a distance of 520.70 feet; thence continue Northwardly deflecting left 00°09' a distance of 3333.30 feet; thence Northeastwardly deflecting right 33°59' a distance of 1341.50 feet to a point in the East half of Section 32, Township 17 North, Range 2 East; thence Northwardly deflecting left 36° 58' a distance of 2221.90 feet; thence continue Northwardly deflecting right 2°45' a distance of 231.80 feet; continue thence Northwardly deflecting right 00°37' a distance of 3366.60 feet to a point in the Southeast quarter of Section 29, Township 17 North, Range 2 East, thence Northwestwardly deflecting left 40°20' a distance of 150.34 feet to a point in the center line of the Fishback Road, said point being 208.30 feet East of the Westline of the aforesaid quarter of Section 29.

I. A Right of Entry dated July 22, 1964, granted by The Trustees of Purdue University to the Board of Commissioners of Marion County, for construction work in connection with the widening and resurfacing of 56th Street in Pike Township, Marion County, Indiana, and from Kessler Boulevard to State Highway 52.

J. Subject to taxes (if any) for the year 1965 payable in 1966, which taxes (if any there be) the Grantee assumes and agrees to pay.

K. Subject to the right of The Trustees of Purdue University to harvest and remove all growing crops until December 31, 1965.

L. Subject to all existing rights of way, highways and existing easements and restrictions of record, and the rights of tenants in possession.

IN WITNESS WHEREOF, the State of Indiana has caused this deed to be executed by Roger D. Branigin, Governor of Indiana, and officially attested by Mark L. France, Auditor of Indiana, and the official seal of the State of Indiana to be affixed hereto, this 28th day of January, 1966.

THE STATE OF INDIANA

By Roger D. Branigin
Roger D. Branigin, Governor of Indiana

65 8053

ATTEST:

Mark L. France, Auditor of State
of Indiana

STATE OF INDIANA)
) SS:
MARION COUNTY)

Before me, the undersigned, a Notary Public in and for Marion County and the State of Indiana, appeared this day Roger D. Branigin, Governor of the State of Indiana, and Mark L. France, Auditor of the State of Indiana, who as such officers respectively acknowledged the execution and attestation of the foregoing deed, for and on behalf of the State of Indiana.

WITNESS MY HAND and notarial seal this 28th day of January, 1966.

Rolland L. Strausbaugh
Notary Public
ROLLAND L. STRAUSBAUGH

My Commission Expires:

3 January 1968

66 8053

66 8053

STATEMENT OF ATTORNEY GENERAL OF INDIANA

I, John J. Dillon, in my official capacity as Attorney General of the State of Indiana, do hereby state that all of the conditions necessary for the legal and valid conveyance of the real estate described in the foregoing deed have been fully complied with.

John J. Dillon, Attorney General of Indiana

STATE OF INDIANA)
) SS:
MARION COUNTY)

Before me, the undersigned, a Notary Public in and for Marion County and the State of Indiana, appeared this day John J. Dillon, Attorney General of the State of Indiana, who as such officer duly acknowledged the execution of the foregoing Statement of the Attorney General of Indiana as hereinabove set forth.

WITNESS MY HAND and notarial seal this 28 day of January, 1966.

Rolland L. Straussaugh
Notary Public
ROLLAND L. STRAUSSAUGH

My Commission Expires:
3 January 1968

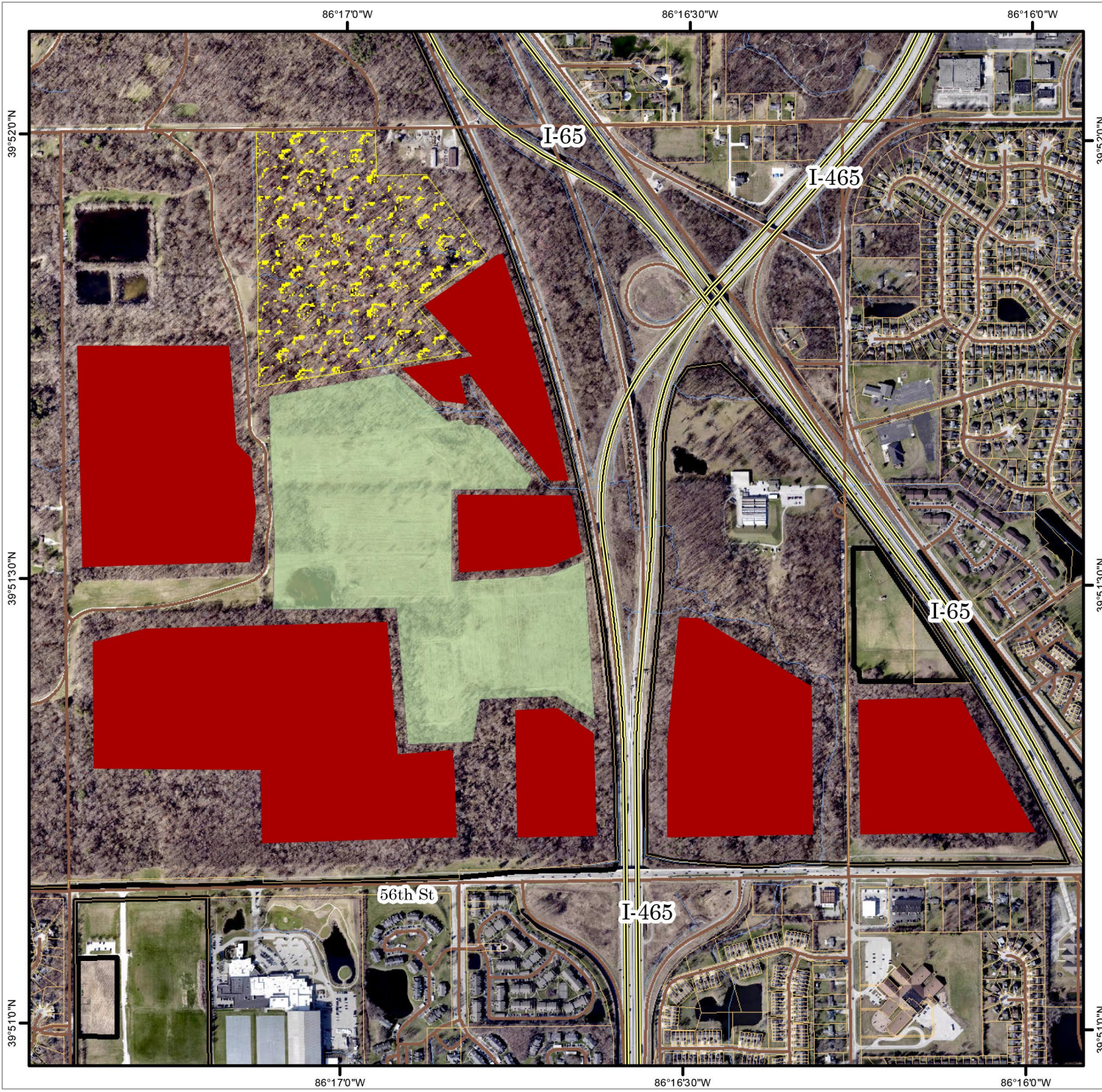
DULY ENTERED
FOR TAXATION
COUNTY AUDITOR

This instrument prepared by:

Stuart, Branigin, Ricks & Schilling
By: George T. Schilling

65 8053

Project Area Map



Eagle Creek Forest Legacy Initiative
Project Area

- Eagle Creek Project Area - 184.3
- Managed Area
- Nature Preserve
- Park Boundary
- Parcels
- Interstate
- Street
- Stream

0 300 600 1,200
Feet

N
W E
S

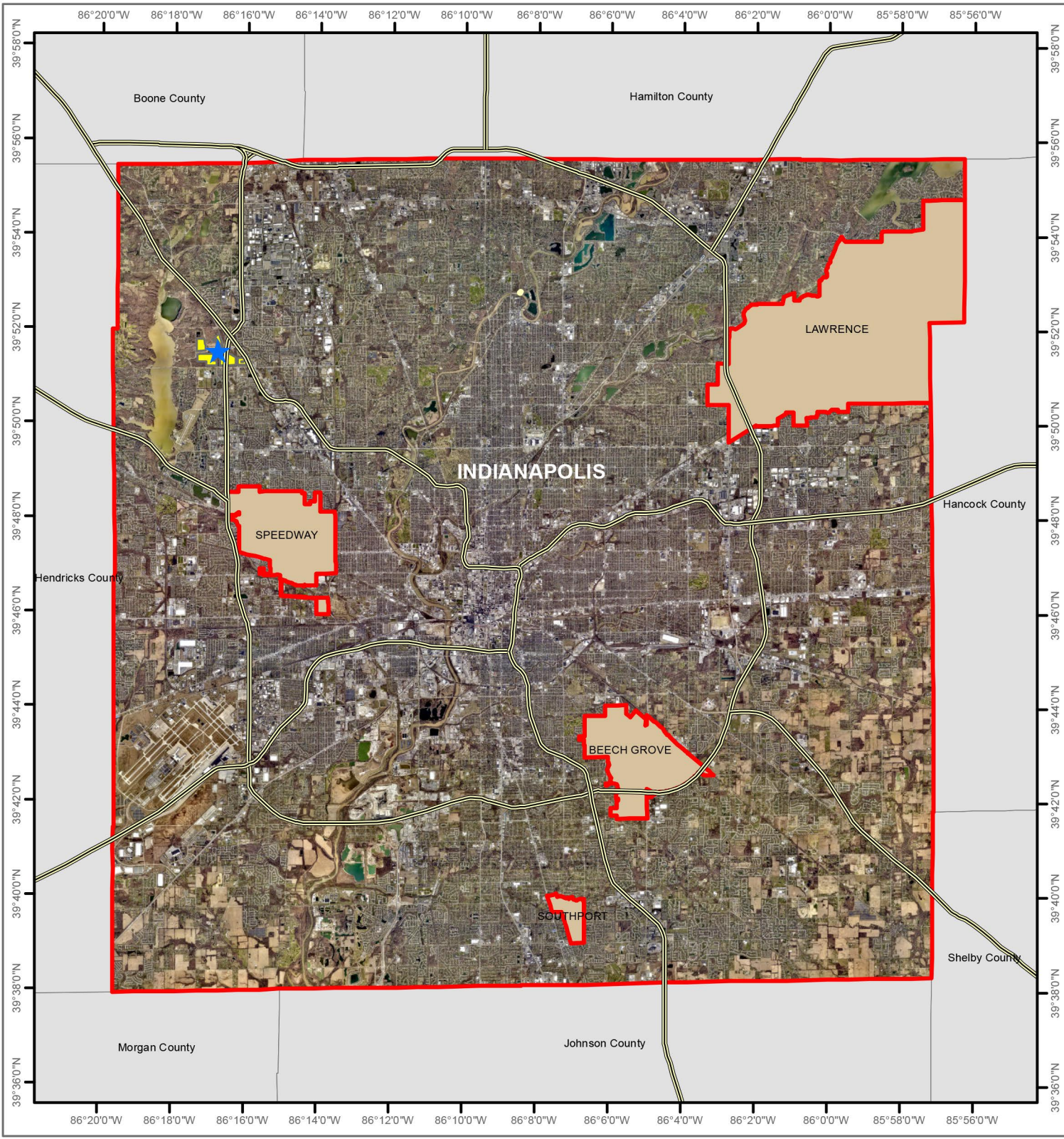
INDY PARKS & Recreation

For informational and instructional purposes only (2024)
Department of Public Works, Engineering, Land Stewardship, B. Howard

Regional Area Map

Eagle Creek Forest Legacy Initiative

Regional Map



- Project Location
- Project Area
- Cities
- ExcludedCities
- Surrounding Counties
- Interstates

0 1 2 4
Miles

N
W E
S

INDY PARKS & Recreation

For informational and instructional purposes only (2024)
Department of Public Works, Engineering, Land Stewardship, B. Howard

Preservation Commitment

0004361

JOSEPH P. O'CONNOR
MARION COUNTY ASSESSOR

2024 AUG 28 P 3:05

DULY ENTERED FOR TAXATION
SUBJECT TO FINAL ACCEPTANCE
FOR TRANSFER

A202400070002

08/28/2024 03:09 PM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 35.00
PAGES: 8
By: CJ

DECLARATION OF DEVELOPMENT RESTRICTIONS

THIS DECLARATION OF DEVELOPMENT RESTRICTIONS ("Declaration") is made by the Consolidated City of Indianapolis & Marion County, through its Department of Parks and Recreation, 200 E. Washington Street – STE 2301, Indianapolis, IN 46204 ("Declarant") as of the execution date below.

RECITALS

WHEREAS, Declarant is the fee simple owner of certain real property located in Indianapolis, Indiana, more particularly described in the depiction and legal descriptions attached hereto as Exhibit A (attached hereto and incorporated by reference) ("Property").

WHEREAS, Declarant recognizes the value of the Property's mature forest as a climate asset. The trees on the Property store CO_2, reduce storm water runoff, improve air quality, provide energy savings from cooling and heating effects, and improve human health by providing cleaner air, a place for recreation and exercise, and other benefits related to exposure to nature. Clearing of the trees for other uses (such as parking lots, playfields, or other uses) would seriously impair the climate value of the Property.

WHEREAS, Declarant intends to enroll the Property with City Forest Credits ("CFC") to develop a forest carbon program, whereby the Declarant will preserve forested stands and earn carbon credits for those preserved trees. CFC, a non-profit carbon registry, has developed carbon protocols and issues credits for qualifying tree-preservation and tree-planting projects in and around urban areas.

WHEREAS, with this Declaration, Declarant intends to preserve the trees on the Property for a period of no less than 100 years. It understands that this Declaration will bar the clearing or removing of trees for parking lots, picnic shelters, playfields, visitor centers, or any reason other than forest health, hazard, disease, fire, and small, non-motorized recreational trials.

THEREFORE, in consideration of the benefits to be derived by Declarant and each and every subsequent owner and occupant of the Property, the receipt and sufficiency of which are hereby acknowledged, Declarant hereby makes this Declaration on the terms and conditions stated below:

1. **Purpose.** The purpose of this Declaration is to restrict the current and future use of the Property to protect its beneficial public safety effects, health effects, and climate value to the citizens of the City of Indianapolis and Marion County; to establish the Property as an open, common, and undeveloped conservation area; and to preserve the natural condition of the Property.

8

2. **Covenant Runs with the Land**. The covenants and restrictions declared, granted, conveyed and established under this Declaration shall run with the land and inure to the benefit of, and be binding upon, Declarant and its heirs, beneficiaries, successors and assigns, and all future owners of the Property.

3. **Term and Modification**. The covenants and restrictions declared, granted, conveyed and established under this Declaration shall remain in effect for the duration of the Declarant and CFC's Project Implementation Agreement (City/County Contract #21014) and its applicable carbon protocol under which carbon credits may be issued for the carbon preserved in the trees on the Property.

4. **Restrictions**. Declarant shall not cut down, destroy, or remove trees located on the Property, except as required by law, as necessary to control or prevent hazard, disease or fire, or as needed to improve forest health. Recreational non-motor-use trails have negligible or de minimis impacts on biomass and carbon stock and are permissible.

5. **Rights of Access and Entry.** Declarant grants CFC and its authorized agents the right to enter in, on, over and across the Property to inspect and monitor the Property to take any actions necessary to verify compliance with this restrictive covenant. No rights of access or entry to or use of any portion of the Property is granted or conveyed to members of the general public by this restrictive covenant.

6. **Enforcement.**

    a. This Declaration is being freely and voluntarily made by Declarant.

    b. CFC (as third-party beneficiary of this Declaration) shall have the power and right but not the obligation to enforce the terms and conditions of this Declaration by any applicable legal or equitable remedies, including, without limitation, injunctive relief and specific performance. All remedies available under this Declaration shall be in addition to any and all remedies at law or in equity. Enforcement of the terms of this Declaration shall be at the discretion of CFC, and any forbearance, delay or omission to exercise its rights under this Declaration in the event of a breach of any term of this Declaration is not a waiver by CFC of such term or of any subsequent breach of such term, or any other term in this Declaration, or of any rights of CFC under this Declaration.

    c. Notwithstanding, violation of this Declaration or any attempt to enforce this Declaration shall NOT result in forfeiture or reversion of title to the Property.

7. **Property Transfers.** For as long as this Declaration is in effect, Declarant shall include the following notice on all deeds, mortgages, plats, or any other legal instrument used to convey any interest in the Property

    "NOTICE: This Property is subject to a Declaration of Restrictive Covenants for Conservation, dated [*insert date of Declaration*], recorded in the Marion County Recorder's Office on [*insert date recorded*] in Deed Book [*insert number*], Page [*insert number*], and enforceable by City Forest Credits."

    a. Declarant shall provide CFC with written notice of any such grant, transfer or conveyance of any interest in any or all of the Property at least sixty (60) days prior to the grant, transfer or conveyance. The notice shall include the name, address, and telephone

number of the prospective transferee, a copy of the proposed deed or other documentation evidencing the conveyance, and a survey map that shows the boundaries of the portion of the Property being transferred. Failure to comply with this paragraph does not impair the validity or enforceability of this Declaration.

8. **Notification**. Any notice, request for approval, or other communication required by this Declaration shall be sent by registered mail, pre-paid postage, to the following addresses (or such addresses as may be hereinafter specified by notice pursuant to this paragraph):

To CFC:	To DECLARANT:
City Forest Credits PO Box 20396 Seattle, WA 98102	City of Indianapolis Department of Parks & Recreation ATTN: Director 200 E. Washington Street – STE 2301 Indianapolis, IN 46204

9. **Amendment**. After recording, this Declaration may only be amended by a recorded document signed by CFC and Declarant.

10. **Recording**. Declarant shall record this Declaration in the official property records of the office of the Marion County Recorder within thirty (30) days of execution of this Declaration by the Declarant, and shall, within thirty (30) days of recording, provide CFC with a copy of the recorded Declaration and exhibits. Declarant may re-record this instrument at any time as may be required to preserve its rights.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, Declarant has duly executed this Declaration effective on the date written below.

DECLARANT: The Consolidated City of Indianapolis & Marion County
Department of Parks & Recreation

DATE: 8/28/24

PHYLLIS BOYD, Director
Department of Park & Recreation

STATE OF INDIANA)
)
COUNTY OF Marion)

Personally appeared before me this day **PHYLLIS BOYD**, the **Director** of the **Department of Parks & Recreation**, who acknowledged the execution of the above instrument to be her/his voluntary act and deed for and on behalf of said company as said company's duly authorized representative.

Witness my hand and notarial seal, this date of 8/28/2024.

MARGARETTE WEBB
Notary Public - Seal
Marion County - State of Indiana
Commission Number NP0751525
My Commission Expires Sep 11, 2031

Margarette Webb
NOTARY PUBLIC

Margarette Webb
PRINTED NAME

This deed was prepared by:

Adam C. Wicker (#35407-49)
Assistant Corporation Counsel – Office of Corporation Counsel
City of Indianapolis
200 E. Washington Street – STE 1601
Indianapolis, IN 46204

I affirm under the penalties of perjury that I have taken reasonable care to redact each social security number in this document, unless otherwise required by law.

Exhibit A

Parcel 1 - Legal Description

A part of the west half of Section 2, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the northeast corner of the Southwest Quarter of Section 2 marked by a 1 inch steel pin found per the Marion County Surveyor's Office (MCSO) tie records; thence South 88 degrees 37 minutes 09 seconds West 1,363.39 feet along the north line of said quarter section to the POINT OF BEGINNING of this description: thence South 7 degrees 15 minutes 02 seconds East 112.69 feet; thence South 6 degrees 32 minutes 00 seconds West 342.91 feet; thence South 87 degrees 58 minutes 25 seconds West 519.69 feet; thence South 87 degrees 57 minutes 15 seconds West 627.50 feet; thence North 1 degree 37 minutes 16 seconds West 1,511.83 feet; thence North 89 degrees 41 minutes 23 seconds East 1,036.15 feet; thence South 4 degrees 38 minutes 55 seconds East 665.12 feet; thence South 44 degrees 22 minutes 16 seconds East 149.79 feet; thence South 3 degrees 56 minutes 52 seconds East 200.64 feet; thence South 7 degrees 18 minutes 10 seconds East 54.17 feet to the POINT OF BEGINNING and containing 38.367 acres, more or less.

Parcel 2 - Legal Description

A part of the Southwest Quarter of Section 2, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the southeast corner of the Southwest Quarter of Section 2 marked by a Harrison monument found per the MCSO tie records; thence North 0 degrees 55 minutes 36 seconds West 302.68 feet along the east line of said quarter section; thence South 88 degrees 38 minutes 10 seconds West 8.27 feet to the POINT OF BEGINNING of this description: thence South 88 degrees 38 minutes 10 seconds West 270.34 feet; thence South 87 degrees 56 minutes 34 seconds West a distance of 1,056.63 feet; thence North 1 degree 49 minutes 29 seconds West 498.53 feet; thence North 89 degrees 49 minutes 22 seconds West 1,139.52 feet; thence North 0 degrees 43 minutes 23 seconds West 867.79 feet; thence North 75 degrees 17 minutes 47 seconds East 369.69 feet; thence North 88 degrees 15 minutes 10 seconds East 1,654.13 feet; thence South 4 degrees 46 minutes 24 seconds East 902.99 feet; thence North 85 degrees 17 minutes 29 seconds East 375.09 feet; thence South 7 degrees 19 minutes 55 seconds East 119.32 feet; thence South 2 degrees 04 minutes 10 seconds East 482.34 feet to the POINT OF BEGINNING and containing 61.561 acres, more or less.

THE REST OF THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

Parcel 3 - Legal Description

A part of the north half of Section 2, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the southwest corner of the Northeast Quarter of Section 2 marked by a 1 inch steel pin found per the MCSO tie records; thence North 88 degrees 26 minutes 57 seconds East 703.65 feet along the south line of said quarter section; thence North 37 degrees 29 minutes 27 seconds West 74.33 feet to the POINT OF BEGINNING of this description: thence North 37 degrees 29 minutes 27 seconds West a distance of 925.38 feet; thence South 69 degrees 59 minutes 42 seconds West 65.90 feet; thence South 16 degrees 15 minutes 57 seconds East 193.91 feet; thence North 84 degrees 37 minutes 10 seconds West a distance of 205.58 feet; North 48 degrees 41 minutes 27 seconds West 332.76 feet; thence North 80 degrees 11 minutes 24 seconds East 492.67 feet; thence North 43 degrees 48 minutes 36 seconds West 482.40 feet; thence North 55 degrees 11 minutes 24 seconds East 604.62 feet; thence North 77 degrees 35 minutes 30 seconds East a distance of 39.42 feet; thence South 19 degrees 04 minutes 00 seconds East 441.68 feet; thence South 17 degrees 41 minutes 49 seconds East 540.33 feet; thence South 14 degrees 00 minutes 27 seconds East 633.45 feet; thence South 88 degrees 26 minutes 25 seconds West 122.89 feet to the POINT OF BEGINNING and containing 15.677 acres, more or less.

Parcel 4 - Legal Description

A part of the Southeast Quarter of Section 2, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the northwest corner of the Southeast Quarter of Section 2 marked by a 1 inch steel pin found per the MCSO tie records; thence South 0 degrees 55 minutes 36 seconds East 18.49 feet along the west line of said quarter section; thence North 89 degrees 58 minutes 28 seconds East 23.62 feet to the POINT OF BEGINNING of this description: thence North 89 degrees 58 minutes 28 seconds East 777.18 feet; thence South 11 degrees 18 minutes 28 seconds East 396.49 feet; thence South 65 degrees 26 minutes 19 seconds West 240.93 feet; thence South 86 degrees 09 minutes 08 seconds West 624.61 feet; thence North 1 degree 21 minutes 34 seconds West 530.66 feet to the POINT OF BEGINNING and containing 9.229 acres, more or less.

Parcel 5 - Legal Description

A part of the Southeast Quarter of Section 2, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the southwest corner of the Southeast Quarter of Section 2 marked by a Harrison monument found per the MCSO tie records; thence North 88 degrees 52 minutes 22 seconds East 408.30 feet along the south line of said Quarter Section; thence North 1 degree 23 minutes 10 seconds West 300.36 feet to the POINT OF BEGINNING of this description: thence North 1 degree 23 minutes 10 seconds West 867.96 feet; thence North 86 degrees 16 minutes 44 seconds East 289.40 feet; thence South 55 degrees 27 minutes 52 seconds East 305.04 feet; thence South 1 degree 52 minutes 12 seconds East 704.20 feet; thence South 88 degrees 58 minutes 14 seconds West 542.14 feet to the POINT OF BEGINNING and containing 10.351 acres, more or less.

Parcel 6 - Legal Description

A part of the Southeast Quarter of Section 2, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the southeast corner of the Southeast Quarter of Section 2 marked by a Harrison monument found per the MCSO tie records; thence North 0 degrees 50 minutes 58 seconds West 290.38 feet along the east line of said quarter section; thence South 88 degrees 31 minutes 20 seconds West 235.51 feet to the POINT OF BEGINNING of this description: thence South 88 degrees 31 minutes 20 seconds West 999.10 feet; thence North 0 degrees 15 minutes 09 seconds West 647.14 feet; thence North 5 degrees 12 minutes 53 seconds East 862.12 feet; thence South 87 degrees 26 minutes 20 seconds East 143.14 feet; thence South 58 degrees 47 minutes 33 seconds East a distance of 890.46 feet; thence South 1 degree 03 minutes 22 seconds East 1,012.32 feet to the POINT OF BEGINNING and containing 28.960 acres, more or less.

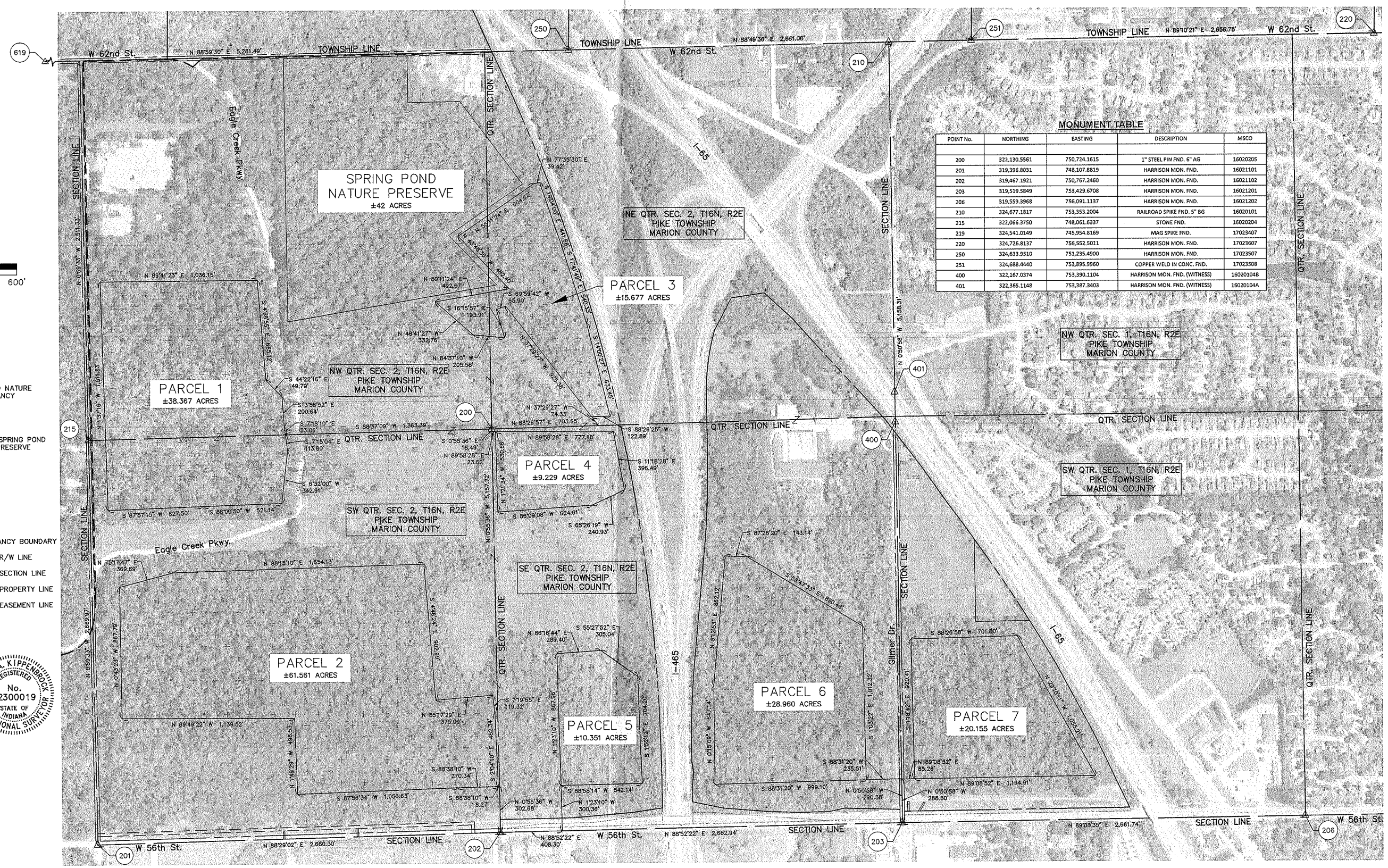
Parcel 7 - Legal Description

A part of the Southwest Quarter of Section 1, Township 16 North, Range 2 East, Pike Township, Marion County, Indiana, being more particularly described as follows:
Commencing at the southwest corner of the Southwest Quarter of Section 1 marked by a Harrison monument found per the MCSO tie records; thence North 0 degrees 50 minutes 58 seconds West 288.80 feet along the west line of said quarter section; thence North 89 degrees 08 minutes 52 seconds East 85.26 feet to the POINT OF BEGINNING of this description: thence North 89 degrees 08 minutes 52 seconds East 1,194.91 feet; thence North 29 degrees 10 minutes 11 seconds West 1,055.21 feet; thence South 88 degrees 26 minutes 58 seconds West 701.80 feet; thence South 1 degree 18 minutes 42 seconds East 920.41 feet to the POINT OF BEGINNING and containing 20.155 acres, more or less.

And containing in all **184.3 acres**, more or less.

Note: 5/8" capped rebar are to be set at all proposed nature conservancy parcel corners at a later time

THE REST OF THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK



MONUMENT TABLE

POINT No.	NORTHING	EASTING	DESCRIPTION	MSCO
200	322,130.5561	750,724.1615	1" STEEL PIN FND. 6" AG	16020205
201	319,396.8031	748,107.8819	HARRISON MON. FND.	16021101
202	319,467.1921	750,767.2460	HARRISON MON. FND.	16021102
203	319,519.5849	753,429.6708	HARRISON MON. FND.	16021201
206	319,559.3968	756,091.1137	HARRISON MON. FND.	16021202
210	324,677.1817	753,353.2004	RAILROAD SPIKE FND. 5" BG	16020101
215	322,066.3750	748,061.6337	STONE FND.	16020204
219	324,541.0149	745,954.8169	MAG SPIKE FND.	17023407
220	324,726.8137	756,552.5011	HARRISON MON. FND.	17023607
250	324,633.9510	751,235.4900	HARRISON MON. FND.	17023507
251	324,688.4440	753,895.9960	COPPER WELD IN CONC. FND.	17023508
400	322,167.0374	753,390.1104	HARRISON MON. FND. (WITNESS)	160201048
401	322,365.1148	753,387.3403	HARRISON MON. FND. (WITNESS)	160201044

300' 150' 0 300' 600'

SCALE 1"=300'

PROPOSED NATURE CONSERVANCY

EXISTING SPRING POND NATURE PRESERVE

LEGEND

- CONSERVANCY BOUNDARY
- EXISTING R/W LINE
- EXISTING SECTION LINE
- EXISTING PROPERTY LINE
- EXISTING EASEMENT LINE

DUGAN A. KIPPENBROCK REGISTERED No. 22300019 STATE OF INDIANA PROFESSIONAL SURVEYOR

Dugan A. Kippenbrock, PS
August 12, 2024

NOTES:
THIS DRAWING IS NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT.

5/8" CAPPED REBAR ARE TO BE SET AT ALL PROPOSED NATURE CONSERVANCY PARCEL CORNERS.

VS ENGINEERING
4275 North High School Road
Indianapolis, IN 46254
P: (317) 293-3542
F: (317) 293-4737
vsei@vsengineering.com
www.vsengineering.com

REVISION	DATE	INITIALS

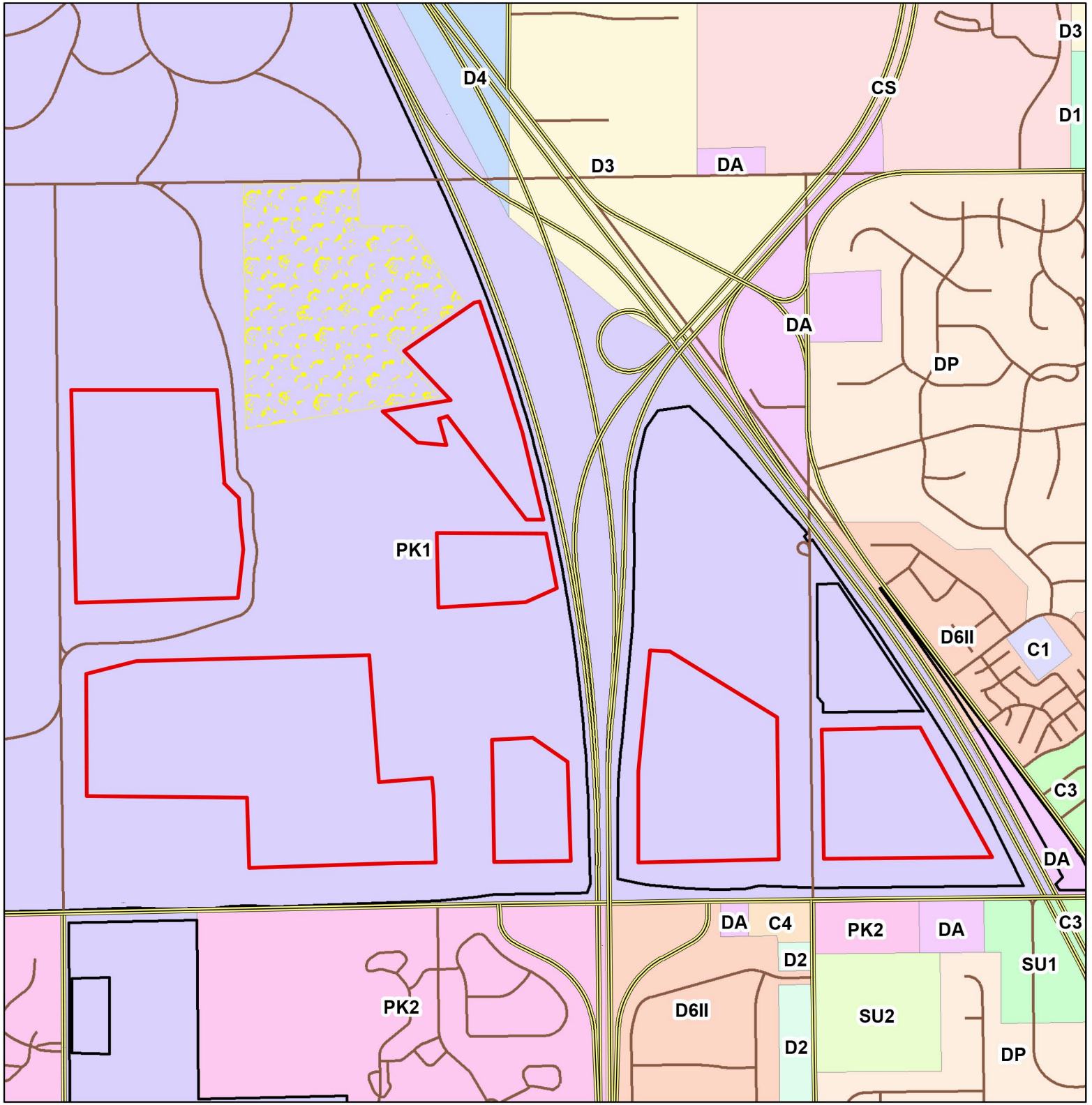
EAGLE CREEK PARK CONSERVANCY

Part of Sections 1 and 2, Township 16 North, Range 2 East,
Pike Township, Marion County, Indiana
The City of Indianapolis (Park Department)
Instrument No. 66-8053

SCALE: 1"=300'
DATE: 08/12/2024
DRAWN BY: ABM
PROJECT No.: 2305214

EXHIBIT B

Zoning Maps



Eagle Creek Forest Legacy Initiative

Zoning Map

Project Area
Park Boundary
Nature Preserve
Interstate
Street

0 300 600 1,200
Feet

N
W E
S

INDY PARKS & Recreation

For informational and instructional purposes only (2024)
Department of Public Works, Engineering, Land Stewardship, B. Howard

Zoning Description(s)

Effective May 8, 2023

City of Indianapolis

Consolidated Zoning / Subdivision Ordinance

Table 742-101-1: Primary Zoning Districts	
Special Use (SU) Districts	
SU-1	Religious Use
SU-2	School
SU-3	Golf Course
SU-5	Radio Receiving or Broadcasting Tower
SU-6	Hospital, Sanitarium, Nursing Home
SU-7	Charitable Institution
SU-8	Correctional or Penal Institution, Diversion Center
SU-9	Government Buildings or Grounds
SU-10	Cemetery
SU-13	Sanitary Landfill
SU-16	Indoor or Outdoor Entertainment or Recreation
SU-18	Light or Power Substation
SU-20	Telephone Exchange Offices
SU-23	Permanent Sand or Gravel Plant

Continued	
Special Use (SU) Districts	
SU-28	Petroleum Refinery and Storage
SU-34	Club Room or Ballroom
SU-35	Telecommunications Tower
SU-37	Library
SU-38	Community Center
SU-39	Water Tank
SU-41	Sewage/Garbage Disposal Plant
SU-42	Gas Utility
SU-43	Power Transmission Lines
SU-44	Off-track Mutuel Wagering Facilities
SU-45	Zoo
SU-46	Airport

Section 02. Applicability

A. All properties shown within each primary zoning district on the Official Zoning Map are subject to the standards and provisions of this Section 742-100, applicable to that primary zoning district.

In addition, property within each primary zoning district listed in this Section 742-100, must comply with all other applicable provisions of the Zoning Ordinance, including without limitation the performance standards in Section 740-400, the uses and use-specific standards in Chapter 743, and the development standards in Chapter 744, unless a specific exception is set forth in the Zoning Ordinance.

B. In accordance with IC 36-7-4-701, this Section 742-102 confirms that compliance with the subdivision regulations in Chapter 741 is required for all properties in all primary zoning districts in the Indianapolis-Marion County except all UQ-1, HD-1 and PK-1 Development Plan districts.

g. Circulation plan for vehicles and pedestrians, in addition to vehicular entrances and exits and turnoff lanes.

h. Setbacks.

i. Landscaping, screens, walls, fences.

j. Outdoor activity areas.

k. Lighting plan.

l. Signs, indicating location, size, design, and illumination.

m. Sewage disposal facilities.

n. Storm drainage facilities.

o. Other utilities and underground facilities.

p. Sample color and materials palette for all proposed structures, as well as fences.

q. Information related to the development's environmental impact, such as application for LEED certification, paving permeability, and other sustainable techniques.

3. Site and development requirements

Land in the development plan districts is subject to the following site and development requirements. In review of the proposed Site and Development Plan, the Commission must assess whether the Site and Development Plan, proposed use, buildings and structures must:

a. Be so designed as to create a superior land development plan, in conformity with the Comprehensive Plan;

b. Create and maintain a desirable, efficient and economical use of land with high functional and aesthetic value, attractiveness and compatibility of land uses, within the development plan district and with adjacent uses;

c. Provide sufficient and adequate multi-modal access, such as parking and loading areas, transit provisions, and bicycle facilities;

d. Integrate a multi-modal transportation network using active and passive traffic control with the existing and planned public streets and interior roads;

e. Provide adequately for sanitation, drainage and public utilities in a sustainable, low-impact manner;

f. Allocate adequate sites for all uses proposed - the design, character, grade, location and orientation thereof to be appropriate for the uses proposed, logically related to existing and proposed topographical and other conditions, and consistent with the Comprehensive Plan; and

g. Provide pedestrian accessibility and connectivity, which may be paths, trails, sidewalks, or combination thereof. Pedestrian accessibility to available public transit must be provided. Sidewalks along eligible public streets consisting of the walkway and any curb ramps or blended transitions must be provided. If sidewalks are required to be installed, the Administrator or the Commission must be guided by the provisions of Section 744-304 for the installation of sidewalks.

B. Park District Regulations

1. Permitted park district uses

a. Permitted uses in the PK-1 and PK-2 districts are listed in the following Table 742-108-2, and are subject to the conditions in that table.

Table 742-108-2 Permitted Uses in Park Districts

- All permitted uses are subject to all use-specific standards in Chapter 743 applicable to that use unless waived during the Development Plan approval process.
- All permitted uses include accessory and temporary uses permitted in conjunction with the primary use in any zoning district, as shown in Chapter 743.
- Filing of a petition for, and Commission approval of, a Development Plan shall not be required for those projects listed in Section 742-108.B.2.

District/ Use Category	Permitted Uses
PK-1 Park District one	
Public, Institutional, Religious, and Civic Uses	Park, Playground, or Greenway
Commercial and Industrial Uses	Wireless Communication Facility
PK-2 Park District Two	
Residential Uses	Any use in the Household Living or Group Living categories
Public, Institutional, Religious, and Civic Uses	Any uses in the Community, Cultural, and Educational Facilities category. All uses in the Health Care Facilities category except Methadone Clinic or Treatment Facility.
Agricultural, Animal Related, and Food Production Uses	Animal Care, Boarding, Veterinary Services; Garden as a Primary Use; and Farmers' Market
Commercial and Industrial Uses	Any uses in the Business, Home, and Personal Services or Repair category except Dry Cleaning Plants or Industrial Laundry and Printing Services; All uses in the Food, Beverage, and Indoor Entertainment category except Adult Entertainment Businesses; All uses in the Lodging category; Artisan Food and Beverage; Artisan Manufacturing; Light Manufacturing; All uses in the Office category; All uses in the Outdoor Recreation and Entertainment category; All uses in the Research and Development category; All uses in the Retail Sales category except Retail Adult Entertainment Business; Substations and Utility Distribution Nodes; Wireless Communication Facility; All uses in the Vehicle Related Operations category except Fleet Terminals, Heavy Vehicle Wash, Heliports, Parking Lot (Primary Use), Truck Stop, and Truck or Heavy Vehicle Sales, Rental, or Repair; and Recycling Facility.

2. Specific exemptions - Administrator's approval

The filing of an approval petition and subsequent Commission approval shall not be required for the creation or alteration of the following structures or for accomplishing the following types of improvements in the PK-1 and PK-2 Districts. Such structures and improvements, however, shall be required to obtain Administrator's approval prior to the issuance of an Improvement Location Permit. All provisions and regulations of the Zoning Ordinance applicable in the particular situation, or commitments related to prior Commission approval, shall continue to apply. The

c. Collector street. No part of any structure shall be built closer than 30 feet to any right-of-way line of a collector street.

d. Local street, marginal access street or cul-de-sac. No part of any structure shall be built closer than 25 feet to any right-of-way line of a local street, marginal access street, or cul-de-sac, with the exception of the vehicular turnaround thereof. No part of any structure shall be built closer than 20 feet to any right-of-way line of the vehicular turnaround of a cul-de-sac.

e. Provided, however, that along the right-of-way line of any street, highway, or thoroughfare where access rights thereto have been purchased or otherwise acquired by the governmental agency having jurisdiction thereof, yards having a minimum depth of 30 feet shall be provided.

f. **Exception**: Eaves, cornices or other laterally supported extensions may extend into the front yard setback a maximum of 4 feet.

4. **Maximum height**. 35 feet.

5. **Off-street parking.**

i. Adequate off-street parking spaces shall be provided for the various PK-1 District park activities and uses.

ii. Off-street parking area for all uses in the PK-1 District shall be developed and maintained in accordance with the following requirements:

a. Off-street parking entrances and exits shall be located a minimum distance of 25 feet from the nearest point of 2 intersecting street right-of-way lines. Such curb cuts from a public street shall further conform to all requirements of the traffic engineering department having jurisdiction thereof.

b. The surface of parking areas shall be graded and drained in such a manner that there will be no free flow of water onto either adjacent properties or sidewalks.

c. Lighting facilities used to illuminate parking areas shall be so located, shielded and directed upon the parking area that they do not glare onto or interfere with street traffic, adjacent buildings, or adjacent users.

iii. The distance of driveways and parking areas from any adjacent property line shall be at least 20 feet.

6. **Signs**. Signs and sign structures shall comply with Chapter 744, Article IX Sign Regulations.

b. **Park District Two (PK-2) development standards**. All development within the Park District Two (PK-2) district shall be in accordance with the Site and Development Plan, as approved by the Commission in accordance with this section.

Table 742-109-1: SU Districts Permitted Use and Development Standards Summary Table		
Zoning District Symbol	**Applicable District for Development Standards Review**	**Permitted Use**
SU-18	I-1	Light or power substation
SU-20	C-1	Telephone exchange offices
SU-23	I-4	Permanent gravel or sand processing plant, rock crushing, grinding or milling and stockpiling
SU-28	I-4	Petroleum refinery and petroleum products storage
SU-34	C-3	a. Club rooms b. Fraternal rooms--Fraternity and lodge c. Ballroom--Public
SU-35	I-2	Telecommunication receiving or broadcasting tower and associated accessory buildings
SU-37	C-1	Library
SU-38	C-3	Community center
SU-39	C-1	Water tank, water pumping station and similar structures not located on buildings
SU-41	I-4	Sewage disposal plant; garbage feeding and disposal
SU-42	C-1 and per Section 742-109.I	Gas utility
SU-43	I-1	Power transmission lines
SU-44	C-3 and as per Section 742-109.J	Off-track mutuel wagering facilities, licensed as satellite facilities under IC 4-31-5.5 (off-track betting facilities)
SU-45	CBD-3	Zoo, Aquarium and related facilities
SU-46	Per Section 742-109.K	Airport

2. Within each SU district the following are also permitted:
   a. Accessory uses and structures, subordinate, appropriate and incidental to the above permitted primary uses.
   b. Wireless communication facility, as defined in, and subject to the additional regulations of Section 743-305.OO.

C. Site and development plan consideration

Upon the application for such permit, the Administrator on behalf of the Commission, shall consider and either approve, disapprove, or approve subject to any conditions, amendments or commitments agreed to by the applicant, the proposed Site and Development Plan and landscape plan.

1. **Plan documentation and supporting information.** The Site and Development Plan shall include layout and elevation plans for all proposed buildings and structures, and shall indicate:
   a. Proposed Special Use district uses;
   b. All existing uses, buildings, and structures;

D. Public notice

Public notice of the filing of an application under this section and public notice of the decision by the Administrator relative to such application is not required.

E. Administrator's approval

1. The Administrator shall be required to use the standards of Section 742-109.C.2 and those districts noted in Table 742-109-1 applicable to the SU district in question in the review and disposition of such structures and improvements.
2. **Appeal of Administrator's decision.** Where the Administrator is given the authority of discretionary approval of plans and specifications, or the method or manner of qualification, or any other similar authority, any party of interest has the right to appeal such action by the Administrator before the Commission for its review and approval or disapproval as an appeal in the form of an approval petition. Such appeal must be filed within 10 business days of approval or denial of the approval as specified in, and following, the rules of procedure of the Commission. In any appeal decision, the Commission must make written findings of its decision as required in Section 742-109.C.2.

F. Improvement Location Permit requirements

No building or structure shall be constructed, erected, converted, enlarged, extended, reconstructed or relocated in the Special Use districts without an Improvement Location Permit, and such permit shall not be issued until the proposed Site and Development Plan has been approved in accordance with this Section 742-109.

G. Development standards

In addition to the site and development requirements of Section 742-109.C.2, all uses permitted within the Special Use districts shall be administratively reviewed, using as an administrative guide, the development standards applicable to the specified district as follows:

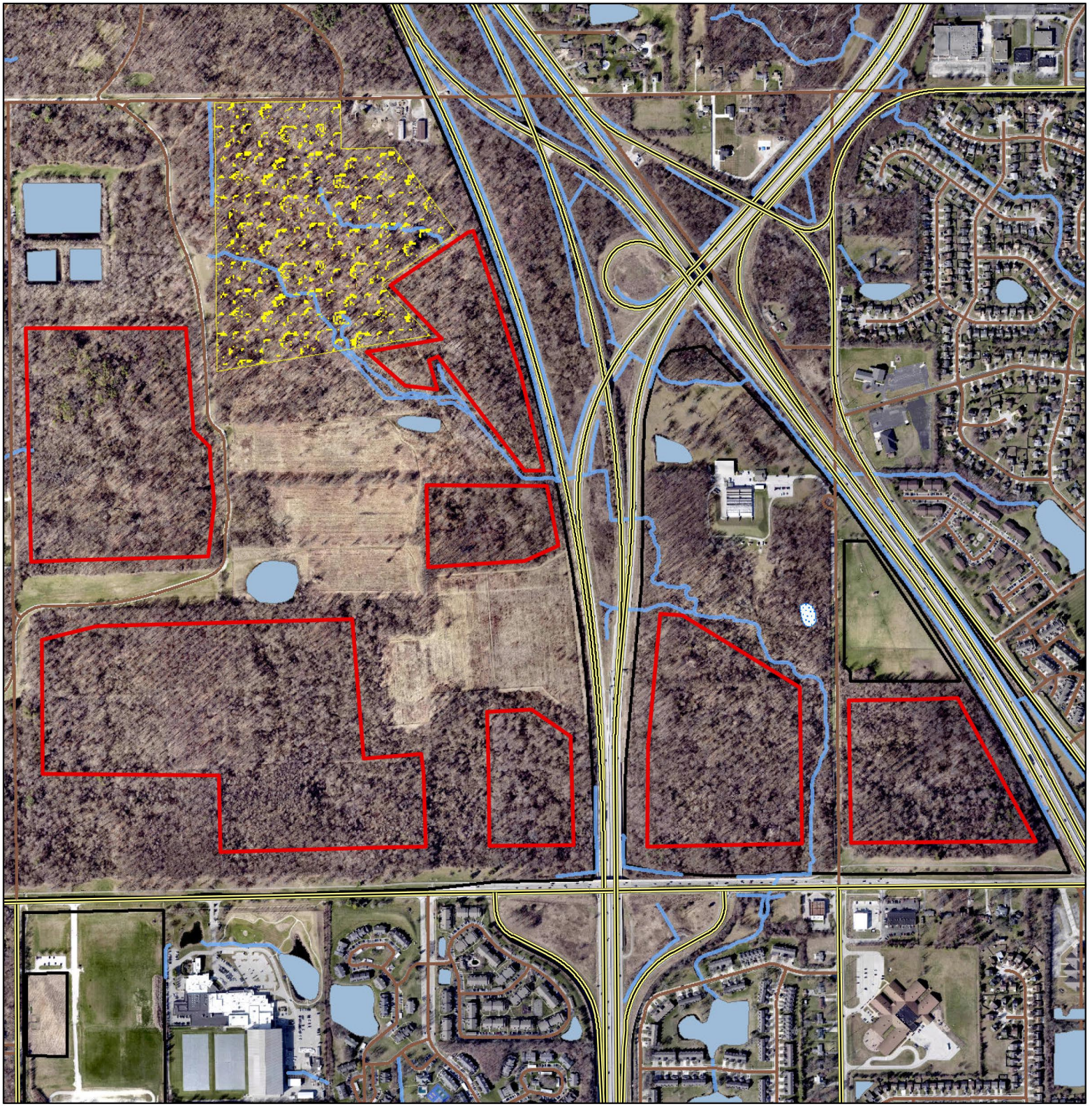
The Administrator, in reviewing Special Use district development, shall consider the standards noted above, and may approve alternatives for those requirements so long as the alternative standards are appropriate for the site and its surroundings, and the site development is compatible and consistent with the intent of the stated standards. Such modifications shall be noted on the Site and Development Plan, stamped approved by the Administrator and become a part of the file and requirements for the Improvement Location Permit.

H. Additional standards for SU-13 district (Sanitary Landfill)

In addition to the regulations of subsections B. through G. above, the following regulations apply to the SU-13 district:

1. **Land use restriction.** Land use permitted in the SU-13 district is limited to "sanitary landfill" operations. Whenever the applicable standards or requirements of any other ordinance, or governmental unit or agency thereof are higher or more restrictive, the latter shall control land use permitted in the SU-13 District. "Open dumping" is not permitted in the SU-13 District. No use in the SU-13 District shall be maintained or operated in a manner constituting a hazard to health, safety or the public welfare.
2. **Minimum lot area.** 10 acres.

Threat of Loss Demonstration



Eagle Creek Forest Legacy Initiative

Streams, Wetlands, Floodzones

- Freshwater Emergent Wetland
- Freshwater Pond
- Project Area
- Nature Preserve
- Park Boundary
- Interstate
- Street
- Stream

0 300 600 1,200
Feet

N
W E
S

INDY PARKS & Recreation

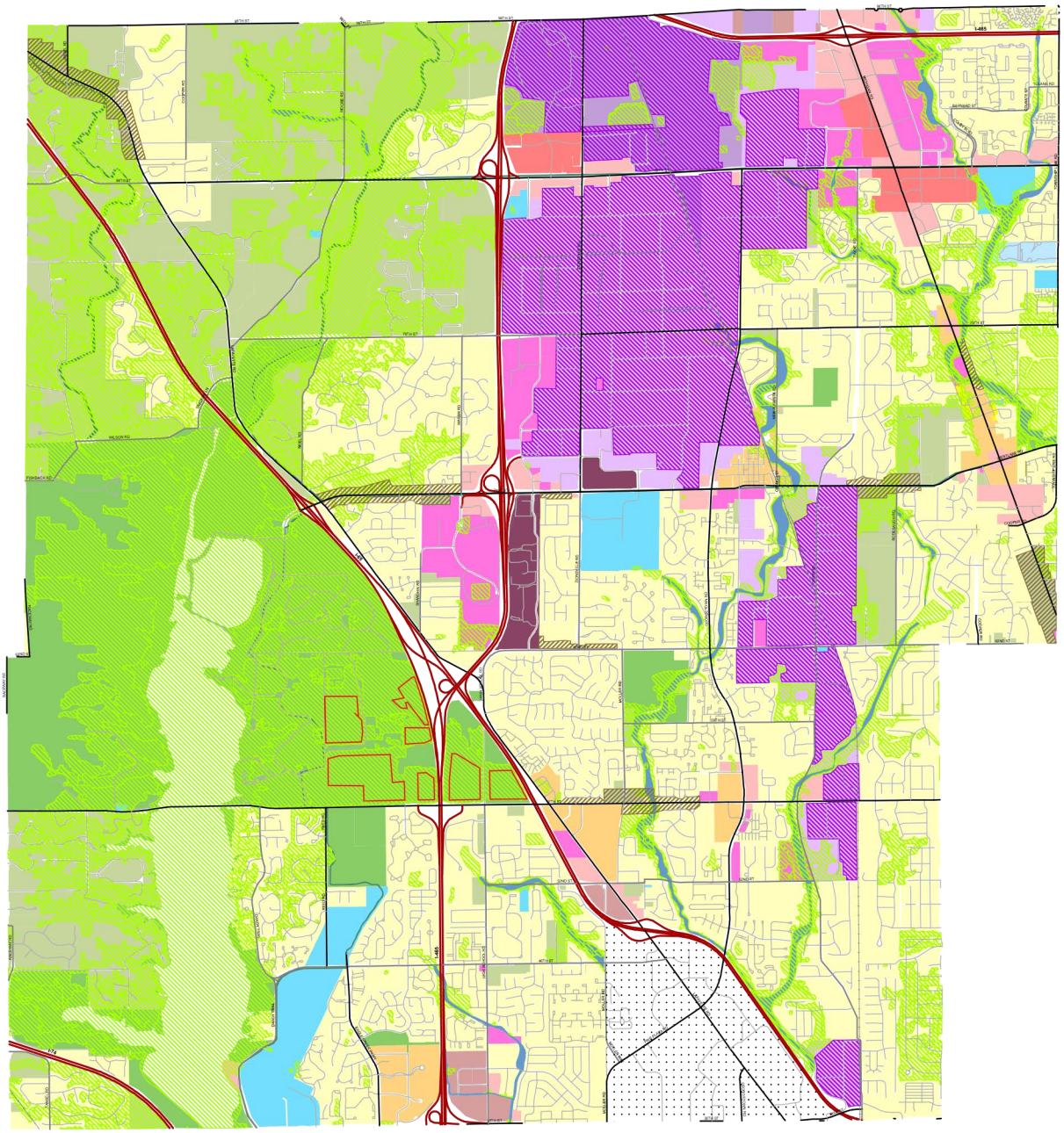
For informational and instructional purposes only (2024)
Department of Public Works, Engineering, Land Stewardship, B. Howard

the MARION COUNTY

LAND USE PLAN

A component of the Comprehensive Plan for Indianapolis and Marion County

ADOPTED BY THE
METROPOLITAN DEVELOPMENT COMMISSION
AS AN ELEMENT OF THE COMPREHENSIVE PLAN
FOR INDIANAPOLIS AND MARION COUNTY
DECEMBER 5, 2018
2018-CPS-R-007



Land Use Map
PIKE TOWNSHIP

LEGEND

LIVING TYPOLOGIES
- RURAL OR ESTATE NEIGHBORHOOD
- SUBURBAN NEIGHBORHOOD
- TRADITIONAL NEIGHBORHOOD
- CITY NEIGHBORHOOD

MIXED-USE TYPOLOGIES
- VILLAGE MIXED-USE
- URBAN MIXED-USE
- CORE MIXED-USE
- INSTITUTION-ORIENTED MIXED-USE

WORKING TYPOLOGIES
- OFFICE COMMERCIAL
- COMMUNITY COMMERCIAL
- REGIONAL COMMERCIAL
- HEAVY COMMERCIAL
- OFFICE/INDUSTRIAL MIXED-USE
- LIGHT INDUSTRIAL
- HEAVY INDUSTRIAL

OTHER USES
- AGRICULTURAL PRESERVATION
- LARGE-SCALE PARK
- LINEAR PARK
- FLOODWAY
- REGIONAL SPECIAL-USE
- PROJECT AREA

OVERLAYS
- ENVIRONMENTALLY SENSITIVE AREA (ES)
- TRANSIT-ORIENTED DEVELOPMENT (TOD)
- TOWN CENTER (TC)
- RESIDENTIAL CORRIDOR RESERVE (RR)
- INDUSTRIAL RESERVE (IR)
- AIRPORT VICINITY(AV)
- CRITICAL AREA (CA)

This plan does not apply to areas covered in dots.

The MARION COUNTY LAND USE PLAN consists of two major components: A Land Use Pattern Book and Land Use Maps. The Land Use Pattern Book is the written component of the Marion County Land Use Plan, and lays out the land uses, typologies, and overlays that are applied in the Land Use Maps. The Land Use Pattern Book, as amended from time to time, is a separate document which must be consulted in conjunction with the Land Use Plan Maps when evaluating or making decisions about land use and development.

Latitude 39°53'41.29"N Longitude 86°15'58.34"W

Forest Loss 2020 Fall: Before

Forest Loss 2021 Fall: During

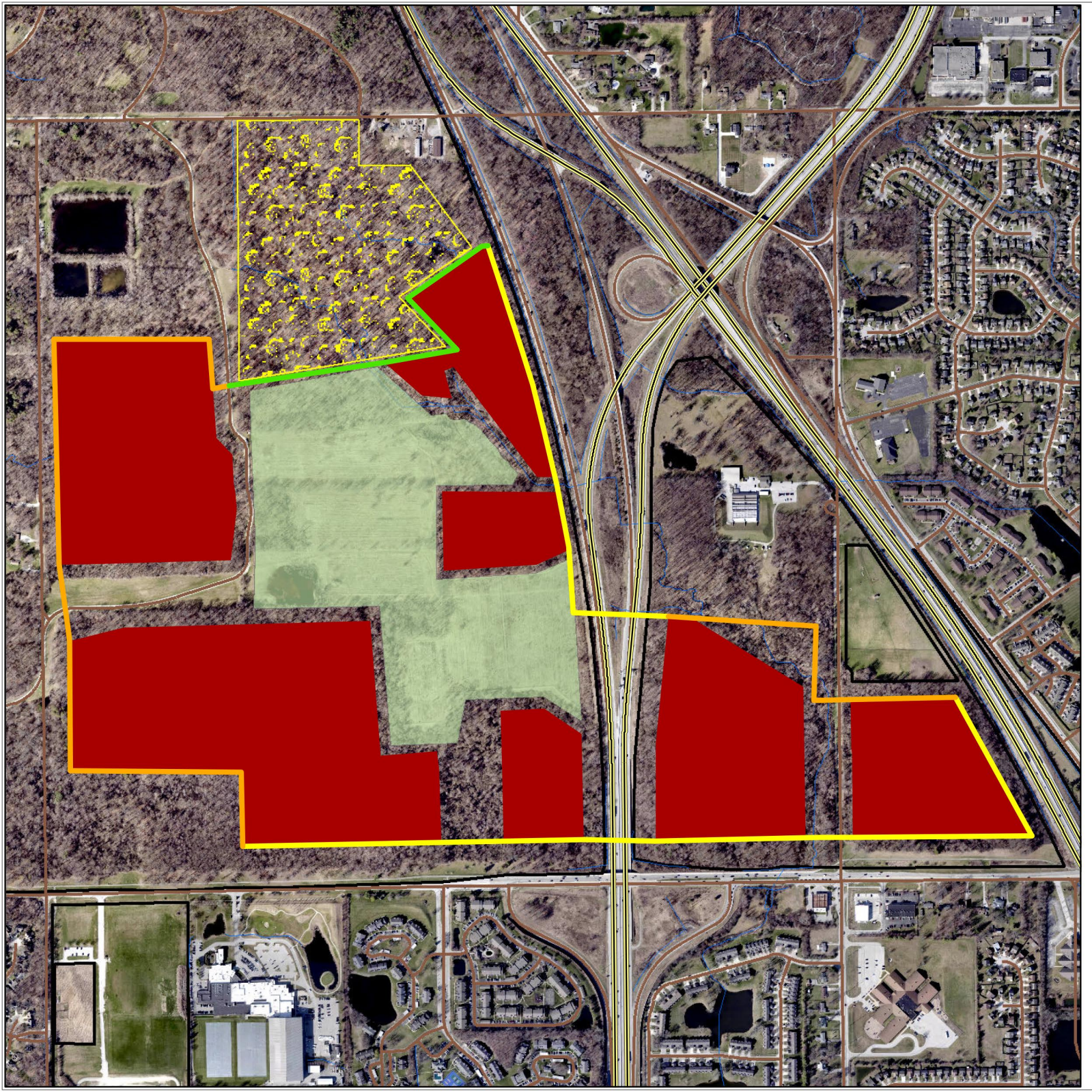
Forest Loss 2024: After

Woodlot removed in environmentally sensitive area

Woodlot removed in environmentally sensitive area

Woodlot removed in environmentally sensitive area

Woodlot removed in environmentally sensitive area



Eagle Creek Forest Legacy Initiative
Threat of Loss

- Non-Threat - 2666 ft
- Park Development - 8448 ft
- Road - 9954 ft
- Park Boundary
- Project Area
- Nature Preserve
- Interstate
- Street
- Stream

0 300 600 1,200
Feet

N
W E
S

INDY PARKS & Recreation

For informational and instructional purposes only (2024)
Department of Public Works, Engineering, Land Stewardship, B. Howard

Demonstration of loss:

The aerial image demonstrates that forests within the park are not protected within the project area. Park land are subject to lease, sale or land use change or forest clearing. Eagle Creek Park land has historically undergone land use change and forest loss. This demonstration of loss is for the purpose of the City Forest Credits program to protect forests in the project area for 100 years.

Eagle Creek Park – Landcover/Land use Change

17&18 These are two areas are now under Indiana code protection as Nature Preserves that were established to protect 300 old growth trees being sold for timber in the mid 1980's.

5-11, 15&16 ~60 acres where the forest was cleared for the golf course. 1972-1978

O-3 Forest removed for a greenway trail. 2018-2019 (4 acres)

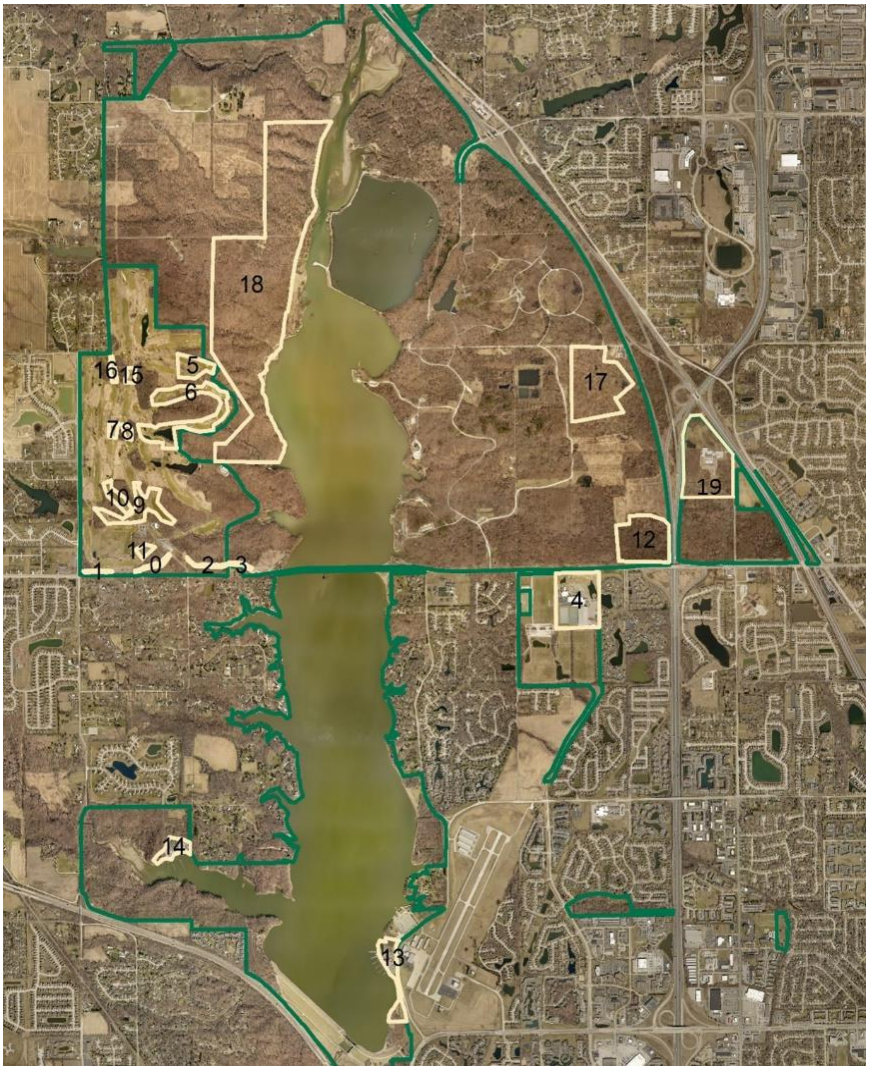
12 Forest was at prior risk of interstate expansion in the early 1990's. (28 acres)

4 Parcel sold for private use in 1985 (38 acres)

13 Leased for private use in 1993 (12 acres)

14 Leased for private use (~6 acres)

19 Land use change to non-park use in 2018, (38 acres)



Attestation of No Double Counting and No Net Harm

Eagle Creek Park Forest Legacy Initiative
Attestation of No Double Counting of Credits & No Net Harm

I am the Director of the City of Indianapolis, Department of Parks and Recreation and make this attestation regarding the no double counting of credits and no net harm from this tree preservation project, Eagle Creek Park Forest Legacy Initiative.

1. Project Description

The Project that is the subject of this attestation is described more fully in both our Application and our Project Design Document (PDD), both of which are incorporated into this attestation.

2. No Double Counting by Applying for Credits from another Registry

The City of Indianapolis, Department of Parks and Recreation has not and will not seek credits for CO_2 for the project trees or for this project from any other organization or registry issuing credits for CO_2 storage.

3. No Double Counting by Seeking Credits for the Same Trees or Same CO_2 Storage

The City of Indianapolis, Department of Parks and Recreation has not and will not apply for a project including the same trees as this project nor will it seek credits for CO_2 storage for the project trees or for this project in any other project or more than once. The City of Indianapolis, Department of Parks and Recreation checked the location of the Project Area against the Registry-provided geospatial database, which contains geospatial data on the project areas of all registered urban forest carbon preservation projects to date. Project Operator has determined that there is no overlap of Project Area or Project Trees with any registered urban forest carbon preservation project.

4. No Net Harm

The trees preserved in this project will produce many benefits, as described in our Application and PDD. Like almost all urban trees, the project trees are preserved for the benefits they deliver to people, communities, and the environment in a metropolitan area.

The project trees will produce many benefits and will not cause net harm. Specifically, they will not:

- Displace native or indigenous populations
- Deprive any communities of food sources
- Degrade a landscape or cause environmental damage

Signed on July 9, 2024, by Phyllis Boyd, Director for the City of Indianapolis, Department of Parks and Recreation.

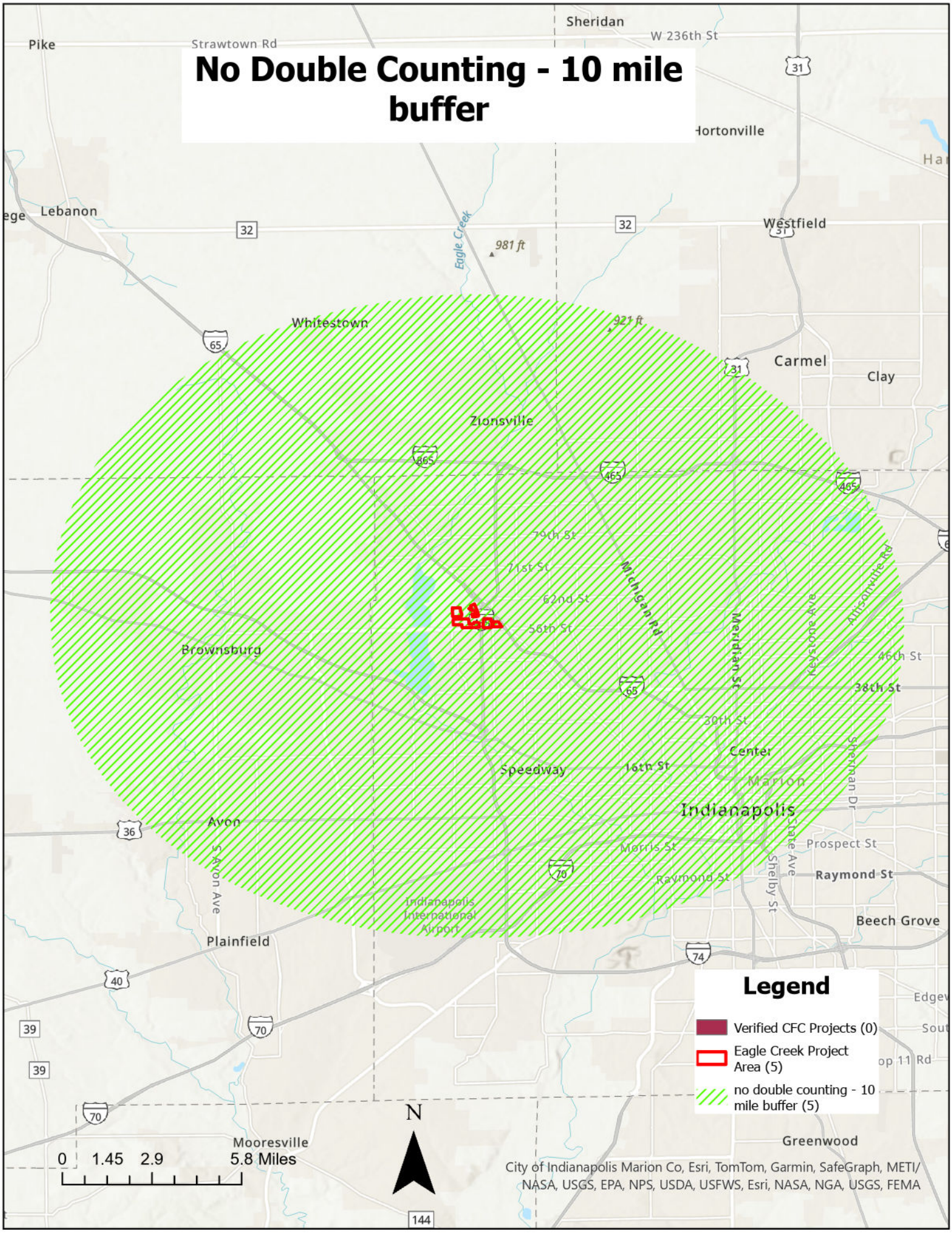
Signature

317-995-5326

Phone

phyllis.boyd@indy.gov

Email


No Double Counting - 10 mile buffer
Sheridan
W 236th St
Pike
Strawtown Rd
Hortonville
Lebanon
Westfield
Eagle Creek
981 ft
921 ft
Whitestown
Carmel
Clay
Zionsville
79th St
71st St
62nd St
56th St
Michigan Rd
Meridian St
Allisonville Rd
Brownsburg
46th St
38th St
30th St
Center
Speedway
16th St
Marion
Indianapolis
Avon
Morris St
Prospect St
Raymond St
Shelby St
State Ave
Sherman Dr
S Avon Ave
Indianapolis International Airport
Beech Grove
Plainfield
Greenwood
Mooresville
0 1.45 2.9 5.8 Miles
N
Legend
Verified CFC Projects (0)
Eagle Creek Project Area (5)
no double counting - 10 mile buffer (5)
City of Indianapolis Marion Co, Esri, TomTom, Garmin, SafeGraph, METI/ NASA, USGS, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Attestation of Additionality

Eagle Creek Park Forest Legacy Initiative
Attestation of Additionality

I am the Director of the City of Indianapolis, Department of Parks and Recreation and make this attestation regarding additionality from this tree preservation project, Eagle Creek Park Forest Legacy Initiative.

- Project Description
  - The Project that is the subject of this attestation is described more fully in the Application and the Project Design Document (PDD), both of which are incorporated into this attestation.
- Prior to the start of the project, the trees in the Project Area were not protected via easement or recorded encumbrance or in a protected zoning status that preserves the trees
- The zoning in the Project Area currently allows for a non-forest use
- The trees in the Project Area face a threat or risk of removal or conversion out of forest
- City of Indianapolis, Department of Parks and Recreation recorded in the public land records an easement, covenant, or deed restriction specifically protecting the trees for the project duration of 100 years.
- Additionality is also embedded in the quantification methodology that our project followed. Projects cannot receive, and the project will not receive, credits for trees that would have remained had development occurred, nor can they receive soil carbon credits for soil that would have been undisturbed had development occurred. The project also had to apply a discount to credited carbon for potential displaced development due to the project.
- Project Implementation Agreement for Project Duration
  - City of Indianapolis, Department of Parks and Recreation signed a Project Implementation Agreement with City Forest Credits for 100 years.

Signed on July 9, 2024, by Phyllis Boyd, Director of the City of Indianapolis, Department of Parks and Recreation.

Signature

PHYLLIS BOYD

Printed Name

317-995-5326

Phone

phyllis.boyd@indy.gov

Email

Carbon Quantification Tool

City Forest Credits - Preservation Protocol Carbon Quantification Calculator

Project Operator	City of Indianapolis
Project Name	Eagle Creek Park Forest Legacy Initiative
Project Location	Indianapolis, IN

Carbon Quantification Summary		**Protocol Section**	**Supplemental Information/Notes**
184.300	Total Project Area Acres		include project area for all parcels enrolled in carbon project
B14 Maple Beech Birch, B14 Maple Beech Bir	US Forest Service General Technical Report NE-343 - Table Number	11.1.A	based on the GTR regions map and primary forest type
43.91752577	Stand age (years)	11.1.A	determine using aerial photos
28.70949539	Biomass tC/ac	11.1.A	use appropraite GTR table and stand age, use bottom half of table, find years on the left and use 'total nonsoil' number
105.3	Biomass tCO2e/ac	11.1.A	
92%	Percent cover	11.1.A	include i-Tree Canopy file containing coordinates of evaluated points
17,876	Project Stock, tCO2e	11.1.A	
14,301	Accounting Stock, tCO2e	11.1.A	
90%	Fraction at risk of tree removal	11.2	Based on zoning - see 11.2 in preservation protocol
12,858	Avoided Biomass Emissions, tCO2e	11.2	
0%	Avoided impervious surface, percent	11.3	Based on zoning - see 11.4 in preservation protocol
0	Avoided impervious surface, acres	11.3	
-	Avoided Soil Carbon Emissions, tCO2e	11.3	
18.3%	Displacement	11.4	Fraction of avoided development that cannot be served by development or re-development of existing non-treed properties within the urban area
2,353	Displaced Biomass Emissions, tCO2e	11.4	
-	Displaced Soil Emissions	11.4	Assumes that redevelopment causes increase in impervious surface on reveveloped parcels
10,505	Credits from Avoided Biomass Emissions, tCO2e		
-	Credits from Avoided Soil Emissions, tCO2e		
10,505	Total Credits attributed to the project, tCO2e		
1,051	Registry Reversal Pool Account (10%), tCO2e		
9,455	**Total credits issued to the project, tCO2e**		
51	**Total credits issued to the project, tCO2e/acre**		

Year	Credits Issued This Year	Cumulative Credits Issued	Buffer Credits Issued
1	2565	2565	285
2	2565	5130	285
3	2565	7695	285
4	1760	9455	196
5	0	9455	0

Credit Sum Check (delete before finalizing document)

9454.724914 If not equal to B29, check math!

City Forest Credits - Preservation Protocol Carbon Quantification Calculator

Project Operator	City of Indianapolis
Project Name	Eagle Creek Park Forest Legacy Initiative
Project Location	Indianapolis, IN
Stand & Zoning	Stand 1, PK1 zoning

Carbon Quantification Summary			**Protocol Section**	**Supplemental Information/Notes**
	140.000	Total Project Area Acres		include project area for all parcels enrolled in carbon project
B14 Maple Beech Birch		US Forest Service General Technical Report NE-343 - Table Number	11.1.A	based on the GTR regions map and primary forest type
45		Stand age (years)	11.1.A	determine using aerial photos
	29.1	Biomass tC/ac	11.1.A	use appropraite GTR table and stand age, use bottom half of table, find years on the left and use 'total nonsoil' number
	106.7	Biomass tCO2e/ac	11.1.A	
	93%	Percent cover	11.1.A	include i-Tree Canopy file containing coordinates of evaluated points
	13,892	Project Stock, tCO2e	11.1.A	
	11,114	Accounting Stock, tCO2e	11.1.A	
	90%	Fraction at risk of tree removal	11.2	Based on zoning - see 11.2 in preservation protocol
	10,002	Avoided Biomass Emissions, tCO2e	11.2	
	0%	Avoided impervious surface, percent	11.3	Based on zoning - see 11.3 in preservation protocol
	0	Avoided impervious surface, acres	11.3	
	-	Avoided Soil Carbon Emissions, tCO2e	11.3	
	18.3%	Displacement	11.4	Fraction of avoided development that cannot be served by development or re-development of existing non-treed properties within the urban area
	1,830	Displaced Biomass Emissions, tCO2e	11.4	
	-	Displaced Soil Emissions	11.4	Assumes that redevelopment causes increase in impervious surface on reveveloped parcels
	8,172	Credits from Avoided Biomass Emissions, tCO2e		
	-	Credits from Avoided Soil Emissions, tCO2e		
	8,172	Total Credits attributed to the project, tCO2e		
	817	Registry Reversal Pool Account (10%), tCO2e		
	7,355	**Total credits issued to the project, tCO2e**		
	53	**Total credits issued to the project, tCO2e/acre**		

City Forest Credits - Preservation Protocol Carbon Quantification Calculator

Project Operator	City of Indianapolis
Project Name	Eagle Creek Park Forest Legacy Initiative
Project Location	Indianapolis, IN
Stand & Zoning	Stand 2, PK1 zoning

Carbon Quantification Summary			**Protocol Section**	**Supplemental Information/Notes**
	9.100	Total Project Area Acres		include project area for all parcels enrolled in carbon project
B14 Maple Beech Birch		US Forest Service General Technical Report NE-343 - Table Number	11.1.A	based on the GTR regions map and primary forest type
85		Stand age (years)	11.1.A	determine using aerial photos
	54.9	Biomass tC/ac	11.1.A	use appropraite GTR table and stand age, use bottom half of table, find years on the left and use 'total nonsoil' number
	201.3	Biomass tCO2e/ac	11.1.A	
	87%	Percent cover	11.1.A	include i-Tree Canopy file containing coordinates of evaluated points
	1,594	Project Stock, tCO2e	11.1.A	
	1,275	Accounting Stock, tCO2e	11.1.A	
	90%	Fraction at risk of tree removal	11.2	Based on zoning - see 11.2 in preservation protocol
	1,147	Avoided Biomass Emissions, tCO2e	11.2	
	0%	Avoided impervious surface, percent	11.3	Based on zoning - see 11.3 in preservation protocol
	0	Avoided impervious surface, acres	11.3	
	-	Avoided Soil Carbon Emissions, tCO2e	11.3	
	18.3%	Displacement	11.4	Fraction of avoided development that cannot be served by development or re-development of existing non-treed properties within the urban area
	210	Displaced Biomass Emissions, tCO2e	11.4	
	-	Displaced Soil Emissions	11.4	Assumes that redevelopment causes increase in impervious surface on reveveloped parcels
	937	Credits from Avoided Biomass Emissions, tCO2e		
	-	Credits from Avoided Soil Emissions, tCO2e		
	937	Total Credits attributed to the project, tCO2e		
	94	Registry Reversal Pool Account (10%), tCO2e		
	844	**Total credits issued to the project, tCO2e**		
	93	**Total credits issued to the project, tCO2e/acre**		

City Forest Credits - Preservation Protocol Carbon Quantification Calculator

Project Operator	City of Indianapolis
Project Name	Eagle Creek Park Forest Legacy Initiative
Project Location	Indianapolis, IN
Stand & Zoning	Stand 3, PK1 zoning

Carbon Quantification Summary			**Protocol Section**	**Supplemental Information/Notes**
	17.300	Total Project Area Acres		include project area for all parcels enrolled in carbon project
B15 Oak Hickory		US Forest Service General Technical Report NE-343 - Table Number	11.1.A	based on the GTR regions map and primary forest type
30		Stand age (years)	11.1.A	determine using aerial photos
	21.4	Biomass tC/ac	11.1.A	use appropraite GTR table and stand age, use bottom half of table, find years on the left and use 'total nonsoil' number
	78.5	Biomass tCO2e/ac	11.1.A	
	91%	Percent cover	11.1.A	include i-Tree Canopy file containing coordinates of evaluated points
	1,235	Project Stock, tCO2e	11.1.A	
	988	Accounting Stock, tCO2e	11.1.A	
	90%	Fraction at risk of tree removal	11.2	Based on zoning - see 11.2 in preservation protocol
	889	Avoided Biomass Emissions, tCO2e	11.2	
	0%	Avoided impervious surface, percent	11.3	Based on zoning - see 11.3 in preservation protocol
	0	Avoided impervious surface, acres	11.3	
	-	Avoided Soil Carbon Emissions, tCO2e	11.3	
	18.3%	Displacement	11.4	Fraction of avoided development that cannot be served by development or re-development of existing non-treed properties within the urban area
	163	Displaced Biomass Emissions, tCO2e	11.4	
	-	Displaced Soil Emissions	11.4	Assumes that redevelopment causes increase in impervious surface on reveveloped parcels
	727	Credits from Avoided Biomass Emissions, tCO2e		
	-	Credits from Avoided Soil Emissions, tCO2e		
	727	Total Credits attributed to the project, tCO2e		
	73	Registry Reversal Pool Account (10%), tCO2e		
	654	**Total credits issued to the project, tCO2e**		
	38	**Total credits issued to the project, tCO2e/acre**		

City Forest Credits - Preservation Protocol Carbon Quantification Calculator

Project Operator	City of Indianapolis
Project Name	Eagle Creek Park Forest Legacy Initiative
Project Location	Indianapolis, IN
Stand & Zoning	Stand 4, PK1 zoning

Carbon Quantification Summary			**Protocol Section**	**Supplemental Information/Notes**
	15.200	Total Project Area Acres		include project area for all parcels enrolled in carbon project
B14 Maple Beech Birch		US Forest Service General Technical Report NE-343 - Table Number	11.1.A	based on the GTR regions map and primary forest type
25		Stand age (years)	11.1.A	determine using aerial photos
	15.8	Biomass tC/ac	11.1.A	use appropraite GTR table and stand age, use bottom half of table, find years on the left and use 'total nonsoil' number
	57.9	Biomass tCO2e/ac	11.1.A	
	89%	Percent cover	11.1.A	include i-Tree Canopy file containing coordinates of evaluated points
	784	Project Stock, tCO2e	11.1.A	
	627	Accounting Stock, tCO2e	11.1.A	
	90%	Fraction at risk of tree removal	11.2	Based on zoning - see 11.2 in preservation protocol
	564	Avoided Biomass Emissions, tCO2e	11.2	
	0%	Avoided impervious surface, percent	11.3	Based on zoning - see 11.3 in preservation protocol
	0	Avoided impervious surface, acres	11.3	
	-	Avoided Soil Carbon Emissions, tCO2e	11.3	
	18.3%	Displacement	11.4	Fraction of avoided development that cannot be served by development or re-development of existing non-treed properties within the urban area
	103	Displaced Biomass Emissions, tCO2e	11.4	
	-	Displaced Soil Emissions	11.4	Assumes that redevelopment causes increase in impervious surface on reveveloped parcels
	461	Credits from Avoided Biomass Emissions, tCO2e		
	-	Credits from Avoided Soil Emissions, tCO2e		
	461	Total Credits attributed to the project, tCO2e		
	46	Registry Reversal Pool Account (10%), tCO2e		
	415	**Total credits issued to the project, tCO2e**		
	27	**Total credits issued to the project, tCO2e/acre**		

City Forest Credits - Preservation Protocol Carbon Quantification Calculator

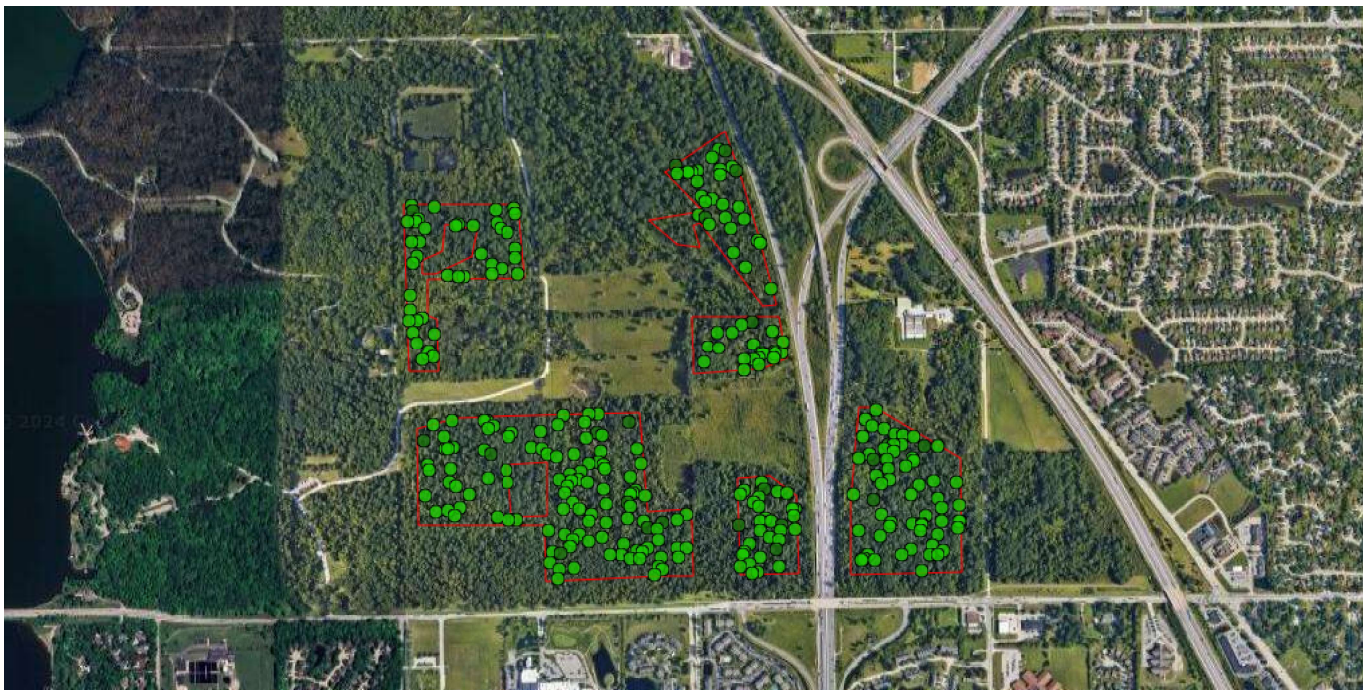
Project Operator	City of Indianapolis
Project Name	Eagle Creek Park Forest Legacy Initiative
Project Location	Indianapolis, IN
Stand & Zoning	Stand 5, PK1 zoning

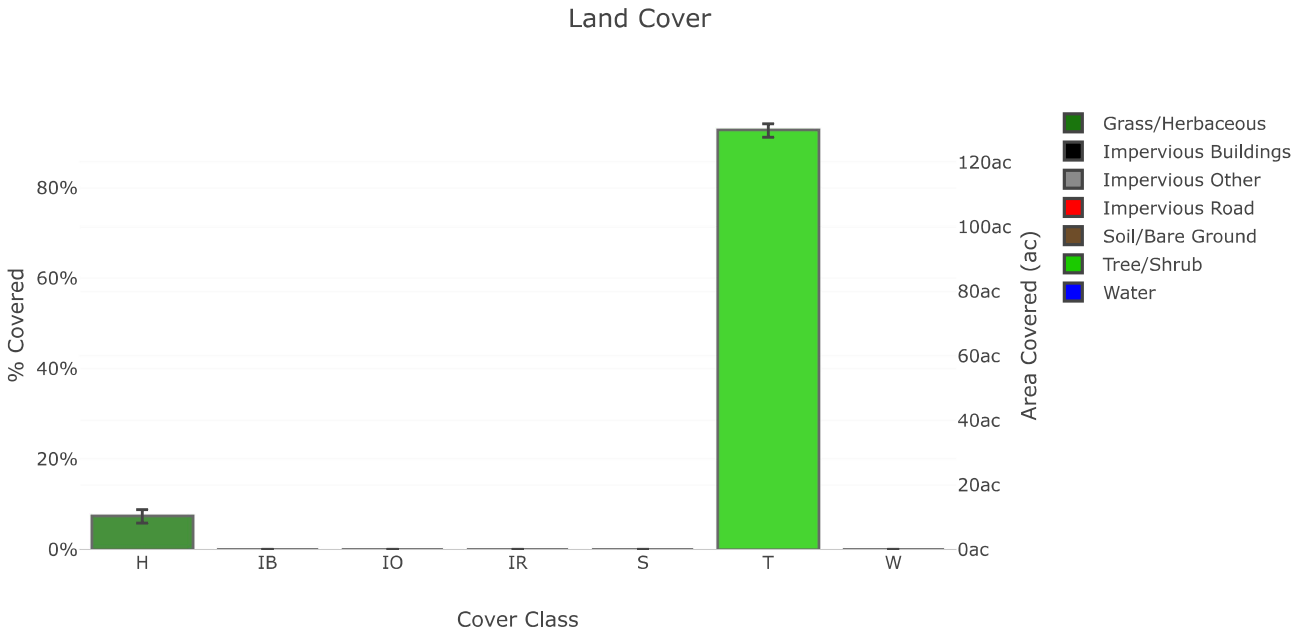
Carbon Quantification Summary			**Protocol Section**	**Supplemental Information/Notes**
	2.700	Total Project Area Acres		include project area for all parcels enrolled in carbon project
B16 Oak Pine		US Forest Service General Technical Report NE-343 - Table Number	11.1.A	based on the GTR regions map and primary forest type
45		Stand age (years)	11.1.A	determine using aerial photos
	39.7	Biomass tC/ac	11.1.A	use appropraite GTR table and stand age, use bottom half of table, find years on the left and use 'total nonsoil' number
	145.6	Biomass tCO2e/ac	11.1.A	
	90%	Percent cover	11.1.A	include i-Tree Canopy file containing coordinates of evaluated points
	354	Project Stock, tCO2e	11.1.A	
	283	Accounting Stock, tCO2e	11.1.A	
	90%	Fraction at risk of tree removal	11.2	Based on zoning - see 11.2 in preservation protocol
	255	Avoided Biomass Emissions, tCO2e	11.2	
	0%	Avoided impervious surface, percent	11.3	Based on zoning - see 11.3 in preservation protocol
	0	Avoided impervious surface, acres	11.3	
	-	Avoided Soil Carbon Emissions, tCO2e	11.3	
	18.3%	Displacement	11.4	Fraction of avoided development that cannot be served by development or re-development of existing non-treed properties within the urban area
	47	Displaced Biomass Emissions, tCO2e	11.4	
	-	Displaced Soil Emissions	11.4	Assumes that redevelopment causes increase in impervious surface on reveveloped parcels
	208	Credits from Avoided Biomass Emissions, tCO2e		
	-	Credits from Avoided Soil Emissions, tCO2e		
	208	Total Credits attributed to the project, tCO2e		
	21	Registry Reversal Pool Account (10%), tCO2e		
	187	**Total credits issued to the project, tCO2e**		
	69	**Total credits issued to the project, tCO2e/acre**		

i-Tree Canopy - Stand 1

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 8/20/2024





Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ac) ± SE
H	Grass/Herbaceous		22	7.33 ± 1.51	10.28 ± 2.11
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		0	0.00 ± 0.00	0.00 ± 0.00
T	Tree/Shrub		278	92.67 ± 1.51	129.86 ± 2.11
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**300**	**100.00**	**140.14**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (T)	±SE	CO_2 Equiv. (T)	±SE	Value (USD)	±SE
Sequestered annually in trees	144.83	±2.35	531.03	±8.62	$24,700	±401
Stored in trees (Note: this benefit is not an annual rate)	4,451.82	±72.30	16,323.33	±265.12	$759,261	±12,332

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 1.115 T of Carbon, or 4.089 T of CO_2, per ac/yr and rounded. Amount stored is based on 34.281 T of Carbon, or 125.697 T of CO_2, per ac and rounded. Value (USD) is based on $170.55/T of Carbon, or $46.51/T of CO_2 and rounded. (English units: T = tons (2,000 pounds), ac = acres)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	131.73	±2.14	$88	±1
NO2	Nitrogen Dioxide removed annually	744.34	±12.09	$196	±3
O3	Ozone removed annually	4,736.96	±76.94	$6,265	±102
SO2	Sulfur Dioxide removed annually	564.82	±9.17	$42	±1
PM2.5	Particulate Matter less than 2.5 microns removed annually	414.11	±6.73	$22,868	±371
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	1,289.71	±20.95	$4,042	±66
Total		**7,881.68**	**±128.01**	**$33,501**	**±544**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/ac/yr @ $/lb/yr and rounded:
CO 1.014 @ $0.67 | NO2 5.732 @ $0.26 | O3 36.477 @ $1.32 | SO2 4.349 @ $0.07 | PM2.5 3.189 @ $55.22 | PM10* 9.931 @ $3.13 (English units: lb = pounds, ac = acres)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (Mgal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	2.15	±0.03	$19,232	±312
E	Evaporation	7.80	±0.13	N/A	N/A
I	Interception	7.80	±0.13	N/A	N/A
T	Transpiration	24.79	±0.40	N/A	N/A
PE	Potential Evaporation	84.94	±1.38	N/A	N/A
PET	Potential Evapotranspiration	59.28	±0.96	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in Mgal/ac/yr @ $/Mgal/yr and rounded:
AVRO 0.017 @ $8,936.00 | E 0.060 @ N/A | I 0.060 @ N/A | T 0.191 @ N/A | PE 0.654 @ N/A | PET 0.457 @ N/A (English units: Mgal = millions of gallons, ac = acres)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

Limitations of i-Tree Canopy

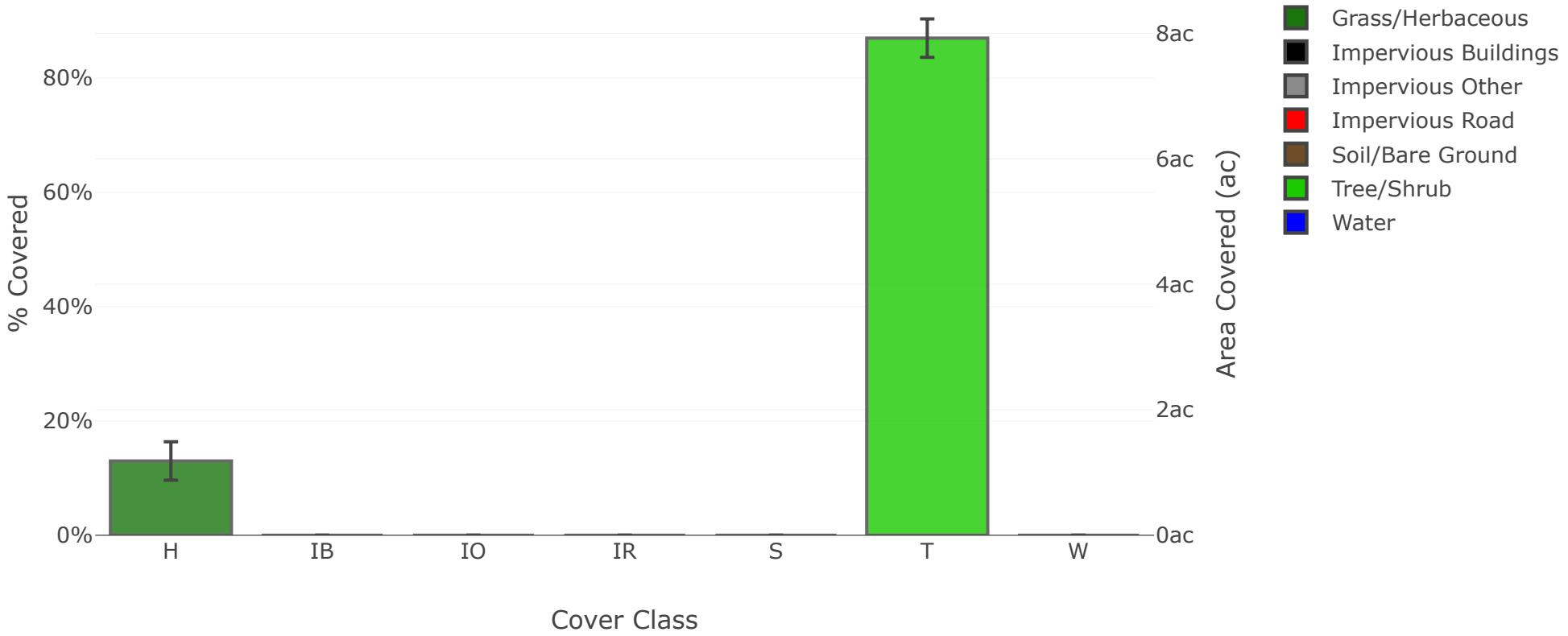
The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

i-Tree Canopy - Stand 2

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 6/25/2024

Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ac) ± SE
H	Grass/Herbaceous		13	13.00 ± 3.36	1.18 ± 0.31
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		0	0.00 ± 0.00	0.00 ± 0.00
T	Tree/Shrub		87	87.00 ± 3.36	7.92 ± 0.31
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**100**	**100.00**	**9.10**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (T)	±SE	CO_2 Equiv. (T)	±SE	Value (USD)	±SE
Sequestered annually in trees	8.83	±0.34	32.39	±1.25	$1,506	±58
Stored in trees (Note: this benefit is not an annual rate)	271.52	±10.50	995.58	±38.48	$46,308	±1,790

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 1.115 T of Carbon, or 4.089 T of CO_2, per ac/yr and rounded. Amount stored is based on 34.281 T of Carbon, or 125.697 T of CO_2, per ac and rounded. Value (USD) is based on $170.55/T of Carbon, or $46.51/T of CO_2 and rounded. (English units: T = tons (2,000 pounds), ac = acres)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	8.03	±0.31	$5	±0
NO2	Nitrogen Dioxide removed annually	45.40	±1.75	$12	±0
O3	Ozone removed annually	288.91	±11.17	$382	±15
SO2	Sulfur Dioxide removed annually	34.45	±1.33	$3	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	25.26	±0.98	$1,395	±54
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	78.66	±3.04	$247	±10
Total		**480.71**	**±18.58**	**$2,043**	**±79**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/ac/yr @ $/lb/yr and rounded:
CO 1.014 @ $0.67 | NO2 5.732 @ $0.26 | O3 36.477 @ $1.32 | SO2 4.349 @ $0.07 | PM2.5 3.189 @ $55.22 | PM10* 9.931 @ $3.13 (English units: lb = pounds, ac = acres)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (Kgal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	131.26	±5.07	$1,173	±45
E	Evaporation	475.50	±18.38	N/A	N/A
I	Interception	475.50	±18.38	N/A	N/A
T	Transpiration	1,511.99	±58.45	N/A	N/A
PE	Potential Evaporation	5,180.82	±200.27	N/A	N/A
PET	Potential Evapotranspiration	3,615.74	±139.77	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in Kgal/ac/yr @ $/Kgal/yr and rounded:
AVRO 16.573 @ $8.94 | E 60.034 @ N/A | I 60.034 @ N/A | T 190.896 @ N/A | PE 654.105 @ N/A | PET 456.506 @ N/A (English units: Kgal = thousands of gallons, ac = acres)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

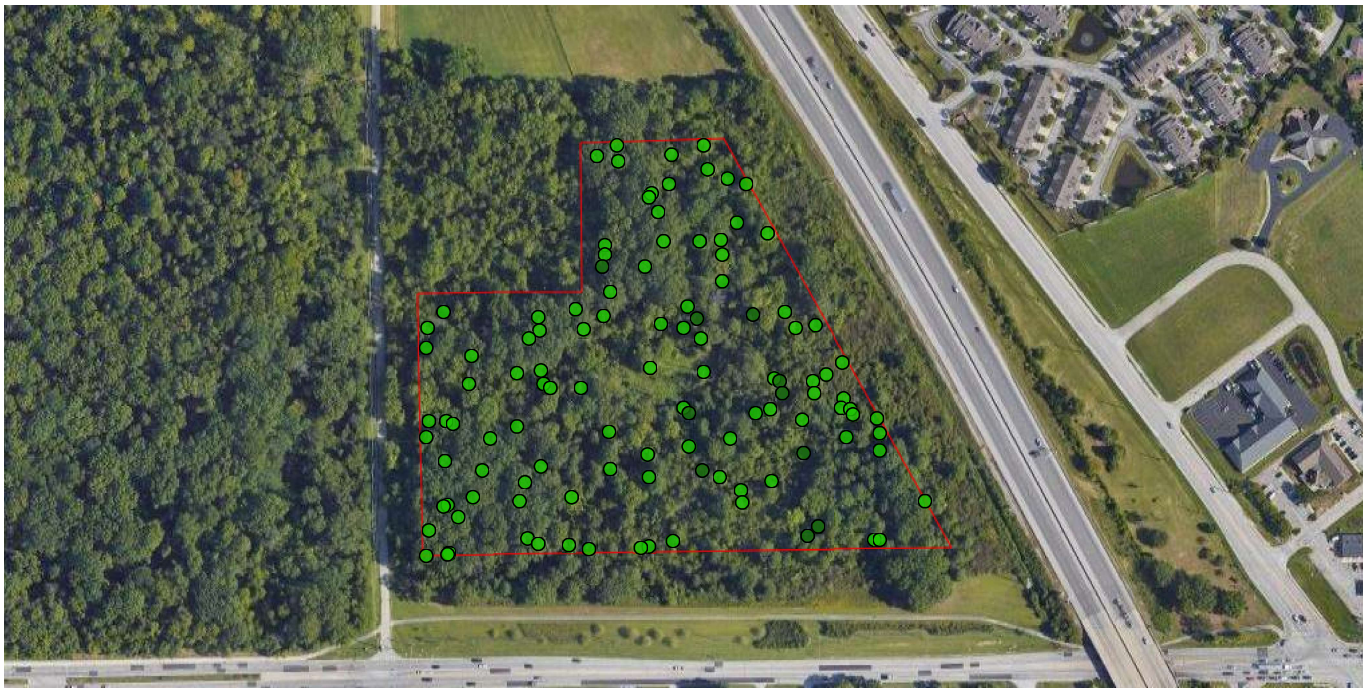
Limitations of i-Tree Canopy

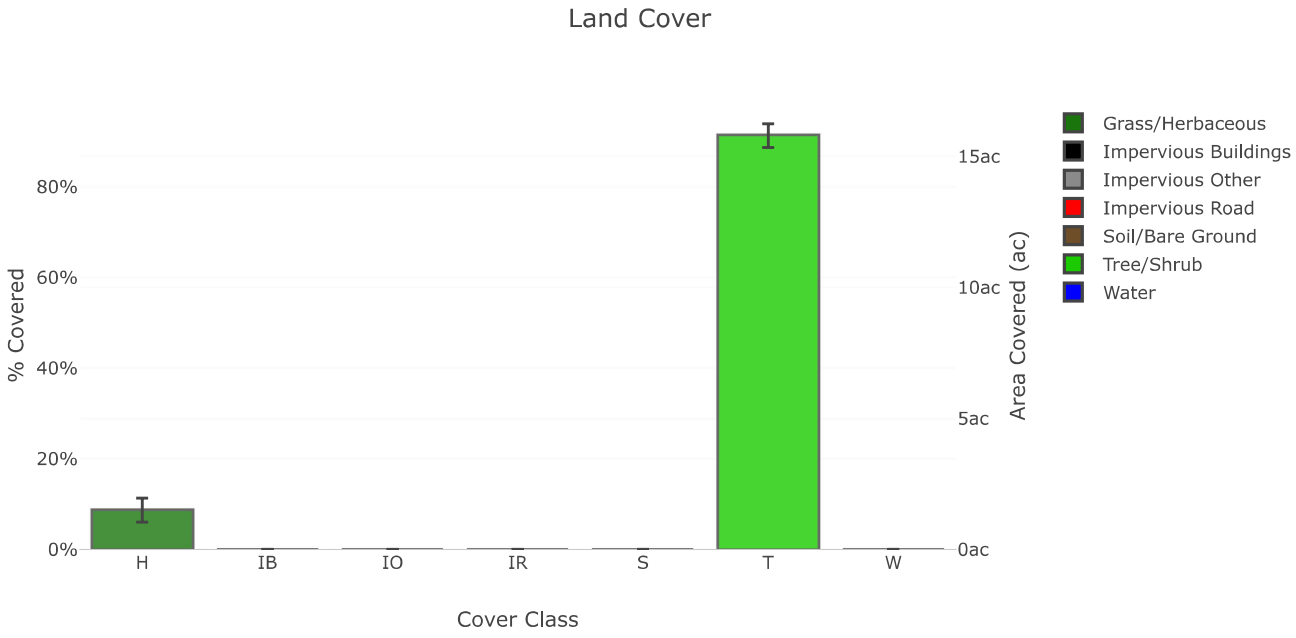
The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

i-Tree Canopy - Stand 3

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 8/20/2024





Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ac) ± SE
H	Grass/Herbaceous		10	8.70 ± 2.63	1.50 ± 0.45
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		0	0.00 ± 0.00	0.00 ± 0.00
T	Tree/Shrub		105	91.30 ± 2.63	15.80 ± 0.45
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**115**	**100.00**	**17.30**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (T)	±SE	CO_2 Equiv. (T)	±SE	Value (USD)	±SE
Sequestered annually in trees	17.62	±0.51	64.60	±1.86	$3,005	±86
Stored in trees (Note: this benefit is not an annual rate)	541.58	±15.59	1,985.78	±57.15	$92,366	±2,658

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 1.115 T of Carbon, or 4.089 T of CO_2, per ac/yr and rounded. Amount stored is based on 34.281 T of Carbon, or 125.697 T of CO_2, per ac and rounded. Value (USD) is based on $170.55/T of Carbon, or $46.51/T of CO_2 and rounded. (English units: T = tons (2,000 pounds), ac = acres)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	16.02	±0.46	$11	±0
NO2	Nitrogen Dioxide removed annually	90.55	±2.61	$24	±1
O3	Ozone removed annually	576.26	±16.58	$762	±22
SO2	Sulfur Dioxide removed annually	68.71	±1.98	$5	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	50.38	±1.45	$2,782	±80
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	156.90	±4.52	$492	±14
Total		**958.83**	**±27.59**	**$4,076**	**±117**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/ac/yr @ $/lb/yr and rounded:
CO 1.014 @ $0.67 | NO2 5.732 @ $0.26 | O3 36.477 @ $1.32 | SO2 4.349 @ $0.07 | PM2.5 3.189 @ $55.22 | PM10* 9.931 @ $3.13 (English units: lb = pounds, ac = acres)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (Kgal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	261.82	±7.53	$2,340	±67
E	Evaporation	948.42	±27.29	N/A	N/A
I	Interception	948.42	±27.29	N/A	N/A
T	Transpiration	3,015.79	±86.79	N/A	N/A
PE	Potential Evaporation	10,333.61	±297.38	N/A	N/A
PET	Potential Evapotranspiration	7,211.92	±207.54	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in Kgal/ac/yr @ $/Kgal/yr and rounded:
AVRO 16.573 @ $8.94 | E 60.034 @ N/A | I 60.034 @ N/A | T 190.896 @ N/A | PE 654.105 @ N/A | PET 456.506 @ N/A (English units: Kgal = thousands of gallons, ac = acres)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

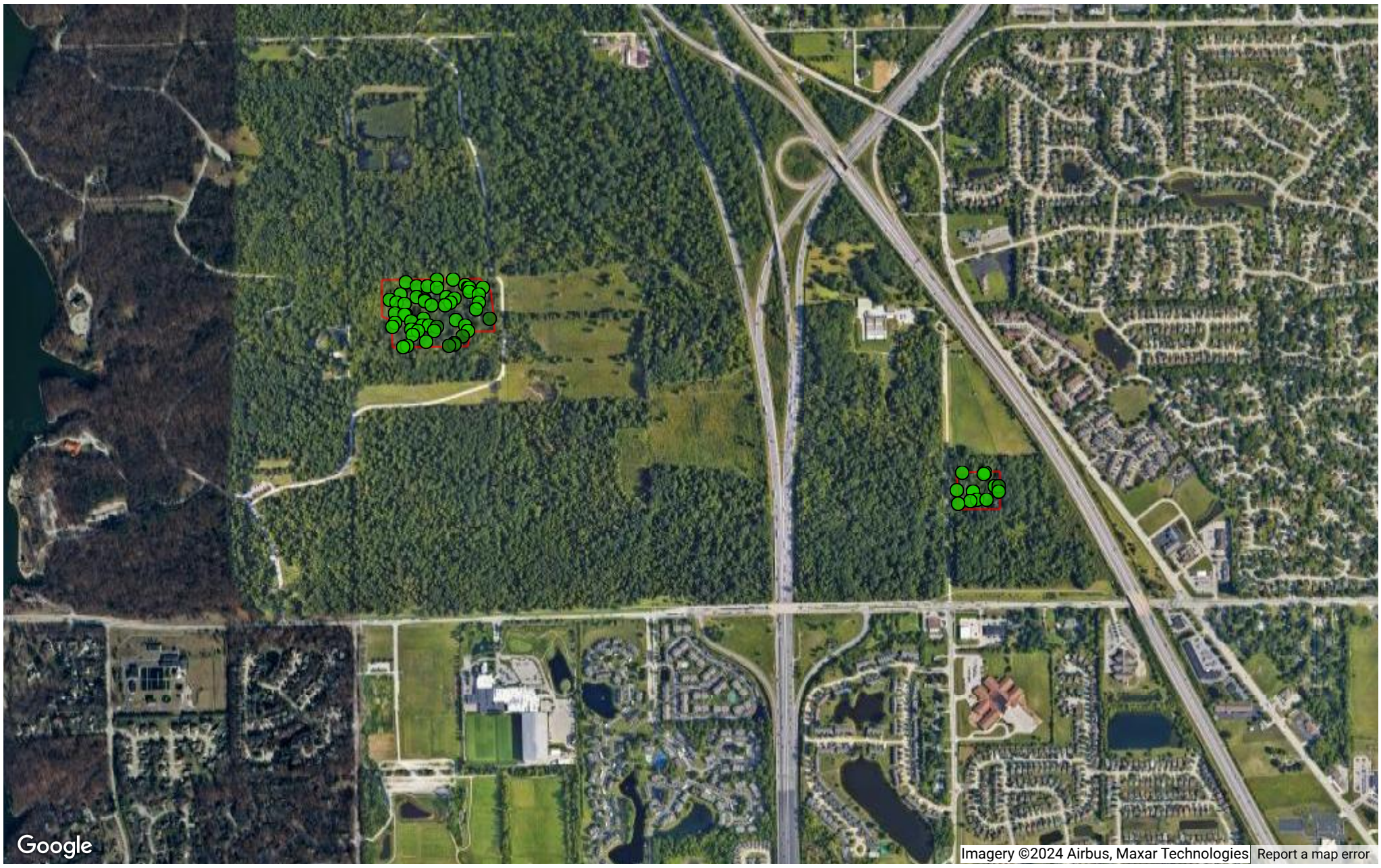
Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

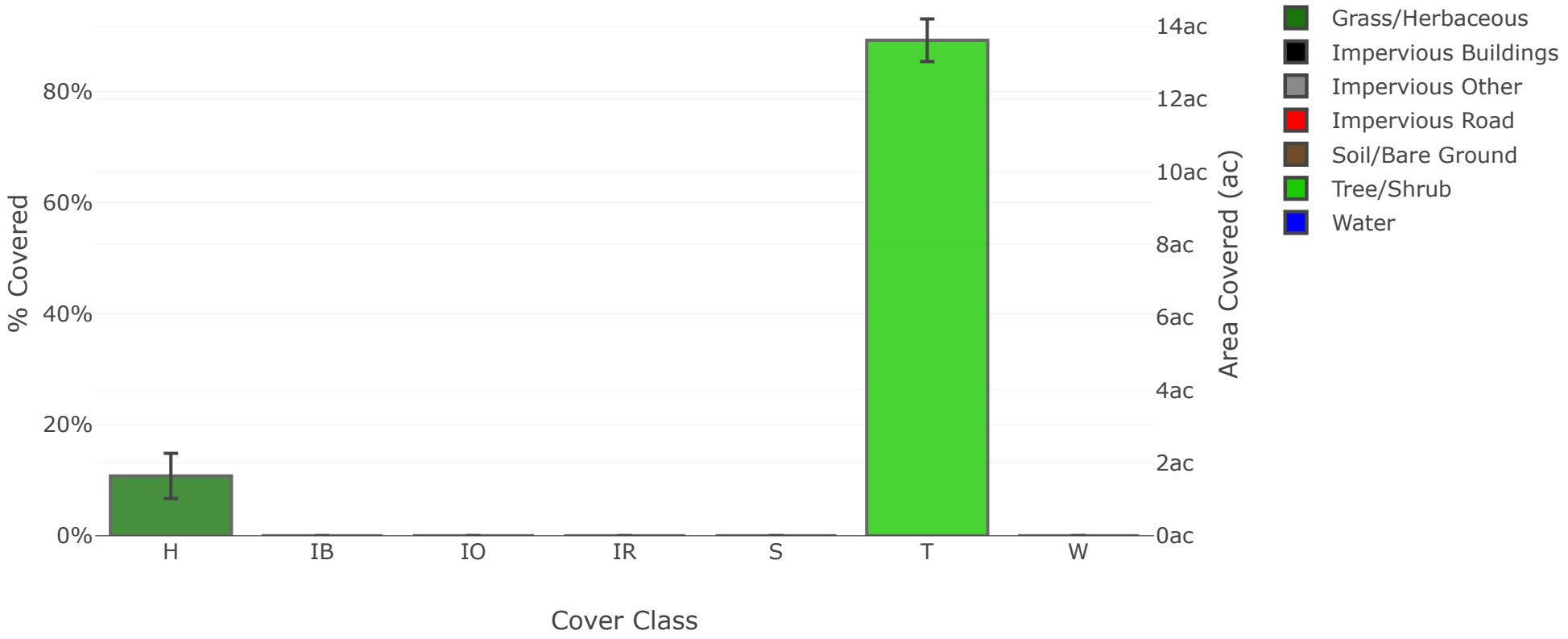
i-Tree Canopy - Stand 4

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 6/25/2024



Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ac) ± SE
H	Grass/Herbaceous		7	10.77 ± 4.07	1.64 ± 0.62
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		0	0.00 ± 0.00	0.00 ± 0.00
T	Tree/Shrub		58	89.23 ± 3.84	13.61 ± 0.59
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**65**	**100.00**	**15.26**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (T)	±SE	CO_2 Equiv. (T)	±SE	Value (USD)	±SE
Sequestered annually in trees	15.18	±0.65	55.67	±2.40	$2,589	±112
Stored in trees (Note: this benefit is not an annual rate)	466.71	±20.11	1,711.28	±73.74	$79,598	±3,430

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 1.115 T of Carbon, or 4.089 T of CO_2, per ac/yr and rounded. Amount stored is based on 34.281 T of Carbon, or 125.697 T of CO_2, per ac and rounded. Value (USD) is based on $170.55/T of Carbon, or $46.51/T of CO_2 and rounded. (English units: T = tons (2,000 pounds), ac = acres)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	13.81	±0.60	$9	±0
NO2	Nitrogen Dioxide removed annually	78.03	±3.36	$21	±1
O3	Ozone removed annually	496.61	±21.40	$657	±28
SO2	Sulfur Dioxide removed annually	59.21	±2.55	$4	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	43.41	±1.87	$2,397	±103
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	135.21	±5.83	$424	±18
Total		**826.29**	**±35.60**	**$3,512**	**±151**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/ac/yr @ $/lb/yr and rounded:
CO 1.014 @ $0.67 | NO2 5.732 @ $0.26 | O3 36.477 @ $1.32 | SO2 4.349 @ $0.07 | PM2.5 3.189 @ $55.22 | PM10* 9.931 @ $3.13 (English units: lb = pounds, ac = acres)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (Kgal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	225.63	±9.72	$2,016	±87
E	Evaporation	817.32	±35.22	N/A	N/A
I	Interception	817.32	±35.22	N/A	N/A
T	Transpiration	2,598.92	±111.99	N/A	N/A
PE	Potential Evaporation	8,905.18	±383.73	N/A	N/A
PET	Potential Evapotranspiration	6,215.01	±267.81	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in Kgal/ac/yr @ $/Kgal/yr and rounded:
AVRO 16.573 @ $8.94 | E 60.034 @ N/A | I 60.034 @ N/A | T 190.896 @ N/A | PE 654.105 @ N/A | PET 456.506 @ N/A (English units: Kgal = thousands of gallons, ac = acres)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

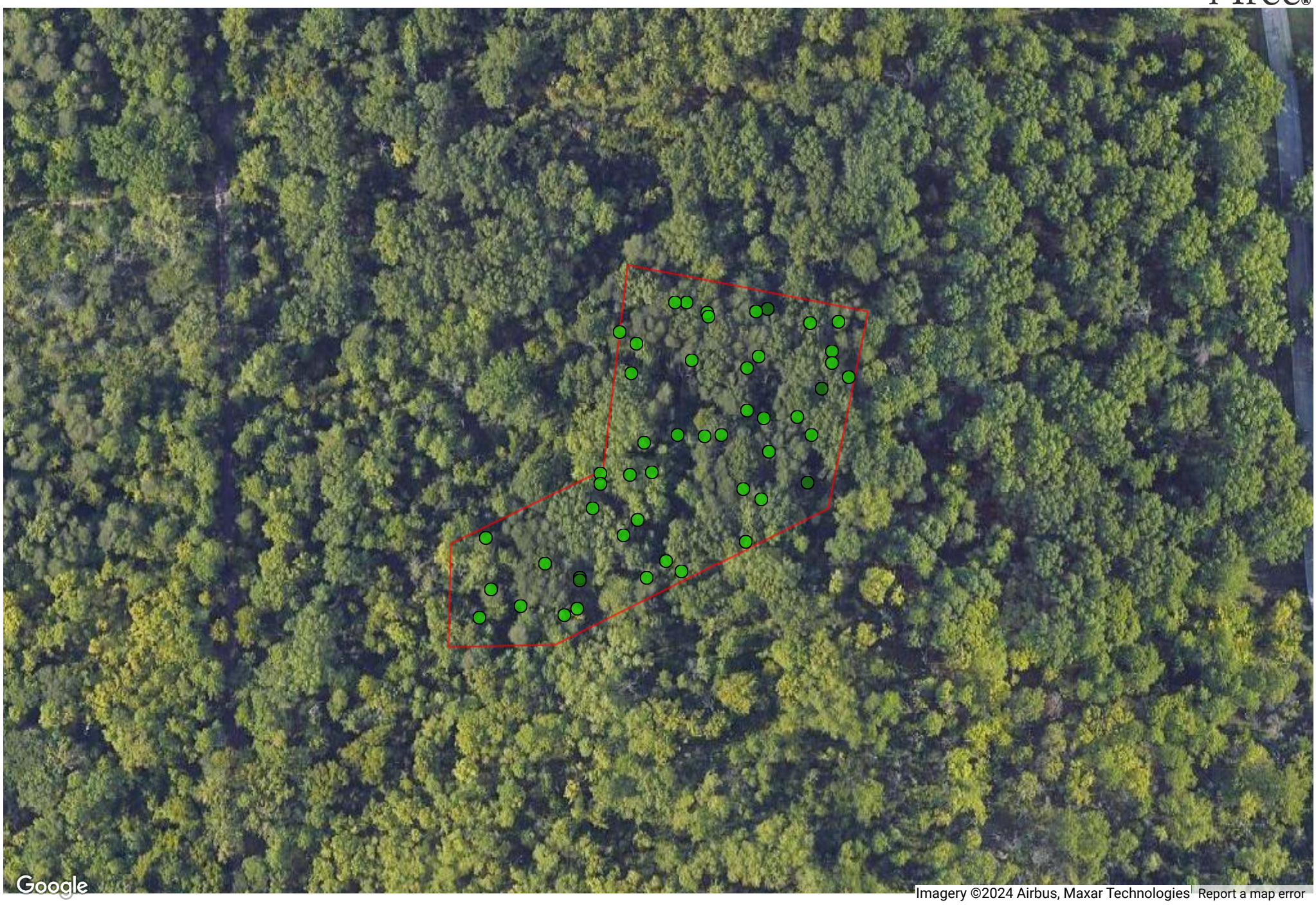
Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

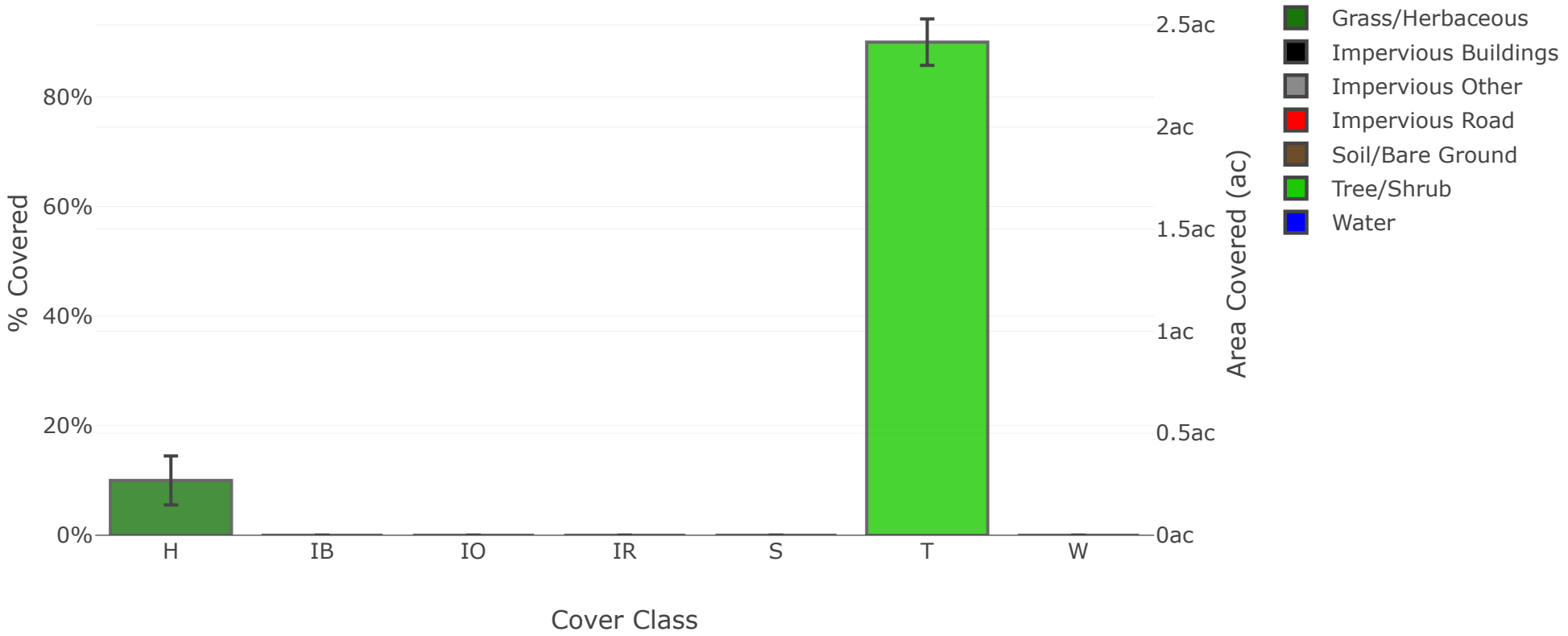
i-Tree Canopy - Stand 5

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 6/25/2024



Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ac) ± SE
H	Grass/Herbaceous		5	10.00 ± 4.47	0.27 ± 0.12
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		0	0.00 ± 0.00	0.00 ± 0.00
T	Tree/Shrub		45	90.00 ± 4.24	2.42 ± 0.11
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**50**	**100.00**	**2.69**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (T)	±SE	CO_2 Equiv. (T)	±SE	Value (USD)	±SE
Sequestered annually in trees	2.70	±0.13	9.91	±0.47	$461	±22
Stored in trees (Note: this benefit is not an annual rate)	83.10	±3.92	304.70	±14.36	$14,173	±668

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 1.115 T of Carbon, or 4.089 T of CO_2, per ac/yr and rounded. Amount stored is based on 34.281 T of Carbon, or 125.697 T of CO_2, per ac and rounded. Value (USD) is based on $170.55/T of Carbon, or $46.51/T of CO_2 and rounded. (English units: T = tons (2,000 pounds), ac = acres)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	2.46	±0.12	$2	±0
NO2	Nitrogen Dioxide removed annually	13.89	±0.65	$4	±0
O3	Ozone removed annually	88.42	±4.17	$117	±6
SO2	Sulfur Dioxide removed annually	10.54	±0.50	$1	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	7.73	±0.36	$427	±20
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	24.07	±1.13	$75	±4
Total		**147.12**	**±6.94**	**$625**	**±29**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/ac/yr @ $/lb/yr and rounded:
CO 1.014 @ $0.67 | NO2 5.732 @ $0.26 | O3 36.477 @ $1.32 | SO2 4.349 @ $0.07 | PM2.5 3.189 @ $55.22 | PM10* 9.931 @ $3.13 (English units: lb = pounds, ac = acres)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (Kgal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	40.17	±1.89	$359	±17
E	Evaporation	145.53	±6.86	N/A	N/A
I	Interception	145.53	±6.86	N/A	N/A
T	Transpiration	462.74	±21.81	N/A	N/A
PE	Potential Evaporation	1,585.58	±74.75	N/A	N/A
PET	Potential Evapotranspiration	1,106.59	±52.17	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in Kgal/ac/yr @ $/Kgal/yr and rounded:
AVRO 16.573 @ $8.94 | E 60.034 @ N/A | I 60.034 @ N/A | T 190.896 @ N/A | PE 654.105 @ N/A | PET 456.506 @ N/A (English units: Kgal = thousands of gallons, ac = acres)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

Stand 1 Raw Data

Id	Cover Class	Latitude	Longitude
1	Tree/Shrub	39.85695797	-86.27502177
2	Tree/Shrub	39.86234214	-86.27890051
3	Tree/Shrub	39.85652548	-86.2851897
4	Tree/Shrub	39.85587033	-86.27275183
5	Tree/Shrub	39.85430354	-86.28275375
6	Tree/Shrub	39.85524272	-86.27843683
7	Grass/Herbaceous	39.85539359	-86.27470261
8	Tree/Shrub	39.85589967	-86.27418385
9	Tree/Shrub	39.85667408	-86.28570961
10	Tree/Shrub	39.85690317	-86.28396366
11	Tree/Shrub	39.85643835	-86.28490666
12	Tree/Shrub	39.85652441	-86.27481817
13	Tree/Shrub	39.85694216	-86.28854371
14	Tree/Shrub	39.86126296	-86.28953815
15	Tree/Shrub	39.85973391	-86.27899428
16	Grass/Herbaceous	39.86365332	-86.28108476
17	Tree/Shrub	39.8610029	-86.28702354
18	Tree/Shrub	39.85482526	-86.28331318
19	Tree/Shrub	39.85733606	-86.28716209
20	Tree/Shrub	39.85556764	-86.28245118
21	Tree/Shrub	39.85725121	-86.28888936
22	Tree/Shrub	39.85553003	-86.28255764
23	Tree/Shrub	39.85910243	-86.27791696
24	Tree/Shrub	39.85380412	-86.27870434
25	Tree/Shrub	39.85464622	-86.27772027
26	Tree/Shrub	39.85903762	-86.27769081
27	Tree/Shrub	39.85465165	-86.27515972
28	Tree/Shrub	39.85693219	-86.27340208
29	Tree/Shrub	39.85397565	-86.28154541
30	Grass/Herbaceous	39.85478152	-86.27771145
31	Grass/Herbaceous	39.85566439	-86.27824877
32	Tree/Shrub	39.85412582	-86.28504907
33	Tree/Shrub	39.85532913	-86.27857993
34	Tree/Shrub	39.85438454	-86.28387636
35	Tree/Shrub	39.85440222	-86.28163358
36	Grass/Herbaceous	39.85408612	-86.28479221
37	Tree/Shrub	39.85477423	-86.27313716
38	Grass/Herbaceous	39.85981052	-86.27865278
39	Tree/Shrub	39.86180437	-86.28933888
40	Tree/Shrub	39.85502987	-86.27444059
41	Tree/Shrub	39.85932828	-86.27765824
42	Tree/Shrub	39.85526951	-86.2719476
43	Tree/Shrub	39.85871469	-86.27844375
44	Tree/Shrub	39.85953725	-86.28953809
45	Tree/Shrub	39.85398506	-86.27840093
46	Tree/Shrub	39.85652774	-86.28433336

47	Tree/Shrub	39.85404629	-86.27286838
48	Tree/Shrub	39.85487432	-86.28388289
49	Tree/Shrub	39.8548799	-86.28212785
50	Tree/Shrub	39.85418664	-86.2734787
51	Grass/Herbaceous	39.85483241	-86.28152002
52	Tree/Shrub	39.86160924	-86.28622183
53	Tree/Shrub	39.85725588	-86.28486084
54	Tree/Shrub	39.86265333	-86.27907355
55	Tree/Shrub	39.85916071	-86.27969918
56	Tree/Shrub	39.85367126	-86.28150876
57	Tree/Shrub	39.85716069	-86.28714394
58	Grass/Herbaceous	39.8573105	-86.28256814
59	Tree/Shrub	39.85500828	-86.27728917
60	Tree/Shrub	39.85403696	-86.2831756
61	Tree/Shrub	39.85362226	-86.27845474
62	Tree/Shrub	39.86234296	-86.289372
63	Tree/Shrub	39.8558131	-86.2783524
64	Tree/Shrub	39.8539185	-86.27508077
65	Tree/Shrub	39.85498853	-86.2730107
66	Tree/Shrub	39.85595324	-86.282559
67	Tree/Shrub	39.85414169	-86.27247685
68	Tree/Shrub	39.85516446	-86.27725922
69	Tree/Shrub	39.85474937	-86.27415771
70	Tree/Shrub	39.85553985	-86.27900567
71	Tree/Shrub	39.85747648	-86.28469203
72	Tree/Shrub	39.85607623	-86.28413945
73	Tree/Shrub	39.85705487	-86.28637745
74	Tree/Shrub	39.85553666	-86.27533378
75	Tree/Shrub	39.8539596	-86.28253047
76	Tree/Shrub	39.85428822	-86.27281062
77	Grass/Herbaceous	39.85675203	-86.27423751
78	Tree/Shrub	39.85578237	-86.27441728
79	Tree/Shrub	39.85404806	-86.27263141
80	Tree/Shrub	39.85572612	-86.28455869
81	Tree/Shrub	39.85490333	-86.28104526
82	Tree/Shrub	39.8540399	-86.28284422
83	Tree/Shrub	39.85951393	-86.28885803
84	Tree/Shrub	39.86178361	-86.28959689
85	Tree/Shrub	39.86249638	-86.28624312
86	Tree/Shrub	39.85722498	-86.27474457
87	Tree/Shrub	39.85515722	-86.284187
88	Tree/Shrub	39.85562271	-86.27891187
89	Tree/Shrub	39.85369022	-86.28481074
90	Tree/Shrub	39.86112909	-86.2866429
91	Tree/Shrub	39.85615385	-86.28832627
92	Tree/Shrub	39.85494162	-86.28262334
93	Tree/Shrub	39.85953446	-86.27928219

94	Tree/Shrub	39.85374247	-86.27904218
95	Tree/Shrub	39.85750834	-86.28387634
96	Tree/Shrub	39.8601024	-86.289612
97	Tree/Shrub	39.8546395	-86.27840041
98	Tree/Shrub	39.86212855	-86.27933704
99	Tree/Shrub	39.85487437	-86.27805006
100	Tree/Shrub	39.86257944	-86.28688233
101	Tree/Shrub	39.85731928	-86.28398927
102	Tree/Shrub	39.85442449	-86.28440673
103	Tree/Shrub	39.86115715	-86.27884481
104	Tree/Shrub	39.85491776	-86.28620257
105	Tree/Shrub	39.86210787	-86.2891701
106	Tree/Shrub	39.85990074	-86.28923341
107	Tree/Shrub	39.85479497	-86.27316569
108	Tree/Shrub	39.86344155	-86.27965998
109	Tree/Shrub	39.85663672	-86.27435792
110	Grass/Herbaceous	39.85418576	-86.27788221
111	Tree/Shrub	39.85906155	-86.27832755
112	Tree/Shrub	39.86181121	-86.27846502
113	Tree/Shrub	39.85574403	-86.28818646
114	Tree/Shrub	39.85451658	-86.27449047
115	Tree/Shrub	39.85738339	-86.27495113
116	Tree/Shrub	39.86355458	-86.2796628
117	Tree/Shrub	39.85880778	-86.28020395
118	Tree/Shrub	39.85910394	-86.28903836
119	Tree/Shrub	39.86148224	-86.28733849
120	Tree/Shrub	39.8613931	-86.28621627
121	Tree/Shrub	39.85346035	-86.28487523
122	Tree/Shrub	39.85558692	-86.27783989
123	Tree/Shrub	39.85497978	-86.28682468
124	Tree/Shrub	39.85697799	-86.28345149
125	Tree/Shrub	39.86259762	-86.28627616
126	Tree/Shrub	39.86267502	-86.28957312
127	Tree/Shrub	39.85465552	-86.28517442
128	Tree/Shrub	39.85669819	-86.28824978
129	Tree/Shrub	39.85516329	-86.2773696
130	Tree/Shrub	39.8610101	-86.28616913
131	Grass/Herbaceous	39.85476921	-86.27906496
132	Tree/Shrub	39.85375017	-86.27776004
133	Tree/Shrub	39.85549886	-86.28913328
134	Grass/Herbaceous	39.86402818	-86.27949327
135	Tree/Shrub	39.8575209	-86.28358608
136	Tree/Shrub	39.85643294	-86.27517475
137	Tree/Shrub	39.85453382	-86.28464885
138	Tree/Shrub	39.86282809	-86.27992879
139	Tree/Shrub	39.85929398	-86.28939045
140	Tree/Shrub	39.86123551	-86.28702645

141	Tree/Shrub	39.85666163	-86.28851091
142	Tree/Shrub	39.85583023	-86.28837211
143	Tree/Shrub	39.85551415	-86.28205214
144	Tree/Shrub	39.86386883	-86.27994027
145	Tree/Shrub	39.85412342	-86.2821586
146	Tree/Shrub	39.86064492	-86.2780188
147	Tree/Shrub	39.85665471	-86.28843815
148	Tree/Shrub	39.85562603	-86.28239269
149	Tree/Shrub	39.85488682	-86.27838937
150	Tree/Shrub	39.86290503	-86.28028581
151	Tree/Shrub	39.85589335	-86.28423593
152	Tree/Shrub	39.85699227	-86.27376348
153	Tree/Shrub	39.85905733	-86.27788245
154	Tree/Shrub	39.86218638	-86.28815041
155	Grass/Herbaceous	39.85653151	-86.2870579
156	Tree/Shrub	39.86407527	-86.27973107
157	Tree/Shrub	39.85464401	-86.27320623
158	Tree/Shrub	39.85555038	-86.2775042
159	Tree/Shrub	39.85564946	-86.28342223
160	Tree/Shrub	39.8539483	-86.28223273
161	Tree/Shrub	39.85406114	-86.27893542
162	Tree/Shrub	39.85926016	-86.27857821
163	Tree/Shrub	39.85624633	-86.28906403
164	Tree/Shrub	39.85722637	-86.28695028
165	Tree/Shrub	39.85374997	-86.28163219
166	Tree/Shrub	39.8564271	-86.27342645
167	Tree/Shrub	39.86174183	-86.2783658
168	Tree/Shrub	39.86228656	-86.28947277
169	Tree/Shrub	39.8549188	-86.28645115
170	Tree/Shrub	39.85364181	-86.27312645
171	Tree/Shrub	39.85666224	-86.28536958
172	Tree/Shrub	39.85466749	-86.27726256
173	Tree/Shrub	39.85501816	-86.28820851
174	Tree/Shrub	39.85920163	-86.28006835
175	Tree/Shrub	39.8558578	-86.28444973
176	Tree/Shrub	39.85955558	-86.27974055
177	Tree/Shrub	39.85593324	-86.2871281
178	Tree/Shrub	39.85886425	-86.28924256
179	Tree/Shrub	39.85404585	-86.27379936
180	Tree/Shrub	39.85885061	-86.27860602
181	Tree/Shrub	39.85488694	-86.27249854
182	Tree/Shrub	39.855342	-86.28438598
183	Tree/Shrub	39.85714957	-86.27434087
184	Tree/Shrub	39.85487188	-86.27194132
185	Tree/Shrub	39.85529343	-86.28333706
186	Grass/Herbaceous	39.86353358	-86.27915734
187	Tree/Shrub	39.85551864	-86.28775826

188	Tree/Shrub	39.85615945	-86.27422432
189	Tree/Shrub	39.85984175	-86.28941931
190	Tree/Shrub	39.8558156	-86.2720216
191	Tree/Shrub	39.85957696	-86.27797391
192	Tree/Shrub	39.85420629	-86.28072444
193	Tree/Shrub	39.85666262	-86.28233637
194	Tree/Shrub	39.85429913	-86.27873637
195	Tree/Shrub	39.86141717	-86.28941604
196	Tree/Shrub	39.85583054	-86.28647458
197	Tree/Shrub	39.85887676	-86.27796677
198	Tree/Shrub	39.85657358	-86.2834718
199	Tree/Shrub	39.85660346	-86.28726172
200	Tree/Shrub	39.85702101	-86.27400345
201	Tree/Shrub	39.85575484	-86.27324768
202	Tree/Shrub	39.85420721	-86.28102284
203	Tree/Shrub	39.86349932	-86.28069725
204	Tree/Shrub	39.86351611	-86.28055105
205	Tree/Shrub	39.85884541	-86.27891574
206	Tree/Shrub	39.8552469	-86.28253257
207	Tree/Shrub	39.85520732	-86.28803444
208	Tree/Shrub	39.86350213	-86.2806914
209	Tree/Shrub	39.85492239	-86.2782112
210	Tree/Shrub	39.85983704	-86.28968575
211	Tree/Shrub	39.85555222	-86.28466427
212	Tree/Shrub	39.85890584	-86.2784428
213	Grass/Herbaceous	39.85685587	-86.28921336
214	Tree/Shrub	39.85544193	-86.27261143
215	Tree/Shrub	39.8604601	-86.28962025
216	Tree/Shrub	39.85425684	-86.28448141
217	Tree/Shrub	39.86096977	-86.28840585
218	Tree/Shrub	39.86223353	-86.27999315
219	Tree/Shrub	39.85622008	-86.27366412
220	Tree/Shrub	39.86203124	-86.28650086
221	Tree/Shrub	39.85371797	-86.28435315
222	Tree/Shrub	39.85615062	-86.28334458
223	Tree/Shrub	39.85674576	-86.27380037
224	Tree/Shrub	39.85359883	-86.27865206
225	Tree/Shrub	39.8562994	-86.28220163
226	Tree/Shrub	39.85693126	-86.28643196
227	Tree/Shrub	39.85612347	-86.28655277
228	Tree/Shrub	39.85397635	-86.28098679
229	Tree/Shrub	39.85599356	-86.27459445
230	Tree/Shrub	39.85589862	-86.28481437
231	Tree/Shrub	39.86325644	-86.28039309
232	Tree/Shrub	39.85441409	-86.27777015
233	Tree/Shrub	39.86265636	-86.28885136
234	Tree/Shrub	39.85448958	-86.2780975

235	Grass/Herbaceous	39.86238534	-86.28015742
236	Tree/Shrub	39.85613459	-86.28904491
237	Tree/Shrub	39.86269744	-86.2795762
238	Tree/Shrub	39.86277756	-86.28015332
239	Tree/Shrub	39.8540569	-86.27488059
240	Tree/Shrub	39.85415725	-86.28234436
241	Tree/Shrub	39.85513504	-86.28844031
242	Tree/Shrub	39.85632091	-86.28358585
243	Tree/Shrub	39.8586036	-86.27887652
244	Tree/Shrub	39.86151446	-86.27924994
245	Tree/Shrub	39.8570934	-86.28541362
246	Tree/Shrub	39.86217647	-86.28758917
247	Tree/Shrub	39.85545607	-86.27840716
248	Tree/Shrub	39.85485099	-86.27412128
249	Grass/Herbaceous	39.85705563	-86.28363822
250	Tree/Shrub	39.85503081	-86.28072562
251	Grass/Herbaceous	39.86253775	-86.28952478
252	Tree/Shrub	39.8622199	-86.28807664
253	Tree/Shrub	39.86092379	-86.28808124
254	Tree/Shrub	39.85659332	-86.27406067
255	Tree/Shrub	39.85733292	-86.28725117
256	Tree/Shrub	39.85519958	-86.27249014
257	Tree/Shrub	39.86347177	-86.28105417
258	Tree/Shrub	39.85601378	-86.28446151
259	Tree/Shrub	39.85624305	-86.28341636
260	Tree/Shrub	39.85385981	-86.28512042
261	Tree/Shrub	39.85454342	-86.2726345
262	Tree/Shrub	39.86225472	-86.28681848
263	Tree/Shrub	39.85446569	-86.28346193
264	Tree/Shrub	39.85584158	-86.28390437
265	Tree/Shrub	39.85487251	-86.27191247
266	Tree/Shrub	39.85354023	-86.28177364
267	Tree/Shrub	39.85516067	-86.28470412
268	Tree/Shrub	39.85893629	-86.28887845
269	Tree/Shrub	39.85898868	-86.2779164
270	Tree/Shrub	39.85899873	-86.28906115
271	Tree/Shrub	39.86246533	-86.2803585
272	Tree/Shrub	39.86354019	-86.28039155
273	Tree/Shrub	39.85903461	-86.27830624
274	Tree/Shrub	39.85412959	-86.27889465
275	Tree/Shrub	39.8573326	-86.288289
276	Grass/Herbaceous	39.85470335	-86.28200204
277	Tree/Shrub	39.8542202	-86.28198482
278	Tree/Shrub	39.8539406	-86.27498074
279	Tree/Shrub	39.85391616	-86.27465493
280	Tree/Shrub	39.85454204	-86.28417495
281	Tree/Shrub	39.85509653	-86.28879503

282	Tree/Shrub	39.85465958	-86.28169276
283	Tree/Shrub	39.86227228	-86.28969213
284	Tree/Shrub	39.85635107	-86.27341968
285	Tree/Shrub	39.8609331	-86.28792971
286	Tree/Shrub	39.85471142	-86.27200821
287	Tree/Shrub	39.85628273	-86.28387414
288	Tree/Shrub	39.86237328	-86.27950487
289	Tree/Shrub	39.86212191	-86.28668867
290	Tree/Shrub	39.85504938	-86.28378687
291	Tree/Shrub	39.85673637	-86.27405016
292	Tree/Shrub	39.85637543	-86.27425969
293	Tree/Shrub	39.85672292	-86.27261163
294	Grass/Herbaceous	39.85532372	-86.28264343
295	Tree/Shrub	39.86362124	-86.27928527
296	Tree/Shrub	39.85553346	-86.27348462
297	Tree/Shrub	39.85759821	-86.27459108
298	Tree/Shrub	39.85480387	-86.27345547
299	Grass/Herbaceous	39.85637584	-86.27469036
300	Grass/Herbaceous	39.85670644	-86.27303883

Stand 2 Raw Data

Id	Cover Class	Latitude	Longitude
1	Tree/Shrub	39.85595235	-86.28553364
2	Tree/Shrub	39.85612138	-86.28542436
3	Tree/Shrub	39.85573258	-86.28583339
4	Grass/Herbaceous	39.85865863	-86.28636396
5	Tree/Shrub	39.8562131	-86.28612541
6	Tree/Shrub	39.85542194	-86.2863363
7	Tree/Shrub	39.85519164	-86.28568966
8	Grass/Herbaceous	39.85883941	-86.28755035
9	Tree/Shrub	39.85903933	-86.28871534
10	Tree/Shrub	39.85917841	-86.28622295
11	Tree/Shrub	39.85505306	-86.28609648
12	Tree/Shrub	39.8591662	-86.28752038
13	Tree/Shrub	39.85876845	-86.28622967
14	Tree/Shrub	39.85943326	-86.28578024
15	Tree/Shrub	39.85891116	-86.28747582
16	Tree/Shrub	39.8559914	-86.28600888
17	Tree/Shrub	39.85911715	-86.28569105
18	Tree/Shrub	39.85902037	-86.28711012
19	Tree/Shrub	39.85606316	-86.28636941
20	Tree/Shrub	39.85511634	-86.28618774
21	Tree/Shrub	39.85924151	-86.28552992
22	Tree/Shrub	39.85533836	-86.28552305
23	Tree/Shrub	39.85886136	-86.28778711
24	Tree/Shrub	39.85567702	-86.28643229
25	Tree/Shrub	39.85519227	-86.28635105
26	Grass/Herbaceous	39.85513739	-86.28554982
27	Tree/Shrub	39.85562327	-86.28571197
28	Tree/Shrub	39.85923462	-86.28666743
29	Tree/Shrub	39.85897452	-86.28705381
30	Tree/Shrub	39.85956171	-86.28586462
31	Tree/Shrub	39.85902729	-86.28789559
32	Tree/Shrub	39.85578599	-86.28563051
33	Tree/Shrub	39.85899185	-86.28563675
34	Tree/Shrub	39.85882976	-86.28746521
35	Tree/Shrub	39.85557946	-86.28638907
36	Tree/Shrub	39.85919834	-86.28830314
37	Tree/Shrub	39.85555011	-86.28630134
38	Grass/Herbaceous	39.85894433	-86.28814342
39	Tree/Shrub	39.85942867	-86.28608629
40	Tree/Shrub	39.8556984	-86.28604432
41	Grass/Herbaceous	39.85628053	-86.28550993
42	Grass/Herbaceous	39.85871521	-86.28574689
43	Tree/Shrub	39.85514256	-86.2861548
44	Tree/Shrub	39.85554746	-86.28637444
45	Tree/Shrub	39.85922506	-86.28786667
46	Tree/Shrub	39.85548224	-86.28639728

47	Grass/Herbaceous	39.85874504	-86.28809441
48	Grass/Herbaceous	39.8556591	-86.28633489
49	Tree/Shrub	39.85931443	-86.28625667
50	Tree/Shrub	39.85923593	-86.28659438
51	Tree/Shrub	39.85603425	-86.28537723
52	Tree/Shrub	39.85583265	-86.28526582
53	Tree/Shrub	39.85907188	-86.28655735
54	Grass/Herbaceous	39.85549478	-86.28602882
55	Tree/Shrub	39.85591428	-86.2861716
56	Tree/Shrub	39.85866093	-86.28755794
57	Tree/Shrub	39.85609134	-86.28621072
58	Tree/Shrub	39.85887767	-86.28699474
59	Tree/Shrub	39.85911374	-86.28755562
60	Tree/Shrub	39.85903172	-86.28690104
61	Tree/Shrub	39.8590794	-86.28681527
62	Tree/Shrub	39.85502032	-86.2857274
63	Tree/Shrub	39.85554972	-86.28627445
64	Tree/Shrub	39.85533531	-86.28598469
65	Tree/Shrub	39.85582271	-86.28587864
66	Tree/Shrub	39.85921724	-86.28606466
67	Tree/Shrub	39.85519239	-86.28579874
68	Tree/Shrub	39.85948467	-86.28605385
69	Tree/Shrub	39.85610654	-86.28641801
70	Tree/Shrub	39.85921923	-86.2869354
71	Tree/Shrub	39.85524276	-86.28579055
72	Tree/Shrub	39.85878061	-86.2863139
73	Grass/Herbaceous	39.85574391	-86.2861931
74	Tree/Shrub	39.85957503	-86.28620334
75	Tree/Shrub	39.85535818	-86.28630219
76	Tree/Shrub	39.8589899	-86.28640246
77	Tree/Shrub	39.85918994	-86.28604164
78	Tree/Shrub	39.85588599	-86.28575831
79	Tree/Shrub	39.85590864	-86.2852951
80	Tree/Shrub	39.85584014	-86.28596624
81	Tree/Shrub	39.85880224	-86.2870913
82	Tree/Shrub	39.85938895	-86.28572836
83	Tree/Shrub	39.85953173	-86.28597163
84	Tree/Shrub	39.85568369	-86.28603568
85	Tree/Shrub	39.85886791	-86.28727511
86	Tree/Shrub	39.85547345	-86.28553047
87	Tree/Shrub	39.85946968	-86.28621199
88	Grass/Herbaceous	39.85861844	-86.28865601
89	Tree/Shrub	39.8550978	-86.2856287
90	Tree/Shrub	39.85508137	-86.2857491
91	Tree/Shrub	39.8560285	-86.28553788
92	Tree/Shrub	39.85869014	-86.28746114
93	Tree/Shrub	39.85898924	-86.28667842

94	Tree/Shrub	39.85544053	-86.28577652
95	Tree/Shrub	39.85582221	-86.28522503
96	Tree/Shrub	39.85922604	-86.28586804
97	Grass/Herbaceous	39.85881026	-86.2865762
98	Tree/Shrub	39.85905279	-86.28757276
99	Grass/Herbaceous	39.85915881	-86.28708881
100	Tree/Shrub	39.8590345	-86.28649175

Stand 3 Raw Data

Id	Cover Class	Latitude	Longitude
1	Tree/Shrub	39.85518649	-86.26857388
2	Tree/Shrub	39.85452581	-86.26803057
3	Tree/Shrub	39.8536643	-86.27049518
4	Tree/Shrub	39.85480665	-86.26887339
5	Tree/Shrub	39.85603089	-86.26841896
6	Tree/Shrub	39.85611196	-86.26930693
7	Tree/Shrub	39.85470334	-86.26973502
8	Tree/Shrub	39.85612107	-86.26870154
9	Tree/Shrub	39.85374128	-86.26707312
10	Tree/Shrub	39.85369078	-86.26895469
11	Tree/Shrub	39.85412725	-86.26888339
12	Tree/Shrub	39.85515109	-86.27053414
13	Tree/Shrub	39.8551153	-86.2697744
14	Tree/Shrub	39.85404688	-86.26814788
15	Tree/Shrub	39.85570727	-86.26818201
16	Grass/Herbaceous	39.85377225	-86.26761109
17	Tree/Shrub	39.85401037	-86.27030015
18	Tree/Shrub	39.85441391	-86.26920437
19	Tree/Shrub	39.85418366	-86.26919769
20	Tree/Shrub	39.85484302	-86.26732996
21	Tree/Shrub	39.85505289	-86.27066892
22	Tree/Shrub	39.85440263	-86.26702622
23	Tree/Shrub	39.85477954	-86.26844129
24	Tree/Shrub	39.85503991	-86.26976099
25	Tree/Shrub	39.85543005	-86.26891383
26	Tree/Shrub	39.8559466	-86.26872707
27	Tree/Shrub	39.85464648	-86.26755427
28	Tree/Shrub	39.85375477	-86.26986132
29	Tree/Shrub	39.85447649	-86.27065325
30	Tree/Shrub	39.85373781	-86.26869068
31	Tree/Shrub	39.85588559	-86.2688647
32	Grass/Herbaceous	39.85542928	-86.26926061
33	Tree/Shrub	39.85447995	-86.27051384
34	Tree/Shrub	39.8544615	-86.27046384
35	Tree/Shrub	39.8558577	-86.26888481
36	Tree/Shrub	39.85558963	-86.26876775
37	Tree/Shrub	39.85427469	-86.26889202
38	Tree/Shrub	39.85492853	-86.27068099
39	Tree/Shrub	39.85534558	-86.26829757
40	Tree/Shrub	39.85550901	-86.26829283
41	Tree/Shrub	39.85517188	-86.26947806
42	Grass/Herbaceous	39.85416982	-86.26846124
43	Tree/Shrub	39.85505496	-86.26770433
44	Tree/Shrub	39.85371656	-86.26977915
45	Tree/Shrub	39.85597977	-86.26825058
46	Tree/Shrub	39.85504865	-86.26941737

47	Tree/Shrub	39.85478979	-86.26975198
48	Tree/Shrub	39.85514932	-86.26779401
49	Tree/Shrub	39.85419485	-86.26975922
50	Tree/Shrub	39.8541731	-86.27022537
51	Tree/Shrub	39.85400485	-86.26951293
52	Tree/Shrub	39.85395803	-86.27050399
53	Tree/Shrub	39.85437404	-86.2706732
54	Tree/Shrub	39.85409629	-86.26988832
55	Tree/Shrub	39.85617985	-86.26914624
56	Tree/Shrub	39.85365033	-86.2705116
57	Tree/Shrub	39.85397519	-86.26813614
58	Grass/Herbaceous	39.85452669	-86.26856102
59	Tree/Shrub	39.85527178	-86.26919592
60	Tree/Shrub	39.85556382	-86.26923591
61	Tree/Shrub	39.85477351	-86.26995159
62	Tree/Shrub	39.85444395	-86.26994897
63	Tree/Shrub	39.85374451	-86.26703376
64	Grass/Herbaceous	39.85427669	-86.26763757
65	Tree/Shrub	39.85608485	-86.26913201
66	Tree/Shrub	39.85474231	-86.26787687
67	Tree/Shrub	39.85506776	-86.26754893
68	Grass/Herbaceous	39.85510845	-86.26850333
69	Tree/Shrub	39.85559263	-86.26847742
70	Tree/Shrub	39.85455092	-86.26790865
71	Tree/Shrub	39.85512739	-86.2692522
72	Tree/Shrub	39.85448323	-86.26765146
73	Grass/Herbaceous	39.85472252	-86.26783277
74	Tree/Shrub	39.85410235	-86.26790058
75	Tree/Shrub	39.8545492	-86.26726355
76	Tree/Shrub	39.85594144	-86.26810113
77	Tree/Shrub	39.85436575	-86.26822977
78	Tree/Shrub	39.85429836	-86.26702697
79	Tree/Shrub	39.85371157	-86.26952734
80	Tree/Shrub	39.85451718	-86.26724418
81	Tree/Shrub	39.85467934	-86.26967706
82	Tree/Shrub	39.85388513	-86.2704161
83	Tree/Shrub	39.85505386	-86.26860914
84	Tree/Shrub	39.85436571	-86.27015854
85	Tree/Shrub	39.85364684	-86.2706727
86	Tree/Shrub	39.856179	-86.26845091
87	Tree/Shrub	39.85379883	-86.27065994
88	Tree/Shrub	39.85398152	-86.26666612
89	Tree/Shrub	39.85563503	-86.26793154
90	Tree/Shrub	39.85559372	-86.26830808
91	Tree/Shrub	39.85438037	-86.2672989
92	Tree/Shrub	39.85422768	-86.2705331
93	Tree/Shrub	39.85431929	-86.26856354

94	Tree/Shrub	39.85370169	-86.26888987
95	Tree/Shrub	39.85476137	-86.26746302
96	Tree/Shrub	39.85488122	-86.27031567
97	Tree/Shrub	39.85461453	-86.26732332
98	Tree/Shrub	39.85455577	-86.26734626
99	Grass/Herbaceous	39.85513376	-86.26804934
100	Tree/Shrub	39.85498425	-86.26985676
101	Tree/Shrub	39.85550703	-86.26923744
102	Grass/Herbaceous	39.85465352	-86.26781383
103	Tree/Shrub	39.85468396	-86.26942951
104	Tree/Shrub	39.85498574	-86.26847325
105	Tree/Shrub	39.85395092	-86.27053936
106	Grass/Herbaceous	39.85382577	-86.26752412
107	Tree/Shrub	39.85456321	-86.26860937
108	Tree/Shrub	39.85576983	-86.26881521
109	Tree/Shrub	39.85368929	-86.26936418
110	Tree/Shrub	39.85471986	-86.2675631
111	Tree/Shrub	39.85470531	-86.27033674
112	Tree/Shrub	39.8539846	-86.26992189
113	Tree/Shrub	39.85508171	-86.26878868
114	Tree/Shrub	39.85412894	-86.26831583
115	Tree/Shrub	39.85449569	-86.26705344

Stand 4 Raw Data

Id	Cover Class	Latitude	Longitude
1	Tree/Shrub	39.85999917	-86.28830578
2	Tree/Shrub	39.86038976	-86.28879004
3	Tree/Shrub	39.85931516	-86.28676733
4	Tree/Shrub	39.86040719	-86.28675618
5	Tree/Shrub	39.85572268	-86.27076589
6	Tree/Shrub	39.860852	-86.28731581
7	Tree/Shrub	39.85570393	-86.27024941
8	Tree/Shrub	39.85616094	-86.2698971
9	Tree/Shrub	39.8593522	-86.28766734
10	Tree/Shrub	39.85960924	-86.28790317
11	Tree/Shrub	39.86042659	-86.28793252
12	Grass/Herbaceous	39.86037287	-86.28770843
13	Grass/Herbaceous	39.85992712	-86.28563983
14	Tree/Shrub	39.86032687	-86.28770835
15	Tree/Shrub	39.86067737	-86.28584122
16	Tree/Shrub	39.85549529	-86.27013189
17	Tree/Shrub	39.85923098	-86.28839274
18	Tree/Shrub	39.8600463	-86.28863344
19	Tree/Shrub	39.85569636	-86.27028084
20	Tree/Shrub	39.859244	-86.28825194
21	Tree/Shrub	39.86030364	-86.28598942
22	Tree/Shrub	39.8601291	-86.2860764
23	Grass/Herbaceous	39.85928689	-86.2867646
24	Tree/Shrub	39.86068327	-86.28730957
25	Tree/Shrub	39.85964634	-86.28808276
26	Tree/Shrub	39.85569652	-86.26945298
27	Tree/Shrub	39.86031263	-86.28689679
28	Tree/Shrub	39.86087171	-86.28679356
29	Grass/Herbaceous	39.85947491	-86.2864756
30	Tree/Shrub	39.85548977	-86.26983214
31	Tree/Shrub	39.85613343	-86.26991337
32	Tree/Shrub	39.8598835	-86.28669254
33	Tree/Shrub	39.86078818	-86.28829128
34	Tree/Shrub	39.85546859	-86.27036676
35	Tree/Shrub	39.86073361	-86.28638778
36	Tree/Shrub	39.86030683	-86.28858943
37	Tree/Shrub	39.86057359	-86.28626693
38	Tree/Shrub	39.86025367	-86.28704392
39	Tree/Shrub	39.85540792	-86.27072454
40	Tree/Shrub	39.85960878	-86.28633139
41	Tree/Shrub	39.85972004	-86.28872551
42	Tree/Shrub	39.85617055	-86.27059318
43	Tree/Shrub	39.85980264	-86.28864092
44	Tree/Shrub	39.86069919	-86.28796855
45	Tree/Shrub	39.86068411	-86.28632746
46	Tree/Shrub	39.85976311	-86.28776497

47	Tree/Shrub	39.859738	-86.28754558
48	Tree/Shrub	39.86022998	-86.28747096
49	Tree/Shrub	39.85989903	-86.28775464
50	Tree/Shrub	39.85963476	-86.28811002
51	Tree/Shrub	39.85951751	-86.288074
52	Tree/Shrub	39.86050875	-86.28848695
53	Tree/Shrub	39.85975146	-86.28640853
54	Tree/Shrub	39.85581181	-86.26957338
55	Grass/Herbaceous	39.85925723	-86.28692288
56	Tree/Shrub	39.86067362	-86.28626053
57	Tree/Shrub	39.86069428	-86.28761502
58	Grass/Herbaceous	39.85583836	-86.26945334
59	Tree/Shrub	39.85963067	-86.28740853
60	Grass/Herbaceous	39.85970662	-86.28731312
61	Tree/Shrub	39.86050061	-86.28597102
62	Tree/Shrub	39.85983605	-86.2881323
63	Tree/Shrub	39.86000616	-86.28832583
64	Tree/Shrub	39.86028521	-86.28835867
65	Tree/Shrub	39.86045441	-86.28702655

Stand 5 Raw Data

Id	Cover Class	Latitude	Longitude
1	Tree/Shrub	39.86203549	-86.28761983
2	Tree/Shrub	39.86209929	-86.28825177
3	Tree/Shrub	39.86162113	-86.28790674
4	Tree/Shrub	39.86166903	-86.28817464
5	Tree/Shrub	39.86206775	-86.28816832
6	Tree/Shrub	39.86123948	-86.28827191
7	Tree/Shrub	39.86206881	-86.28796453
8	Tree/Shrub	39.86121687	-86.28841622
9	Tree/Shrub	39.86203236	-86.2877345
10	Tree/Shrub	39.86167493	-86.28810709
11	Tree/Shrub	39.8617326	-86.28778869
12	Grass/Herbaceous	39.86207812	-86.28791132
13	Tree/Shrub	39.86187389	-86.28848211
14	Tree/Shrub	39.86140377	-86.28845695
15	Tree/Shrub	39.86117993	-86.28906566
16	Tree/Shrub	39.86146729	-86.28793912
17	Grass/Herbaceous	39.86182387	-86.28768964
18	Tree/Shrub	39.86200343	-86.2885329
19	Tree/Shrub	39.86135411	-86.28851538
20	Tree/Shrub	39.86150066	-86.28801725
21	Tree/Shrub	39.86167513	-86.28829206
22	Grass/Herbaceous	39.86121899	-86.28869914
23	Tree/Shrub	39.86185983	-86.28757652
24	Tree/Shrub	39.86205339	-86.28815846
25	Tree/Shrub	39.86133192	-86.28800404
26	Tree/Shrub	39.86111838	-86.28870806
27	Tree/Shrub	39.86188742	-86.28800096
28	Tree/Shrub	39.8619044	-86.28764648
29	Tree/Shrub	39.86167471	-86.28773104
30	Tree/Shrub	39.86109708	-86.28876286
31	Tree/Shrub	39.86194192	-86.28764668
32	Tree/Shrub	39.86143894	-86.28864172
33	Tree/Shrub	39.86172717	-86.28793122
34	Tree/Shrub	39.86134485	-86.28908691
35	Tree/Shrub	39.86109131	-86.28911436
36	Tree/Shrub	39.86209899	-86.28830208
37	Tree/Shrub	39.86127148	-86.28833849
38	Tree/Shrub	39.86164966	-86.28842759
39	Tree/Shrub	39.86112558	-86.28894144
40	Tree/Shrub	39.86155248	-86.28861101
41	Tree/Shrub	39.86155372	-86.28839484
42	Tree/Shrub	39.86175244	-86.28800228
43	Tree/Shrub	39.86126123	-86.28884437
44	Tree/Shrub	39.86196677	-86.28846357
45	Tree/Shrub	39.86154734	-86.28849
46	Tree/Shrub	39.8619127	-86.28823052

47	Tree/Shrub	39.86151961	-86.28861361
48	Tree/Shrub	39.86192762	-86.28795088
49	Grass/Herbaceous	39.86120816	-86.28869506
50	Grass/Herbaceous	39.86152198	-86.28774858

Forest Composition Report and Site Photos

Eagle Creek Park Forest Legacy Initiative
Forest Composition Report – Eastside Complex

I am Don Miller, the Land Stewardship Manager for City of Indianapolis - Department of Public Works (DPW) and authored this forest composition report for the Eagle Creek Forest Legacy Initiative (Project 52). My educational background includes a Bachelor of Science in Park Administration, with an emphasis in Outdoor Education at Indiana State University. Continuing studies include remote sensing/GIS coursework at IUPUI, with a focus on the Eagle Creek Park landscape classification with multispectral imagery. My first project assignment was creating an early habitat plan-ground operations masterplan, mapping Eagle Creek Park's 4,785-acres in 1993. Our stewardship office team for this project includes Brenda Howard, Senior Ecologist, and Carson Murphy, Ecologist, who created maps and assisted in the collection and organization of data and editing.

Method: The forest stand descriptions are based on eight site visits for data collection - March 21, 28, May 1-2, and June 8-10, 24, 2024. Initial observations were made using current and historical imagery from the desktop. Plot points were placed with the goal of sampling all stand types based on disturbance, age class, and soils. Data was collected at each plot recording tree species 5" and above. Twenty-five plots, each covering 1/10th of an acre (37.12' radius), were captured with a GPS camera and pinned with marking whiskers. The walking trail routes were recorded (Exhibit B). Data points were downloaded to the desktop GIS and points were set using an average of the GPS camera x/y points (Exhibit A).

Project Area and Cover Type: There are five stands in the 184.3-acre forested Project Area (Exhibit C). The stands are mixed deciduous hardwoods and includes a small stand of introduced pine and oak. An old second-growth forest, a remnant of the Tipton Till Plain Natural Region (Addendum 1), escaped row crop cultivation. Of the trees sampled in the 25 plots, in all stands (2.5 acres) 76% of the carbon stock are three genera: 41% maple, 21% elm, and 14% oak. Pie charts break out the genera/species (Addendum 2). Invasive tree species across all plots show only 1% crabapple species and <1% white mulberry. Pin oaks were planted across much of the Project Area in a grid pattern as were ash trees in the early 1960s and prior. Much of the oak biomass are large, planted pin oaks, outside of the old second-growth stand and in adjoining tracts where large red, chinkapin, and white oaks stand.

Stand 1: This is the largest stand at 140 acres with five tracts and an overall estimated basal area of at least 121 square feet per acre and 91 trees per acre. This stand, on average, is mid-succession mesic mixed hardwood upland flatwoods. Cover composition recorded within plots is: 40% maple, 29% elm, 11% oak, and 10% cherry, where 146 trees 5" or above were recorded in 16 plots. Fifteen large specimen pin oaks ranged in DBH from ~16" to 38" along with a mix of chinkapin and red oaks. Large sugar, silver maple, beech, cherry, and hickory trees are present, also. Understory trees include paw paw and redbud. The native understory shrub layer includes spice bush, blackhaw viburnum, dogwood and elderberry. A native herbaceous layer is present, including common early to late-season forbs like white

snakeroot, wild rye grasses, and sedges. Elm, maple, ash, cherry, and boxelder are regenerating among other species of shrubs and trees in openings from ash mortality. No non-native invasive trees 5" or above were found within the sample plots. The primary invasive shrub species is Amur bush honeysuckle with varying degrees of impact within the stands in addition to scattered Japanese barberry. Invasive stilt grass is found in localized areas but not yet widespread. The stand age is 45 years based on aerial imagery.

Stand 2: This area is 9.1 acres with two tracts and an overall estimated basal area of 182 square feet per acre and 145 trees per acre. The stand is an old, second-growth, mesic, uneven-aged, upland, remnant forest community. Cover composition recorded within the plots is: 66% maple, 24% oak, and 4% beech. Within the two plots sampled, there were 29 trees 5" or above. This includes 2 chinkapin oaks (20.5"/37" DBH), 4 red oaks (35", 17", 10", 10"), a 27.25" walnut, a 26" white oak, a 17.75" hackberry, and 19 sugar maples. Understory trees include paw paw and redbud. The native understory shrub layer includes spice bush, blackhaw, arrowwood viburnum, and gooseberry. A native herbaceous layer is present but has been impacted by past livestock grazing. The stand has common species of wildflowers including ginger and cut-leaved toothwort, species of wild rye, beak grass, and sedges. No non-native invasive trees 5" or above were found within the sample plots. Bush honeysuckle is primarily along the forest edge and not significantly impacting regeneration. The stand age is 85 years based on aerial imagery.

Stand 3: This area is 17.3 acres with an overall estimated basal area of at least 94 square feet per acre and 45 trees per acre. Desktop stem count surveys show much higher TPA's than the plot sample estimate. This stand is a mid-successional mesic mixed hardwood upland forest community and includes many large, planted pin oak trees. The cover composition recorded within the plots is: 34% oak, 22% maple, a twin-stem invasive malus species (22%), 11% elm, and 11% catalpa. The two plots sampled contain 9 trees over 5 inches, including three pin oaks (34.5", 21.5" and 22.5" DBH) and two silver maples. Other tree species in the tract include sugar maple, white oak, red oak, cottonwood, and tulip. The primary invasive species is Amur bush honeysuckle with scattered autumn olive and multiflora rosa. The stand age is 35 years based on aerial imagery.

Stand 4: This area is 15.2 acres in two tracts with an overall estimated basal area of at least 68 square feet per acre and 47 trees per acre. Desktop stem count surveys show much higher TPA's than the plot sample estimate. The stand includes large, planted pin oak trees. The stand has a dense successional canopy of younger canopy and understory trees and shrubs colonizing where the ash died starting in ~2013. Scattered but numerous large canopy trees, including pin oak, silver maple, cottonwood, and tulip. The cover survey plots show: 29% maple, 22% tulip, 14% oak, 14% catalpa, 7% elm, and 7% sycamore. Three survey plots sampled contain 14 trees 5" or above: tulip, American elm, sycamore, sugar and silver maple, and pin oak. Understory trees include cockspur hawthorn, redbud, and paw paw. The native understory shrub layer includes spice bush, blackhaw and arrowwood viburnum. The early to late-season herbaceous layer is present with forbs, grasses, rushes, and sedges. Oak and other saplings growing in dense competition are very difficult to access. The primary invasive species is Amur bush

honeysuckle, but autumn olive is also moderately present. The stand age is 25 years based on aerial imagery.

Stand 5: This is the smallest stand with an area of 2.7 acres and an estimated basal area of at least 110 square feet per acre and 135 trees per acre. The stand includes large, planted, pin oak trees and introduced, Virginia pine. This stand is a mid-successional, mesic, mixed hardwood and conifer plantation in an upland, flat, forest community. The survey plots include: 74% Virginia pine, 7% boxelder, 4% pin oak, 4% elm, and 4% tulip. The two 1/10th acre plots sampled contain 20 Virginia pines ranging from 5.5”-20” DBH, a 29” pin oak, with boxelder, red elm, and a 10” malus species. The primary invasive species is bush honeysuckle with autumn olive being a close second. The stand age is 45 years based on aerial imagery.

Forest Health and Prior Land Use: The overall health of the forest in the Project Area is above average compared to other woodlands that have had similar disturbance levels. The native woody understory is sparse in areas where dense invasive shrubs are dominating. Long-term sustainability is favorable based on planned control of invasive plants and ecological management. The main stressors related to forest health are the introduced invasive species and prior land alteration. Despite the history of forest clearing for row crop agriculture and grazing, significant area of forest has regenerated with native herbaceous and woody species resembling a natural forest structure. The nearby seed sources and comprehensive reforestation efforts played an important role in native tree canopy regeneration. The invasive tree species are minimal, with only 1% or less of trees being non-native, including white mulberry and crabapple species within the sample plots. The catalpa is aggressive, and not native in this region, but they are not in significant numbers. Sweetgum and catalpa naturalizing in some areas is not a major concern to forest health. The non-native Virginia pine introduction is localized to Stand 5. There are ongoing plans to clear small areas of invasive bush honeysuckle, privet, and multiflora rose. After invasive shrubs have been controlled, planting of Shumard’s red oak, northern red oak, bur oak, and chinkapin oak will be done for habitat and carbon sequestration. The tree enrichment will extend into areas of ash decline. The goal for the forest is mature native canopy trees with a diverse assemblage of understory species including shrub, vine, and a species-rich herbaceous layer in an uneven aged stand. This restoration will take decades, but the benefits of ecosystem service lift is immediate.

Trails are limited in Project Areas. There are many deer trails that are occasionally explored but are not maintained and can overgrow. An official trail (soil surface), which includes an old forest fire lane, is enclosed by canopy in a tract within Stand 1 and bordering Stand 2. An unnamed trail (soil surface) runs east and west on the north edge of Stand 4 in the far west parcel.

Table 1. Forest composition breakdown

Stand size (acres)	140	9.1	17.3	15.2	2.7
Stand age (years)	45	85	35	25	45
GTR table number	B14 Maple Beech Birch	B14 Maple Beech Birch	B15 Oak Hickory	B14 Maple Beech Birch	B16 Oak Pine
	Stand 1	**Stand 2**	**Stand 3**	**Stand 4**	**Stand 5**
	Maple (40%)	Maple (66%)	Oak (34%)	Maple (29%)	Pine (74%)
	Elm (29%)	Oak (24%)	Maple (22%)	Tulip (22%)	Boxelder (7%)
	Oak (11%)	Beech (4%)	Malus (22%)	Oak (14%)	Oak (4%), Elm (4%), Tulip (4%), Malus (4%)
	Cherry (10%)	Hackberry (3%)	Elm (11%)	Catalpa (14%)	Ash (3%)
	Other (10%)	Walnut (3%)	Catalpa (11%)	Elm (7%), Sycamore (7%), Mulberry (7%)	

Signed on Aug 22, in 2024, by Don Miller, Land Stewardship Manager, Department of Public Works – City of Indianapolis.

Don Miller

Signature

317-327-7416

Phone

Don.Miller@Indy.gov

Email

Exhibit A – Forest Photos and Data

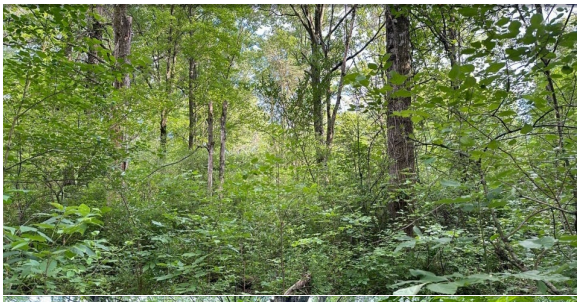
Placeholder, Full-page PDF inserted later

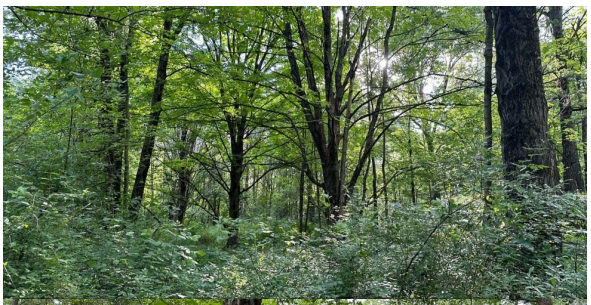
STAND 1

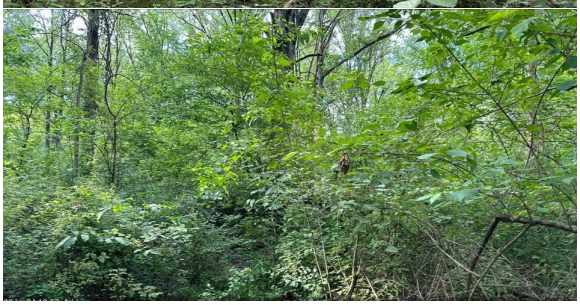
Point 8

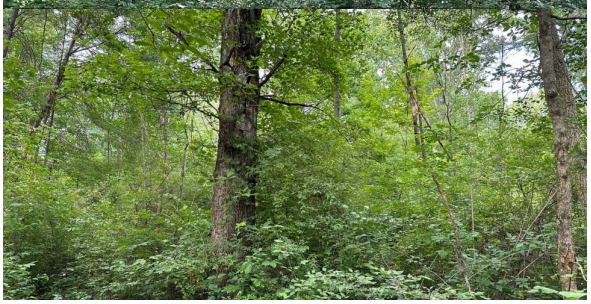
Point 9

Point 12

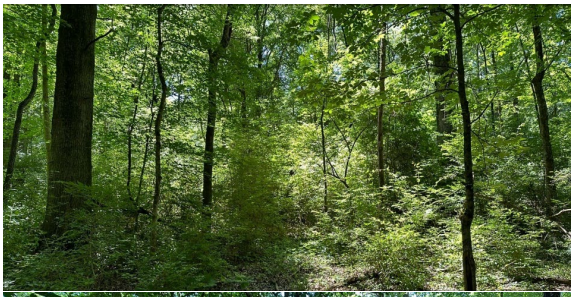


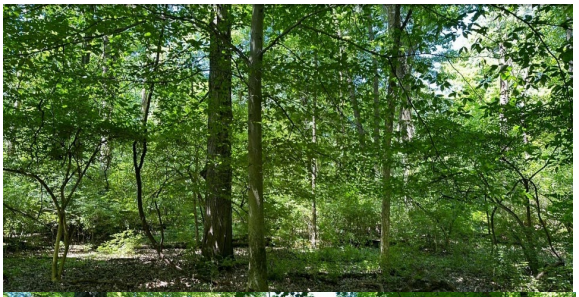


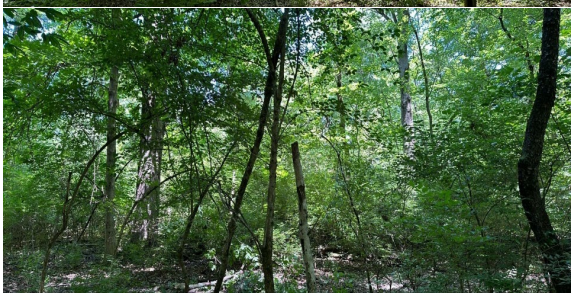


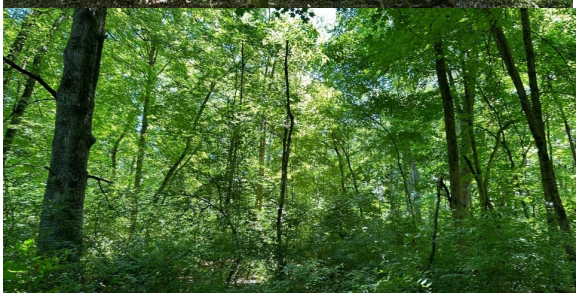


Point 18



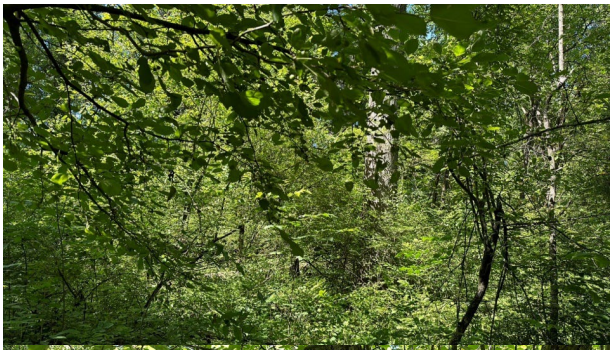


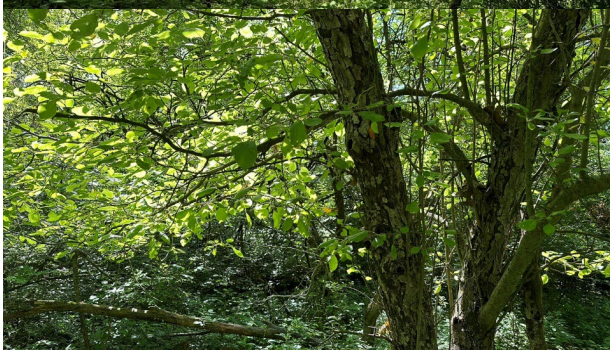




STAND 2
Point 13

STAND 3
Point 23





STAND 4
Point 17

STAND 5
Point 16

Exhibit B – Forest Walk Route Map

Placeholder, Full-page PDF inserted later

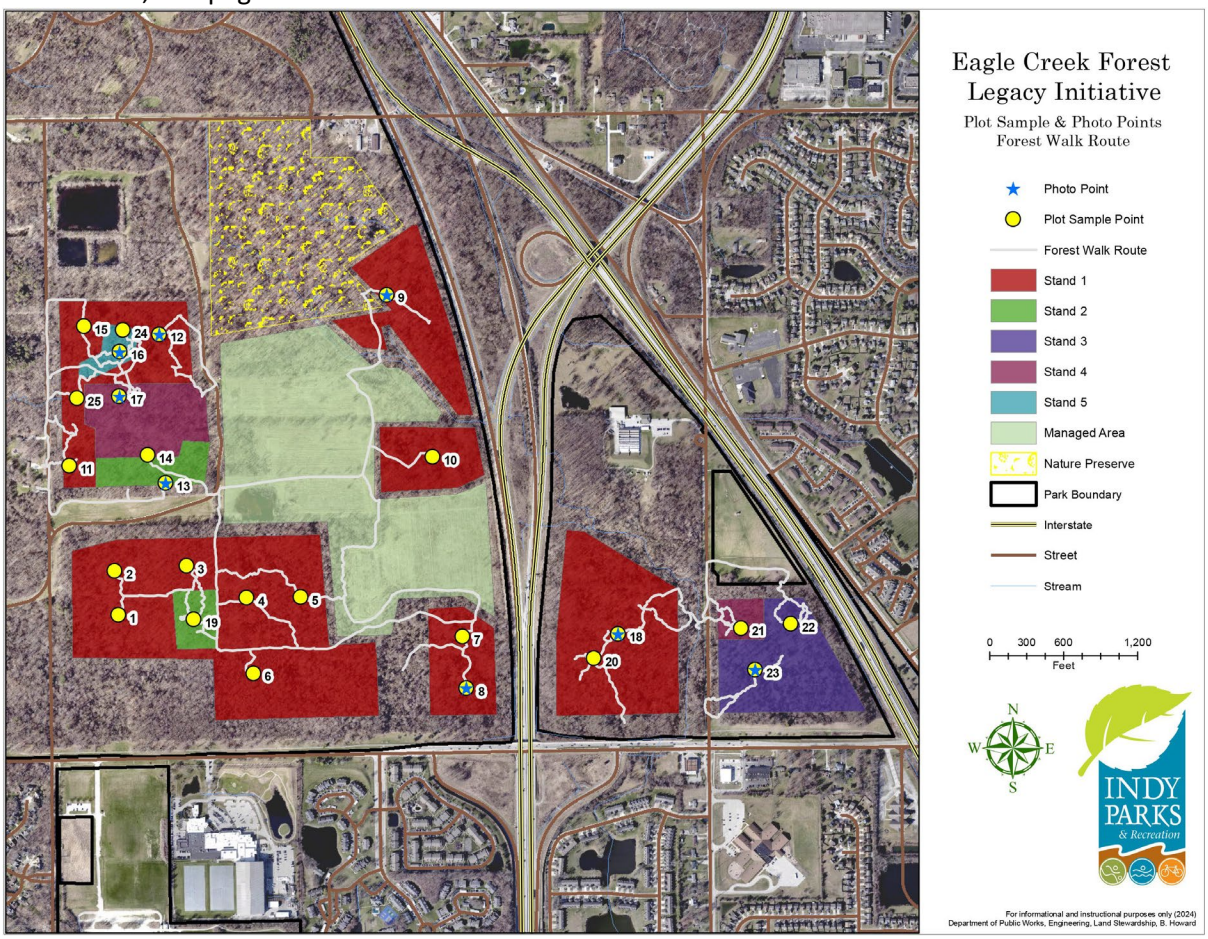


Exhibit C – Forest Stand Map

Placeholder, Full-page PDF inserted later

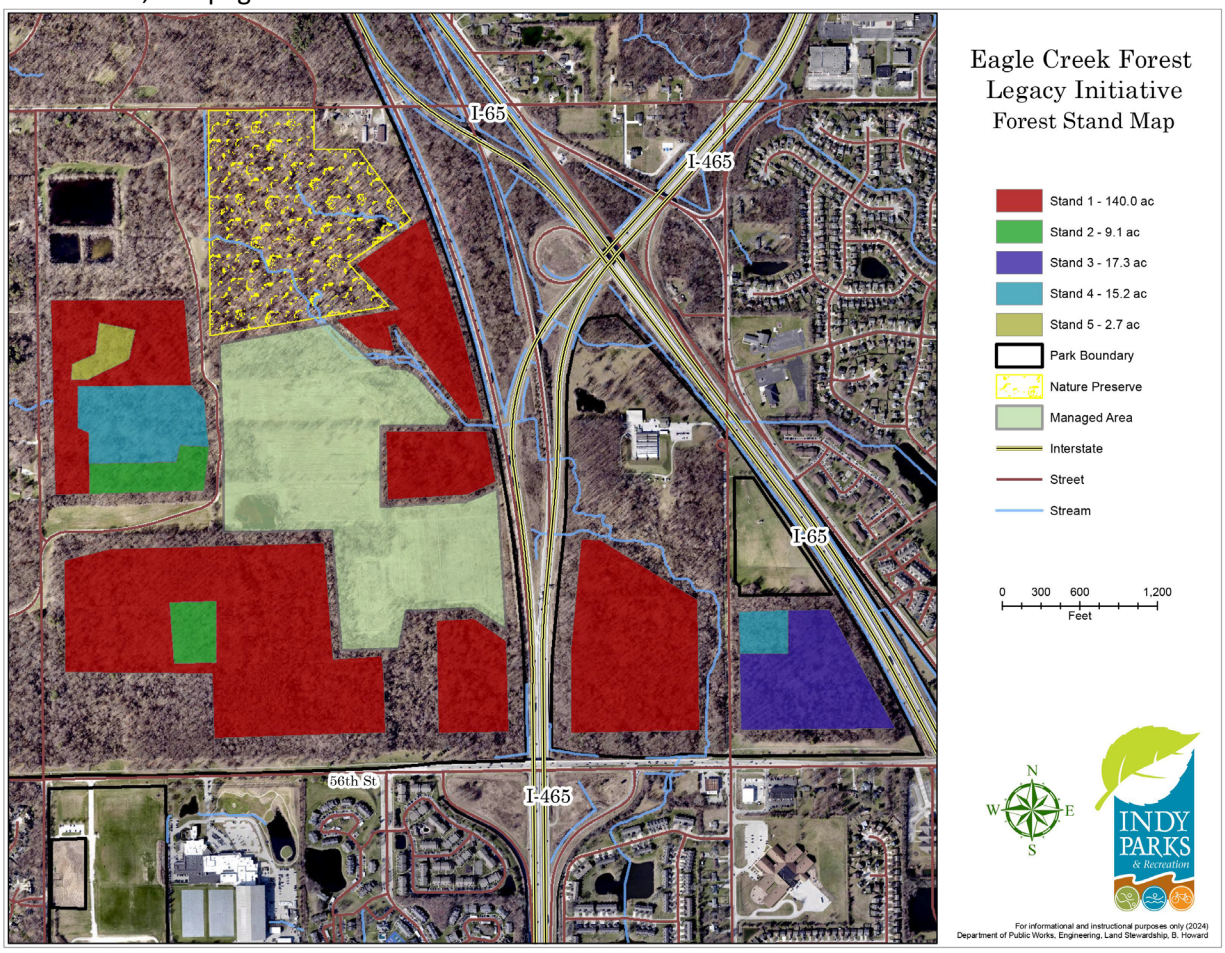
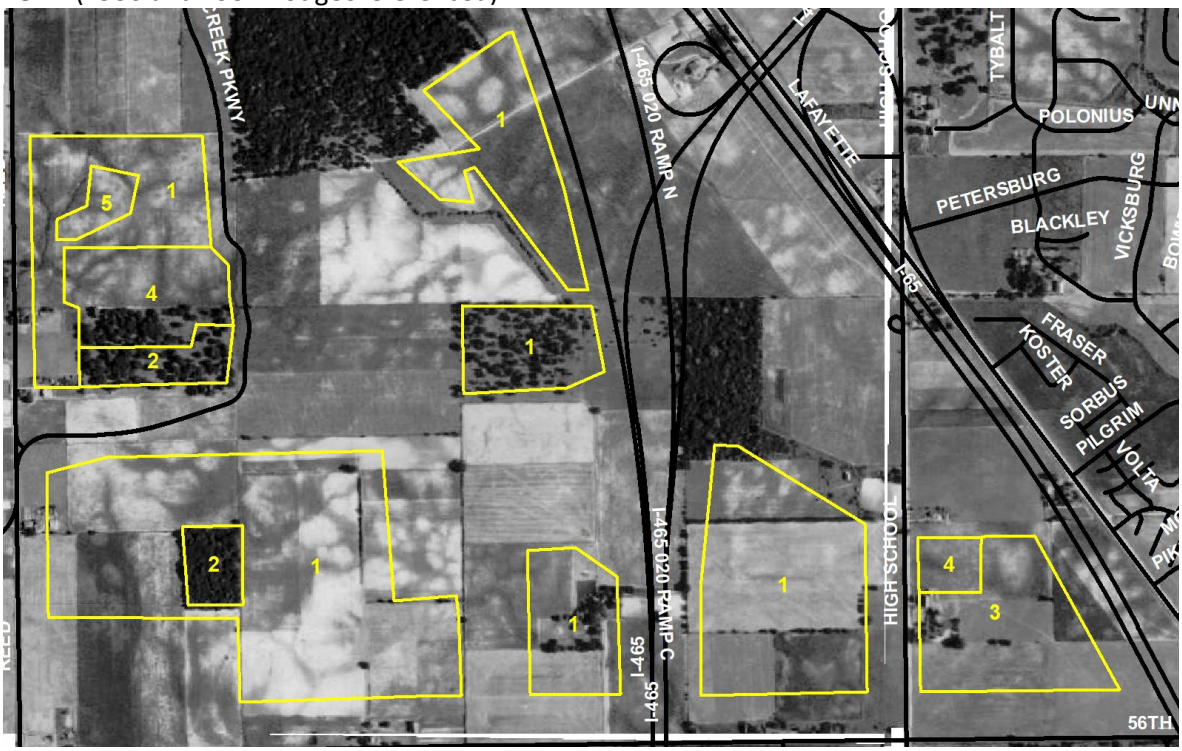


Exhibit D – Forest Age Supporting Documentation

Stand #	Stand 1	Stand 2	Stand 3	Stand 4	Stand 5
Stand age (years)	45	85	35	25	45
Acres	140	9.1	17.3	15.2	2.7

1941 (1936 and 1937 not georeferenced)



1956


EAGLE CREEK PKWY
REED
REED
I-465 020 RAMP C
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP C
I-65
LAFAYETTE
HIGH SCHOOL
HIGH SCHOOL
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
VICKSBURG
FRASER
KOSTER
SORBUS
PILGRIM
VOLTA
BASTILLE
PIKE
I-465
56TH
1
2
3
4
5

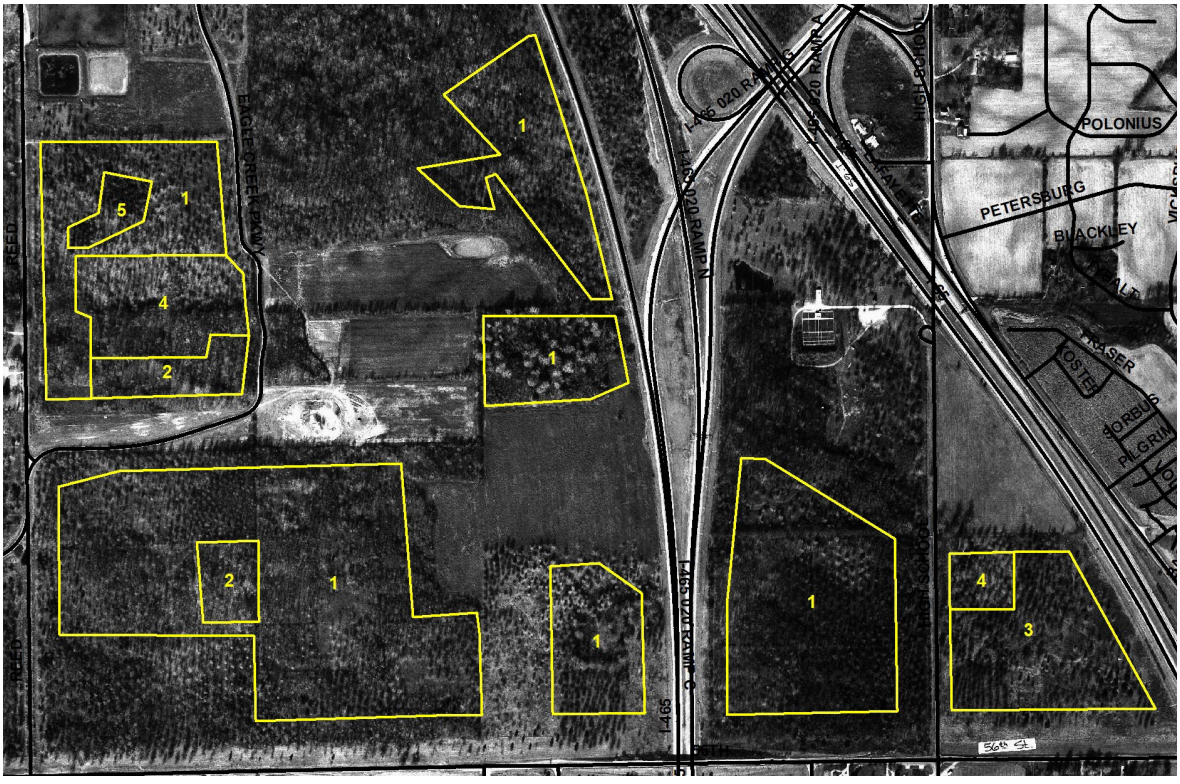
1966


EAGLE CREEK PKWY
REED
REED
I-465 020 RAMP C
I-465 020 RAMP N
I-465 020 RAMP C
I-65
LAFAYETTE
HIGH SCHOOL
HIGH SCHOOL
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
KOSTER
SORBUS
PILGRIM
I-465
56TH
1
2
3
4
5

1978


1
5
1
4
2
1
2
1
1
1
4
3
POLONIUS
PETERSBURG
BLACKLEY
FRASER
KOSTER
ORBUS
PILGRIM
I-465 020 RAMP N
I-465 020 RAMP A
I-465 020 RAMP C
I-465
56TH

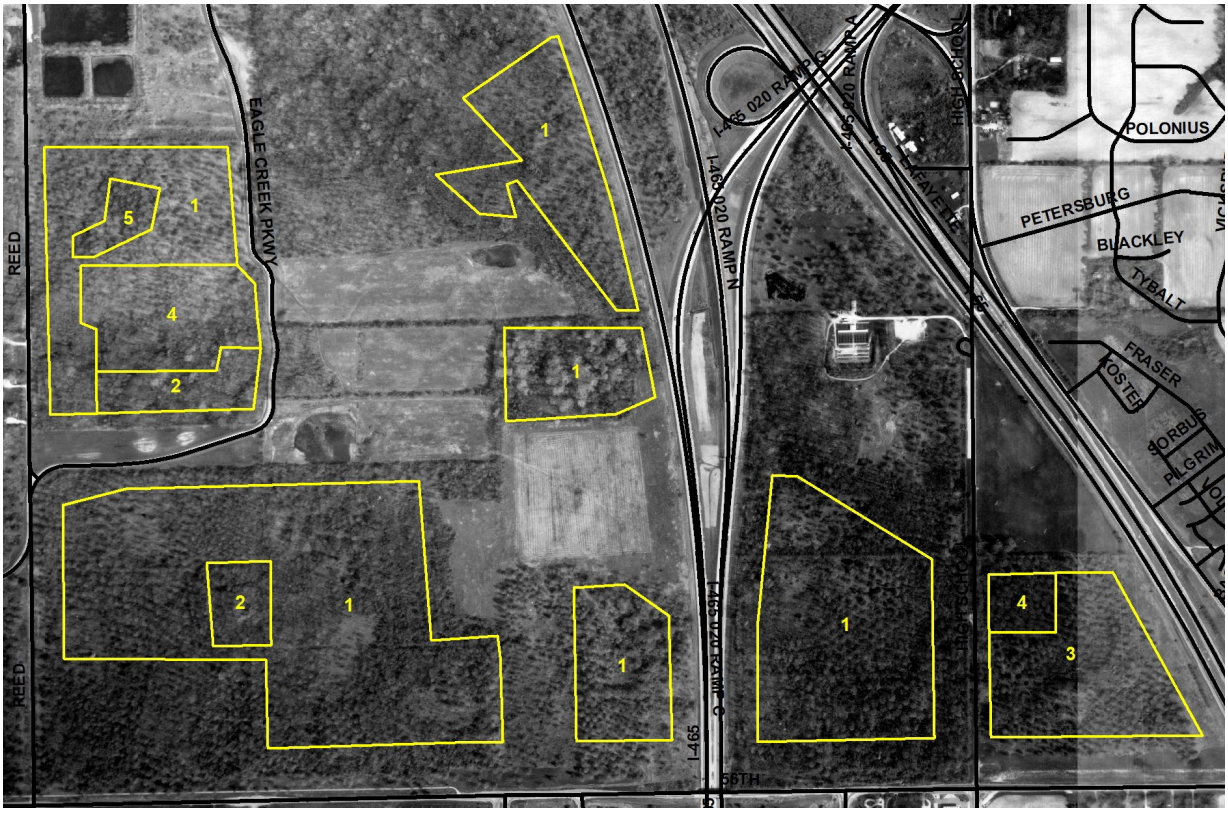
1979


1
5
1
4
2
1
2
1
1
1
4
3
POLONIUS
PETERSBURG
BLACKLEY
FRASER
KOSTER
ORBUS
PILGRIM
I-465 020 RAMP N
I-465 020 RAMP A
I-465 020 RAMP C
I-465
56th St

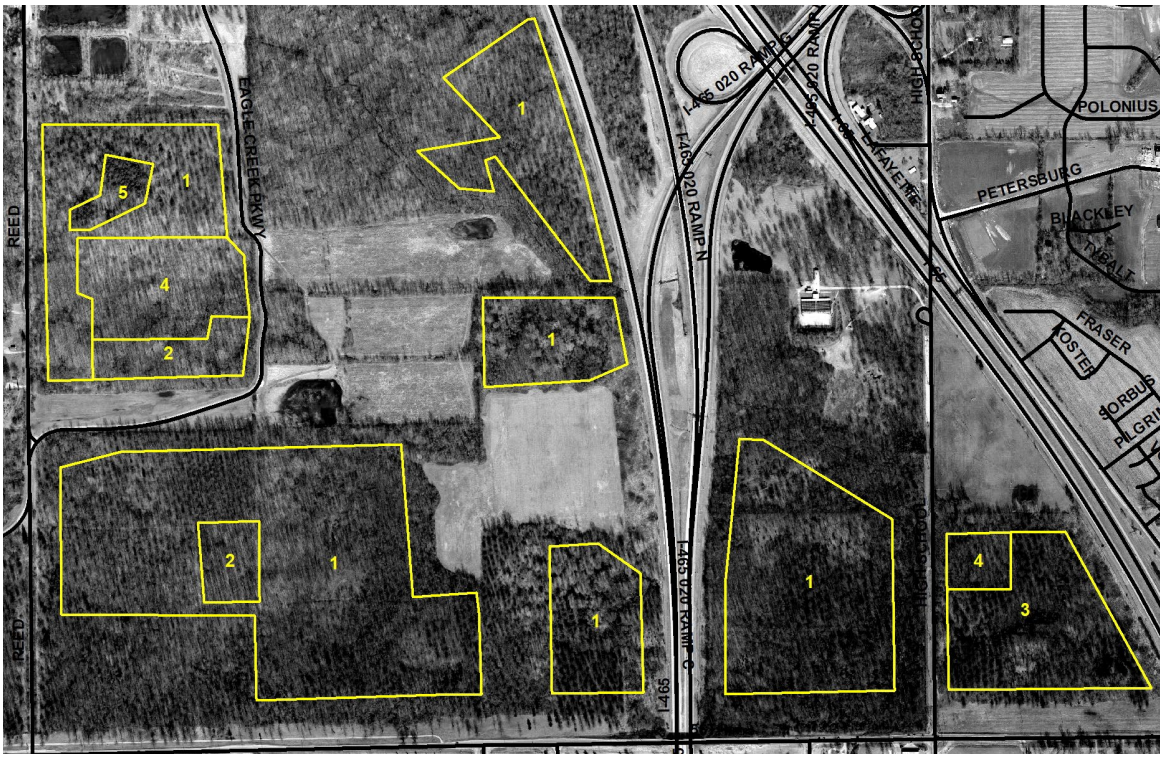
1985


REED
EAGLE CREEK PKWY
I-465 020 RAMP G
I-465 020 RAMP N
I-465 020 RAMP C
I-465
HIGH SCHOOL
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
FOSTER
PILGRIM
1
2
3
4
5

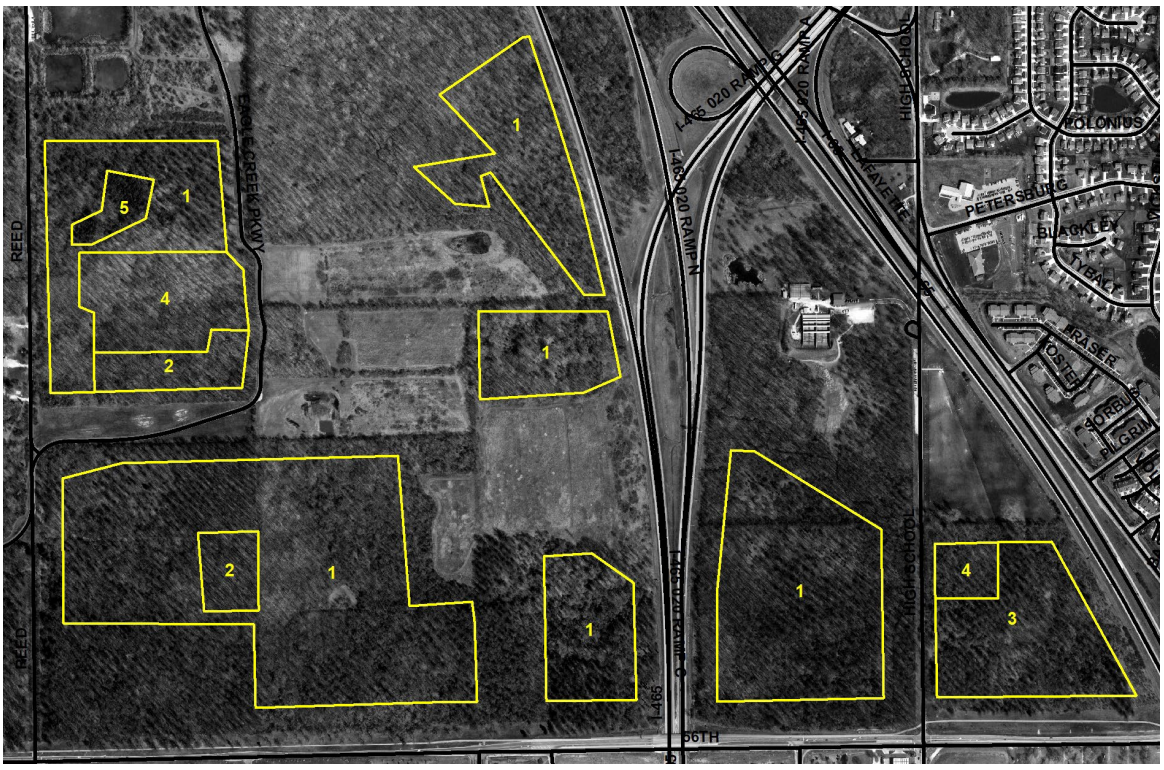
1990


REED
EAGLE CREEK PKWY
I-465 020 RAMP G
I-465 020 RAMP N
I-465 020 RAMP C
I-465
HIGH SCHOOL
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
FOSTER
PILGRIM
66TH
1
2
3
4
5

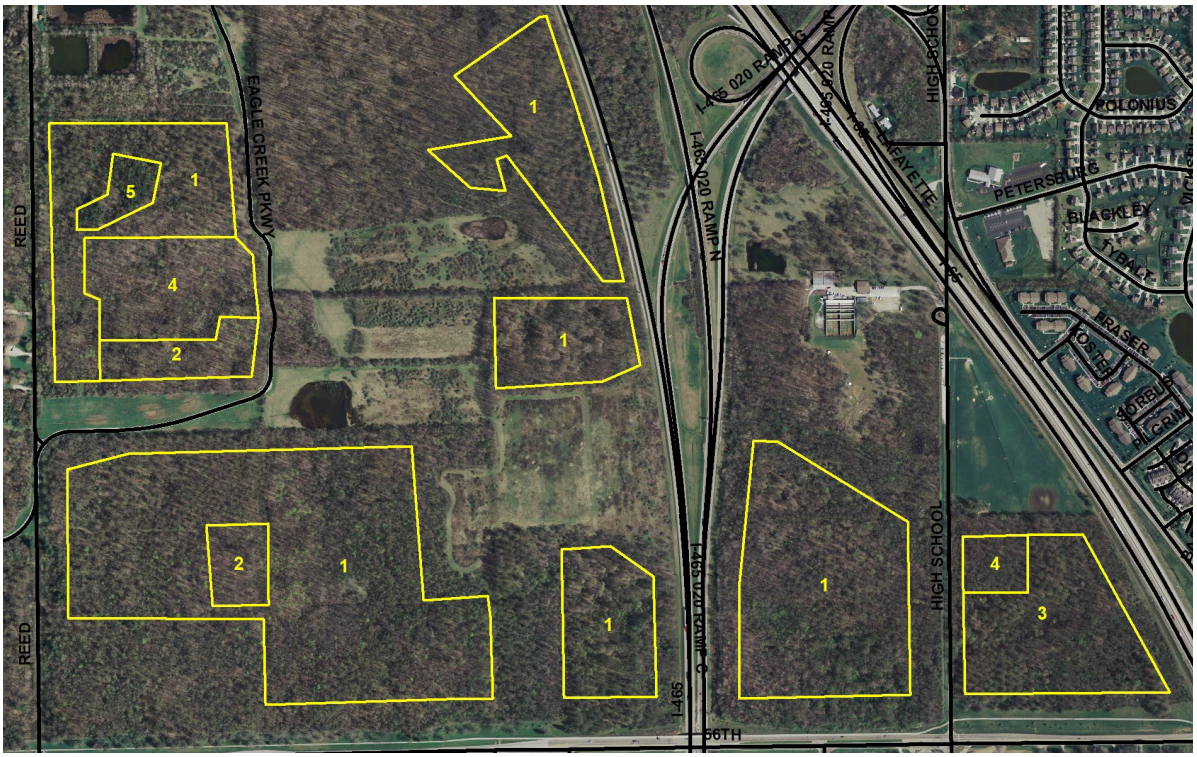
1993


REED
EAGLE CREEK PKWY
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP E
E LAFAYETTE
HIGH SCHOOL
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
FOSTER
ORBURN
PILGRIM
I-465
1
2
3
4
5

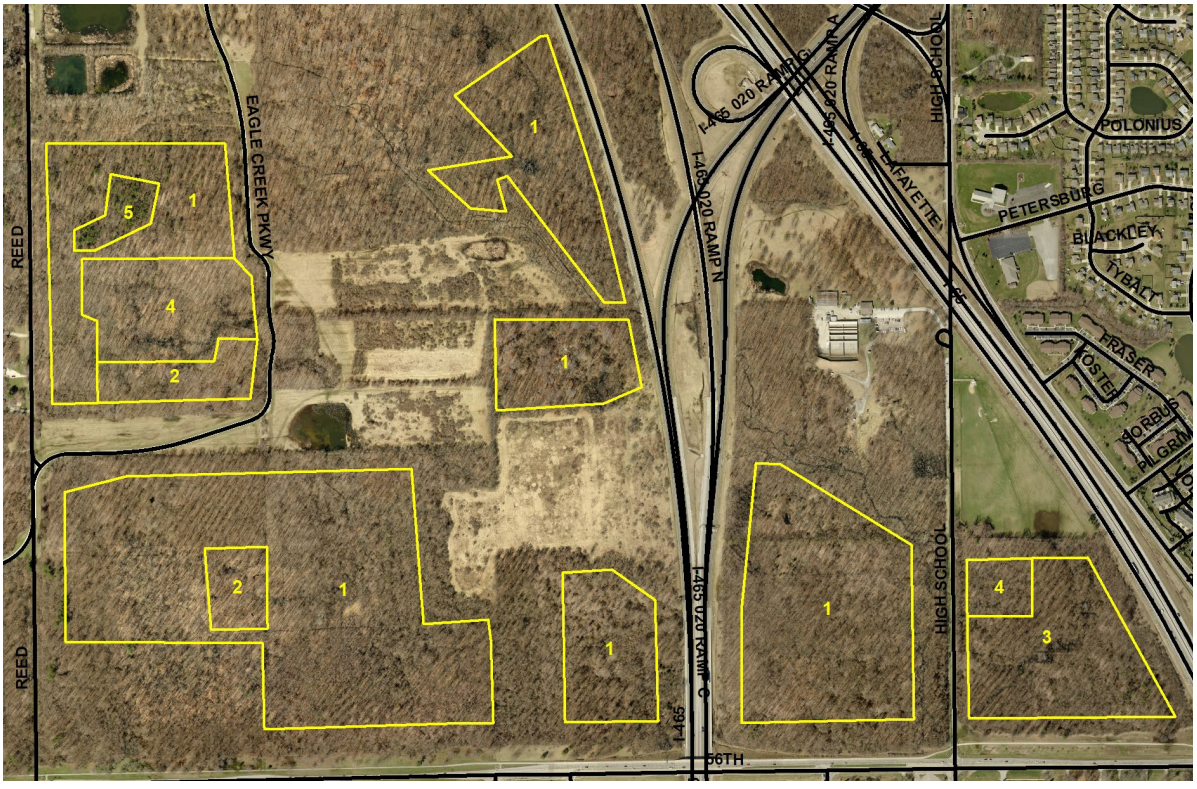
2000


REED
EAGLE CREEK PKWY
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP E
E LAFAYETTE
HIGH SCHOOL
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
FOSTER
ORBURN
PILGRIM
56TH
I-465
1
2
3
4
5

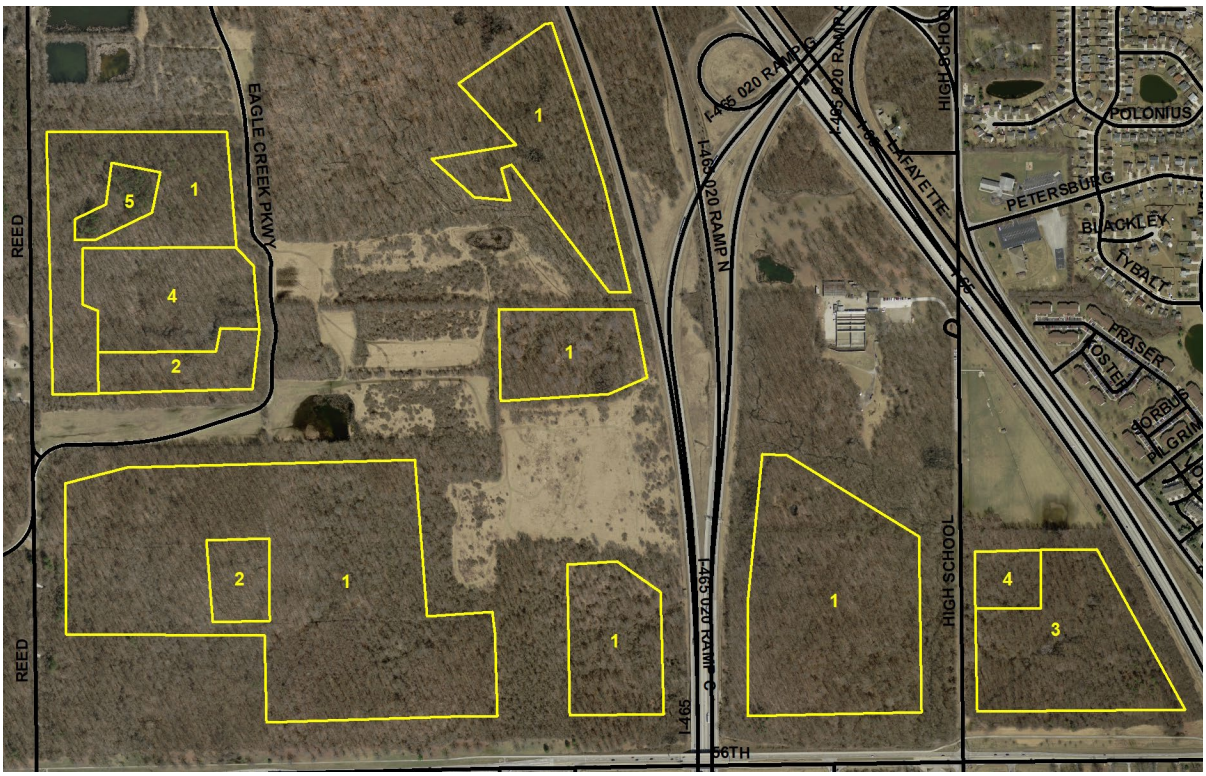
2005


EAGLE CREEK PKWY
REED
REED
I-465 020 RAMP G
I-465 020 RAMP N
I-465 020 RAMP C
I-465
56TH
HIGH SCHOOL
HIGH SCHOOL
LAFAYETTE
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
OSTER
NORBUR
PILGRIM
1
2
3
4
5

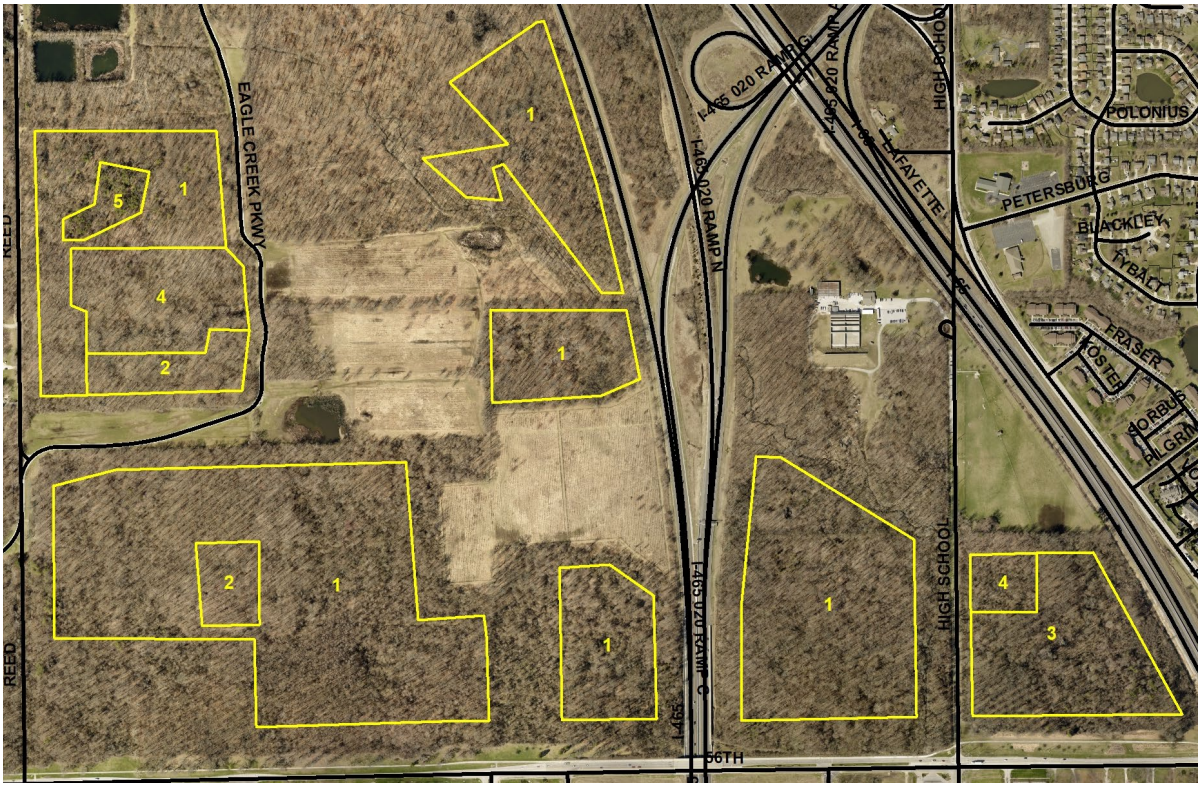
2010


EAGLE CREEK PKWY
REED
REED
I-465 020 RAMP G
I-465 020 RAMP A
I-465 020 RAMP N
I-465 020 RAMP C
I-465
56TH
HIGH SCHOOL
HIGH SCHOOL
LAFAYETTE
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
OSTER
NORBUR
PILGRIM
1
2
3
4
5

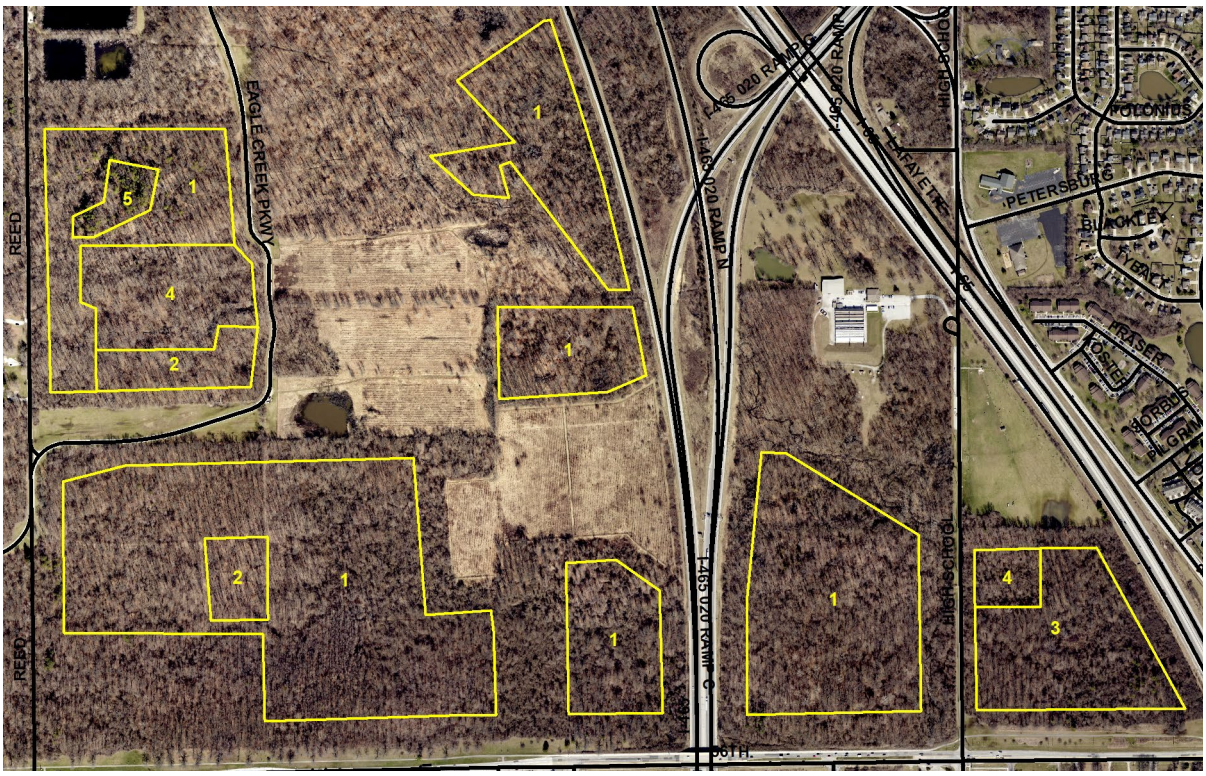
2015


EAGLE CREEK PKWY
REED
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP G
I-465 020 RAMP F
HIGH SCHOOL
LAFAYETTE
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
OSTER
ORBUS
PILGRIM
56TH
I-465
1
2
3
4
5

2020


EAGLE CREEK PKWY
REED
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP G
I-465 020 RAMP F
HIGH SCHOOL
LAFAYETTE
POLONIUS
PETERSBURG
BLACKLEY
TYBALT
FRASER
OSTER
ORBUS
PILGRIM
56TH
I-465
1
2
3
4
5

2023


EAGLE CREEK PKWY
REED
REED
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP G
I-465 020 RAMP
HIGH SCHOOL
LAFAYETTE
86TH
POLONIUS
PETERSBURG
BUCKLEY
FRASER
ORBUS
PILGRIM
1
2
3
4
5

2024

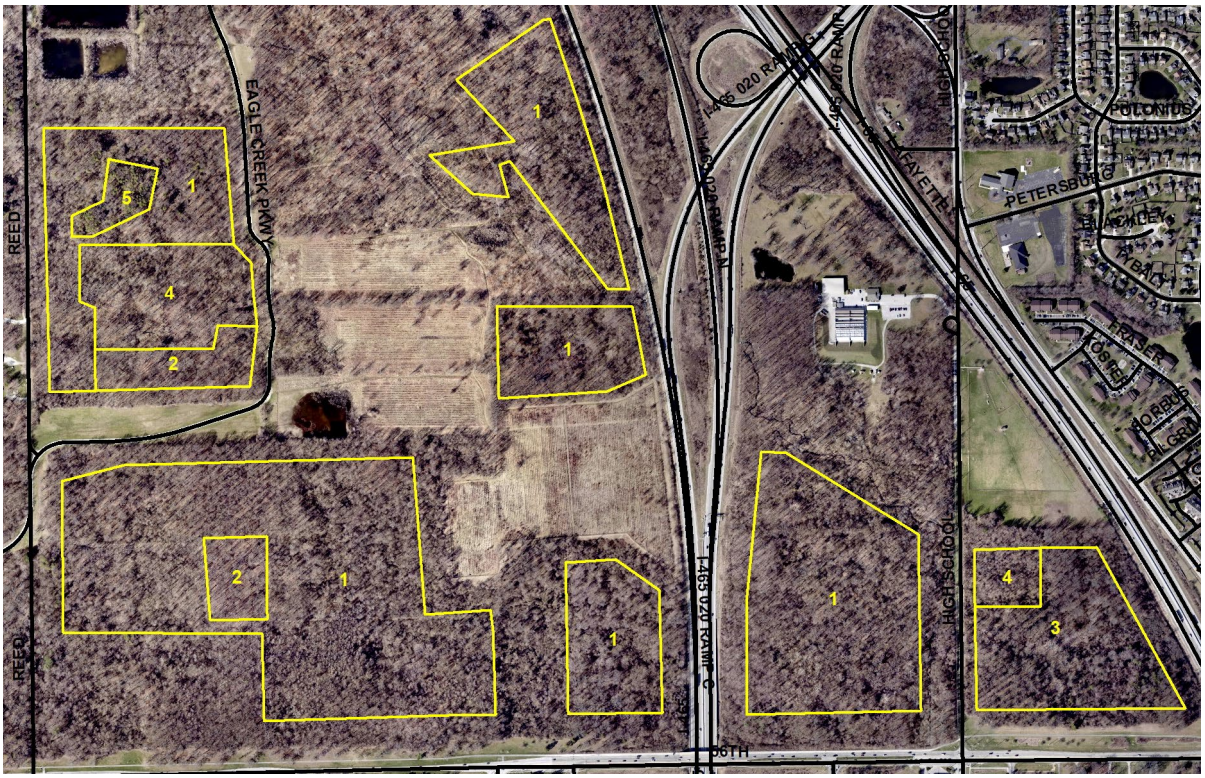

EAGLE CREEK PKWY
REED
REED
I-465 020 RAMP N
I-465 020 RAMP C
I-465 020 RAMP G
I-465 020 RAMP
HIGH SCHOOL
LAFAYETTE
86TH
POLONIUS
PETERSBURG
BUCKLEY
FRASER
ORBUS
PILGRIM
1
2
3
4
5

Exhibit E – Supporting Documentation for Comparable Basal Area

The US Forest Service EVALIDator tool allows users to produce population estimates of key forest metrics based on the current Forest Inventory Analysis database.

To understand the average basal area of maple beech birch and oak hickory forests of comparable age in Indiana, the following parameters were entered into EVALIDator 2.1.1:

- Numerator:
    - 1004 - Basal area of live trees (at least 1 inch dbh) in square feet, on forestland
    - 1005 Basal area of growing-stock trees (at least 5 inches dbh.), in square feet, on forest land
- Denominator: 2- Area of forestland, in acres (Use FIA definition of forest land)
- Dataset: 182021N Indiana 2015; 2016; 2017; 2018; 2019; 2020; 2021
- Page Variable: Forest Type Group
- Row variable: stand age 5 yr classes
- Filtering clause: None

The Basal area per acre (a measure of stand density) for the Project Area is comparable to that for similarly aged forests and forest types in Indiana, given that trees of about 4" DBH were sampled for the property.

Table 1. Maple Beech Birch Basal Area FIA data

	asa a s per Acre	
Age Class	FIA data (1" DBH)	FIA data (5" DBH)
41-45 years	72.6810	43.6320
46-50 years	107.6022	74.7907
51-55 years	116.9409	98.5431
Stand 1 (45 years)	**102.97**	

Table 2. Maple Beech Birch Basal Area FIA data

	asa a s	
Age Class	FIA data (1" DBH)	FIA data (5" DBH)
71-75 years	120.9002	100.4271
76-80 years	121.4960	94.4057
81-85 years	105.3567	92.0349
Stand 2 (82 years)	**182.08**	

Table 3. Oak Hickory Basal Area FIA data

	asa a s	
Age Class	FIA data (1” DBH)	FIA data (5” DBH)
21-25 years	70.1521	36.8214
26-30 years	91.1083	54.5750
31-35 years	113.8296	66.5869
Stand 3 (30 years)	**93.66**	

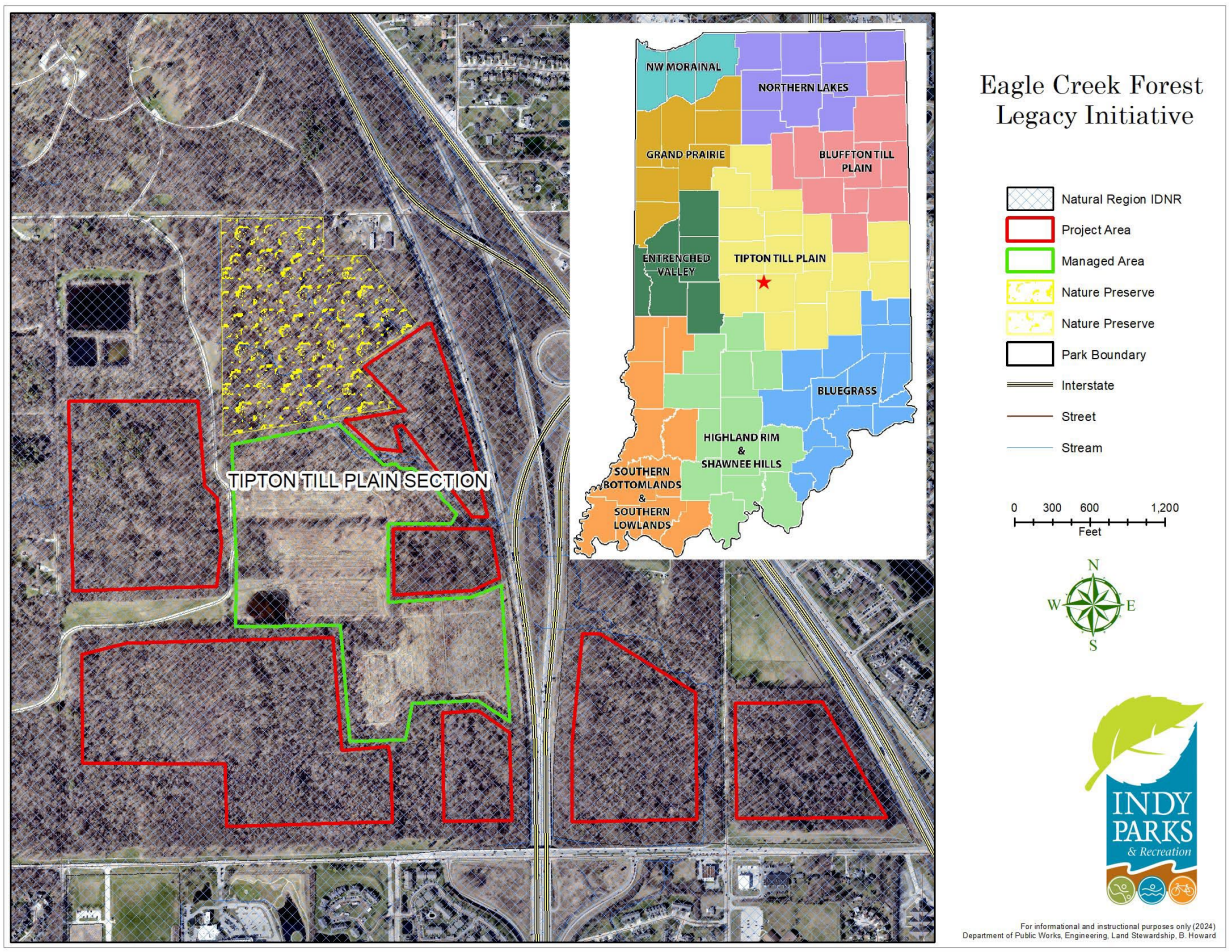
Table 4. Maple Beech Birch Basal Area FIA data

	asa a s	
Age Class	FIA data (1” DBH)	FIA data (5” DBH)
21-25 years	10.5175	4.5830
26-30 years	68.7936	57.9647
Stand 4 (23 years)	**68.09**	

Table 5. Oak Pine Basal Area FIA data

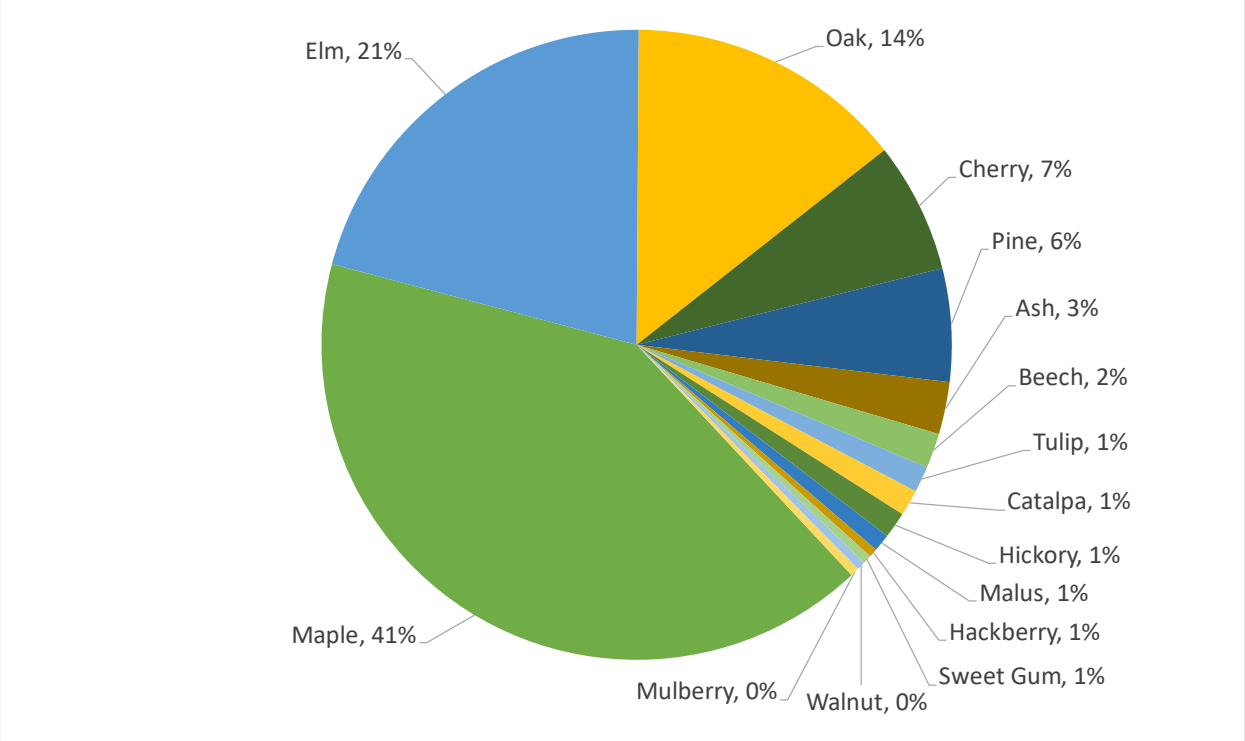
	asa a s	
Age Class	FIA data (1” DBH)	FIA data (5” DBH)
36-40 years	71.0839	47.2233
41-45 years	119.8275	109.2645
46-50 years	113.3533	72.2241
Stand 5 (45 years)	**110.52**	

Addendum 1

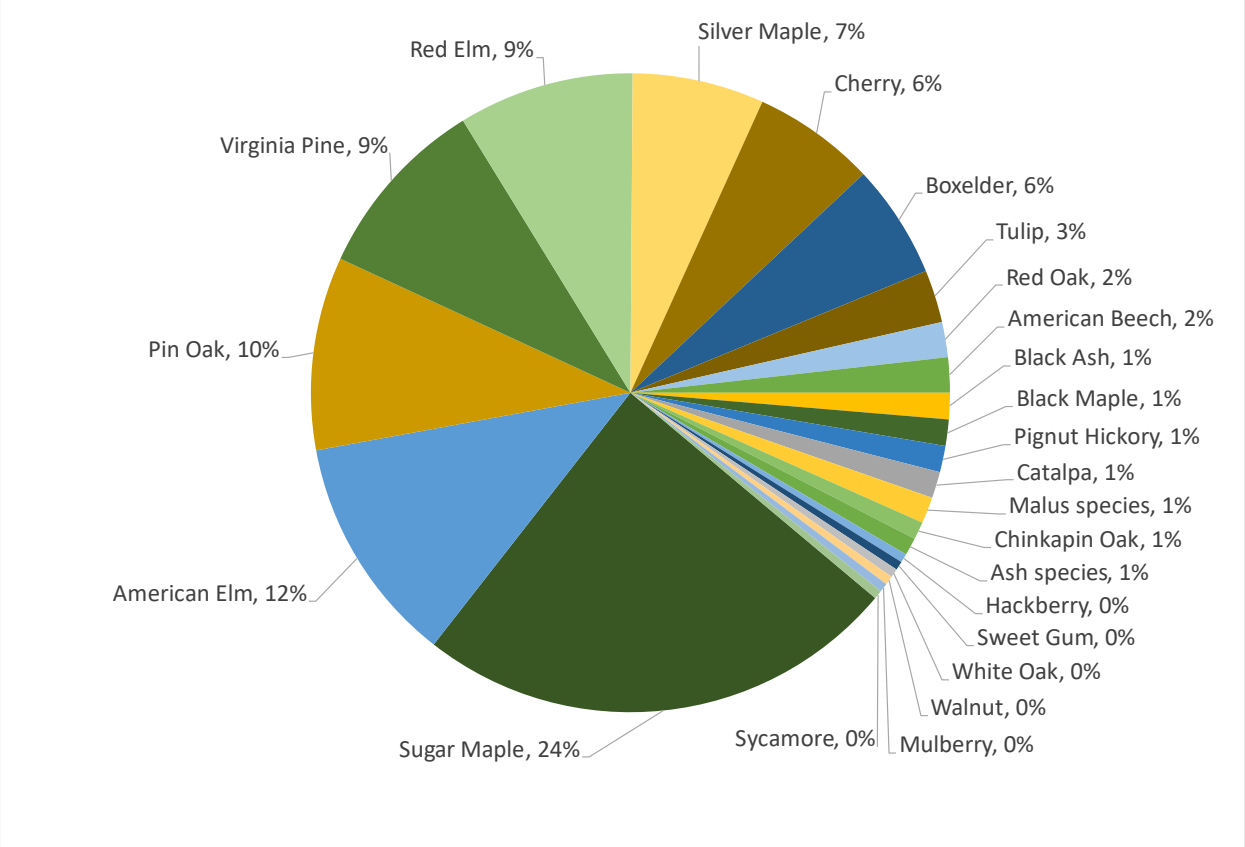

TIPTON TILL PLAIN SECTION
NW MORAINAL
NORTHERN LAKES
GRAND PRAIRIE
BLUFFTON TILL PLAIN
ENTRENCHED VALLEY
TIPTON TILL PLAIN
BLUEGRASS
HIGHLAND RIM & SHAWNEE HILLS
SOUTHERN BOTTOMLANDS & SOUTHERN LOWLANDS
Eagle Creek Forest Legacy Initiative
Natural Region IDNR
Project Area
Managed Area
Nature Preserve
Nature Preserve
Park Boundary
Interstate
Street
Stream
0 300 600 1,200
Feet
N
W
E
S
INDY PARKS & Recreation
For informational and instructional purposes only (2024)
Department of Public Works, Engineering, Land Stewardship, B. Howard

Addendum 2

Genus/Species Breakout - All Stands



Species Breakout - All Stands



Cobenefit Calculator

Light yellow background denotes an input cell ->

Directions
1) Use i-Tree Canopy, or another tool, to estimate the amount of deciduous and coniferous tree cover area (acres) (Cell C20 and D20).
2) Use i-Tree Canopy, or another tool, to estimate the amount of non-tree cover area (acres) (Cell F20) in the project area.
3) In Cell G20 the total area of the project is calculated (acres). Prompt i-Tree Canopy to provide an estimate of the project area by clicking on the gear icon next to the upper right portion of the image and selecting ”Report By Area.”
4) Total Project Area, cell G17 should equal 100%.

Table 1. Tree Cover

	Deciduous Tree Cover	Coniferous Tree Cover	Total Tree Cover	Non-Tree	Total Project Area
Percent (%)	91%	1%	92%	8%	100%
Area (sq miles)	0.262	0.004	0.265	0.023	0.29
Area (m2)	677,439	9,712	687,151	58,679	745,830
Area (acres)	167.4	2.4	169.80	14.5	184.30

	Acreage	Canopy Cover	acres of canopy	coniferous
Stand 1	140	93%	130.2	
Stand 2	9.1	87%	7.917	
Stand 3	17.3	91%	15.743	
Stand 4	15.2	89%	13.528	
Stand 5	2.7	90%	2.43	yes

total deciduous	167.388
total coniferous	2.43
total non-tree	14.582

Using the information you provide on tree canopy cover, the tool provides estimates of co-benefits in Resource Units and $ per year.

Table 2. Co-Benefits per year with current tree canopy cover.

Ecosystem Services	Resource Units Totals	Total $
Rain Interception (m3/yr)	39,953.6	$65,445.86
Air Quality (t/yr)		
O3	0.7743	$288.00
NOx	0.1557	$57.89
PM10	0.3249	$145.92
Net VOCs	-0.1101	-$14.99
Air Quality Total	1.1448	$476.82
Energy (kWh/yr & kBtu/yr)		
Cooling - Elec.	46,372	$3,153.29
Heating - Nat. Gas	66,674	$644.42
Energy Total ($/yr)		$3,797.71
Grand Total ($/yr)		$69,720.39

Social Impacts

City Forest Carbon Project
Social Impacts

UN Sustainable Development Goals

The 17 United Nations Sustainable Development Goals (SDGs) are an urgent call for action and global partnership among all countries, representing key benchmarks for creating a better world and environment for everyone. Well-designed and managed urban forests make significant contributions to the environmental sustainability, economic viability and livability of cities. They help mitigate climate change and natural disasters, reduce energy costs, poverty and malnutrition, and provide ecosystem services and public benefits. See more details in the CFC Carbon Project Social Impact Reference Guide.

Instructions

This template sets out all relevant SDGs and lists various urban forest project activities that fall within each SDG. Evaluate the SDGs to determine how your carbon project provides social impacts that may contribute towards achievement of the global goals. Check the box(es) that contain one of your project activities and describe in no fewer than two sentences how your project activities align with the corresponding SDG. On page 12, select the icon for three to five of the most relevant SDGs to your project and provide any additional information.

SDG 3 - Good Health and Well Being

Goal: Ensure healthy lives and promote well-being for all at all ages.

Examples of project activities include, but are not limited to:

- ☒ Plant or protect trees to reduce or remove air pollutants
- ☐ If planting trees, select trees for reduced pollen counts and irritant production
- ☒ Plant or protect trees to create shade, provide UV exposure protection, reduce extreme heat negative effects, and/or reduce temperatures to relieve urban heat effects
- ☐ Design project to buffer sounds, optimize biodiversity, or create nature experiences
- ☐ Locate project near vulnerable populations, such as children or elderly
- ☐ Locate project near high volume roads to screen pollutants
- ☐ Locate project near people to encourage recreation, provide new parks or green space, or otherwise promote an active lifestyle
- ☐ Locate project near schools, elderly facilities, or mental health services to promote nature-based wellness, attention restoration, or other mental well-being
- ☐ Locate project in area with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or area with high proportion of renters
- ☐ Reduce stormwater runoff or improve infiltration rates
- ☐ Design project to reduce human exposure to specific pollutants or toxins
- ☐ Other

Protecting the trees within our project area enhances environmental quality by acting as natural filters and using shade to shield park goers from UV exposure and negative heat effects. Parks also contribute significantly to human health by offering accessible green spaces that promote physical activity, relaxation, and social interaction.

SDG 6 - Clean Water and Sanitation

Goal: Ensure availability and sustainable management of water and sanitation for all

Examples of project activities include, but are not limited to:

- ☐ Research and assess environmental injustices related to water in project area
- ☐ Locate project near high-traffic roads or to otherwise improve, mitigate, or remediate toxic landscapes near water
- ☐ Protect or plant trees to improve historically or culturally important sites related to water that have been degraded and/or neglected
- ☒ Reduce stormwater by planting or protecting trees
- ☐ Plant forested buffers adjacent to streams, rivers, wetlands, or floodplains
- ☐ Prevent soil erosion by protect steep slopes
- ☐ Improve infiltration rates
- ☐ Improve, mitigate, or remediate toxic landscapes and human exposure to risk
- ☐ Drought resistance, such as selecting appropriate water-efficient trees for project climate zone
- ☐ Other

Forests act as natural buffers, absorbing rainwater and potentially reducing the volume of runoff into Eagle Creek Reservoir. Protecting the forested project area adjacent to the reservoir will help mitigate stormwater runoff, reduce flooding, and ensure safe water, as the reservoir is a drinking source for many residences in Indianapolis.

SDG 8 - Decent Work and Economic Growth

Goal: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Examples of project activities include, but are not limited to:

- ☐ Community participation in project implementation, including such things as providing access to financial resources for ongoing community-based care
- ☐ Emphasize local hiring and support small businesses
- ☐ Promote local economic opportunities through workforce training, career pathway development, or other employment
- ☐ Other

SDG 10 - Reduced Inequalities

Goal: Reduce inequalities within and among countries

Examples of project activities include, but are not limited to:

- ☐ Provide connections and cohesion for social health, such as create or reinforce places that promote informal interactions, engage local residents and users in tree management, include symbolic or cultural elements, or other events
- ☐ Research, understand, and design to address understand historic and current sociocultural inequities, community health conditions, environmental injustices, or prior local greening efforts in community
- ☐ Locate project near vulnerable populations, such as children or elderly, to provide air quality improvements or buffer against extreme heat effects
- ☐ Locate project in high-density residential areas or where there is a lack of trees to improve access and promote an active lifestyle
- ☐ Locate project near schools, elderly facilities, or mental health services to promote nature-based wellness, attention restoration, or other mental well-being
- ☐ Locate project in area with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or area with high proportion of renters
- ☐ Locate project near high-traffic roads or to otherwise improve, mitigate, or remediate toxic landscapes
- ☐ Protect or plant trees to improve historically or culturally important sites that have been degraded and/or neglected
- ☐ Community engagement in project design, including such things as engaging and respecting existing relationships and social networks, community cultural traditions, and public participation methods that are empowering and inclusive
- ☐ Community participation in project implementation, including such things as addressing and removing barriers to participation, promote ongoing community-based care and access to financial resources
- ☐ Emphasize local hiring and support small businesses
- ☐ Research and consider potential for gentrification and displacements
- ☐ Promote local economic opportunities through workforce training, career pathway development, or other employment
- ☐ Other

SDG 11 - Sustainable Cities and Communities

Overall: Make cities inclusive, safe, resilient, and sustainable.

Examples of project activities include, but are not limited to:

- ☐ Plant or protect trees to reduce or remove air pollutants
- ☐ If planting trees, select trees for reduced pollen counts and irritant production
- ☐ Locate project near high volume roads to screen pollutants
- ☐ Locate project near vulnerable populations, such as children or elderly
- ☐ Plant or protect trees to create shade, provide UV exposure protection, reduce extreme heat negative effects, and/or reduce temperatures to relieve urban heat effects
- ☐ Locate project near people to encourage recreation, provide new parks or green space, or otherwise promote an active lifestyle
- ☐ Design project to improve wellness and mental health, such as planting trees to buffer sounds, optimize biodiversity, optimize views from buildings, or create nature experiences
- ☐ Locate project near schools, elderly facilities, or mental health services to promote nature-based wellness, attention restoration, or other mental well-being
- ☐ Provide connections and cohesion for social health, such as create or reinforce places that promote informal interactions, engage local residents and users in tree management, include symbolic or cultural elements, or other events
- ☐ Research, understand, and design to address understand historic and current sociocultural inequities, community health conditions, environmental injustices, or prior local greening efforts in community
- ☐ Locate project in area with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or area with high proportion of renters
- ☐ Community engagement in project design, including such things as engaging and respecting existing relationships and social networks, community cultural traditions, and public participation methods that are empowering and inclusive
- ☐ Community participation in project implementation, including such things as addressing and removing barriers to participation, promote ongoing community-based care and access to financial resources
- ☐ Other

SDG 12 - Responsible Production and Consumption

Goal: Ensure sustainable consumption and production patterns

Examples of project activities include, but are not limited to:

- ☐ Plant or protect trees to create shade or reduce temperatures to relieve urban heat effects
- ☐ Provide cooling benefits and energy savings by shading impervious surfaces such as streets or parking lots, or planting trees on south and west sides of buildings
- ☐ Other

SDG 13 - Climate Action

Goal: Take urgent action to combat climate change and its impacts.

Examples of project activities include, but are not limited to:

- ☒ Plant or protect trees to reduce or remove air pollutants
- ☒ Plant or protect trees to create shade or reduce temperatures to relieve urban heat effects
- ☒ Promote community capacity for social and climate resilience by engaging local residents or users in tree management, or other events to connect people to the project
- ☐ Reflect cultural traditions and inclusive engagement for climate resilience
- ☐ Design project to improve soil health
- ☐ Provide cooling benefits and energy savings by shading impervious surfaces such as streets or parking lots, or planting trees on south and west sides of buildings
- ☐ Plant or protect trees to reduce stormwater runoff
- ☐ Select water-efficient trees for climate zone and drought resistance
- ☐ Create and/or enhance wildlife habitat
- ☐ Other

Protecting existing trees enhances air quality and creates vital shade that reduces urban heat island effects. The Office of Land Stewardship engages Indianapolis residents in volunteer efforts to remove invasive plant species from the park during workday events. Results help improve the forests' resiliency to the effects of climate change.

SDG 14 - Life Below Water

Goal: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Examples of project activities located in areas with marine ecosystems include, but are not limited to:

- ☐ Locate project near high-traffic roads or to otherwise improve, mitigate, or remediate toxic landscapes near water
- ☐ Plant or protect trees in project areas to reduce stormwater runoff
- ☐ Plant forested buffers adjacent to streams, rivers, wetlands, or floodplains
- ☐ Prevent soil erosion into by protecting steep slopes
- ☐ Improve infiltration rates
- ☐ Improve, mitigate, or remediate toxic landscapes and human exposure to risk
- ☐ Drought resistance, such as selecting appropriate water-efficient trees for project climate zone
- ☐ Enhance wildlife habitat, such as riparian habitat for fish, birds, and other animals
- ☐ Other

SDG 15 - Life on Land

Goal: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Examples of project activities include, but are not limited to the following with increased functionality of green infrastructure:

- ☐ Plant or protect trees to reduce stormwater runoff
- ☐ Select water-efficient trees for climate zone and drought resistance
- ☒ Create and/or enhance wildlife habitat to improve local biodiversity
- ☐ Plant forested buffers adjacent to streams, rivers, wetlands, or floodplains
- ☐ Prevent soil erosion by protect steep slopes
- ☐ Improve infiltration rates
- ☐ Other

The Office of Land Stewardship works with restoration specialists and volunteers to remove invasives species and replant native species, thus promoting local biodiversity while sustainably managing forest ecosystems. Eagle Creek Park is home to many species listed in the Indiana Department of Natural Resources' Heritage Database or in the Wildlife Diversity Section.

SDG 17 - Partnerships for the Goals

Overall: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Examples of project activities include, but are not limited to:

- ☐ Promote community connections and capacity for social resilience by engaging local residents or users in tree management, or other events to connect people to the project
- ☐ Community engagement in project design, including such things as engaging and respecting existing relationships and social networks, community cultural traditions, and public participation methods that are empowering and inclusive
- ☐ Community participation in project implementation, including such things as addressing and removing barriers to participation, promote ongoing community-based care and access to financial resources
- ☐ Other

Summary of Project Social Impacts

Protecting the trees within our project area enhances environmental quality by acting as natural filters and using shade to shield park goers from UV exposure and negative heat effects. Parks contribute significantly to human health by offering accessible green spaces that promote physical activity, relaxation, and social interaction. With over a million park visitors each year, Eagle Creek Park has highly active hiking and birding groups, as well as regular park visitors who utilize trails through and adjoining the project area.

Protecting the forested project area adjacent to Eagle Creek Reservoir will help mitigate stormwater runoff, improve flooding resilience, and ensure safe drinking water. Forests act as natural buffers, intercepting and absorbing rainwater and reducing the volume of runoff and soil erosion. This helps to maintain water quality and to preserve the reservoir as an essential source of drinking water.

Protecting existing trees enhances air quality and creates vital shade that reduces urban heat island effects. The Forests in Cities' cooling study, which included Eagle Creek Park, showed not only the cooling benefits of forests but the greater benefits of high-quality forest. The Office of Land Stewardship engages Indianapolis residents in volunteer efforts to remove invasive plant species from the park during monthly Strike Team workdays and other events. Results help improve the forests' resiliency to climate change.

The mesic upland forest, central till plain flatwoods, and ephemeral wetlands of Eagle Creek Park project area provide special habitat for many species. Woodlands are important migratory bird habitat as well as nesting habitat during breeding season. The park ecosystems are home to over twenty species listed in the Indiana Department of Natural Resources' Heritage Database as Rare, Threatened or Endangered, or listed as a Special Concern in their Wildlife Diversity Section such as American ginseng, broad-winged and red-shouldered hawks, northern leopard frogs, and eastern box turtles. Working with restoration specialists and volunteers to remove invasive species and restore native species promotes local biodiversity while sustainably managing forest ecosystems.