

path **finder** user guide

Welcome to Pathfinder 3.1!

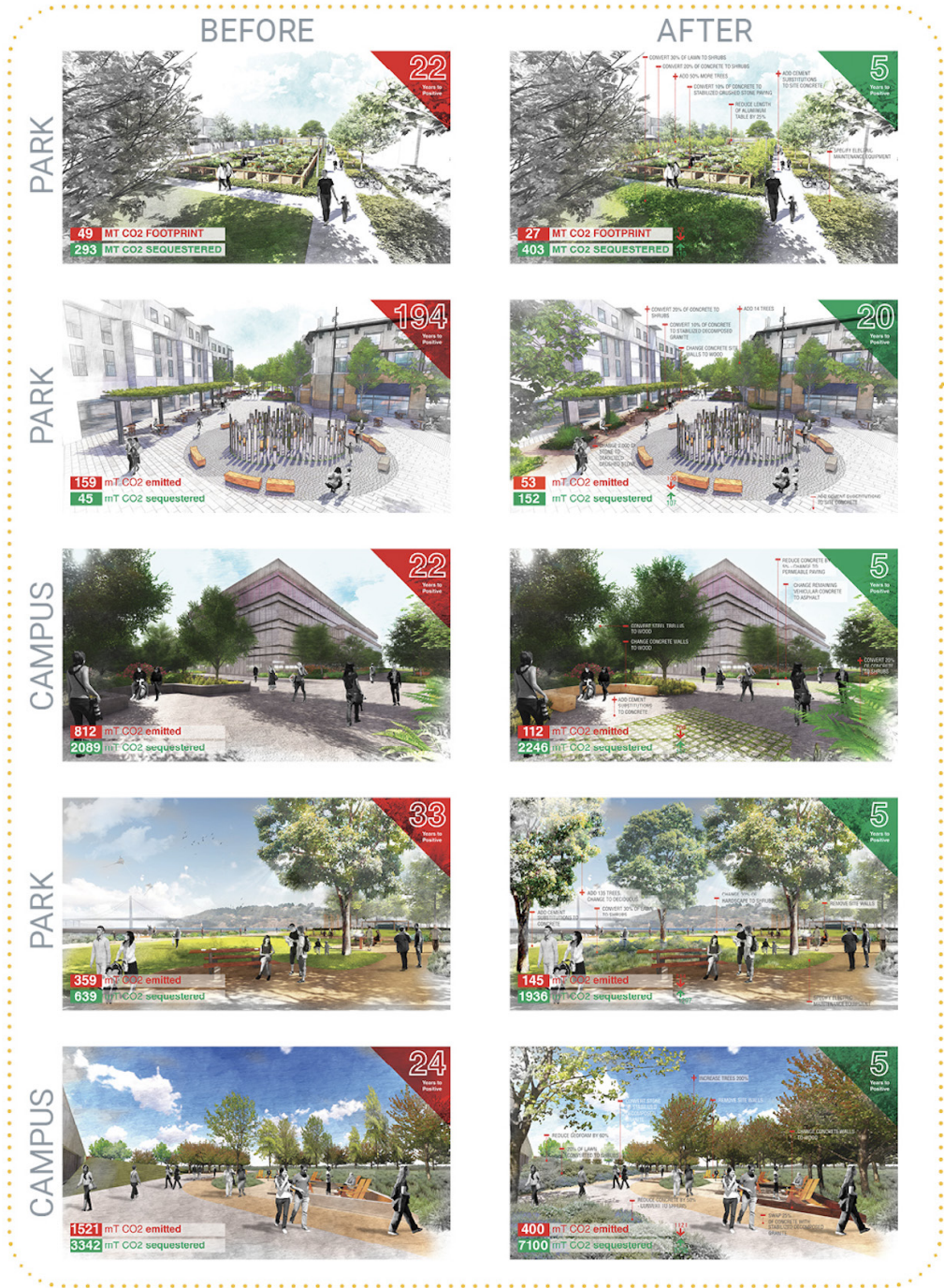
This is your guide to:

1. Understand how to meet the Climate Positive Design Challenge
2. Learn about related tools and suggested use
3. Explore each step and feature in Pathfinder

Let's get started



Targets are based on a 2019 industry study by CPD which assessed project improvement potential.



Use **Pathfinder** to meet the Climate Positive Design Challenge targets.

The **Climate Positive Design Challenge** is a voluntary industry program managed by Climate Positive Design that reports progress on meeting the UNFCCC Paris Agreement and IPCC 1.5°C Special Report goals.

The Challenge tracks emissions reductions and sequestration increases on projects in the exterior built and natural environment logged in the **Pathfinder** application. Established in 2019, the program set the following targets for how many years each project type would strive to offset its own emissions:



years to
climate positive design

5

parks, gardens,
campus, etc.

20

plazas and
streetscapes

25

infrastructure

set your goals

For a complete list of project types see: <https://climatepositivedesign.org/advocacy/>

Carbon Conscience > Climate Positive Design Roadmap

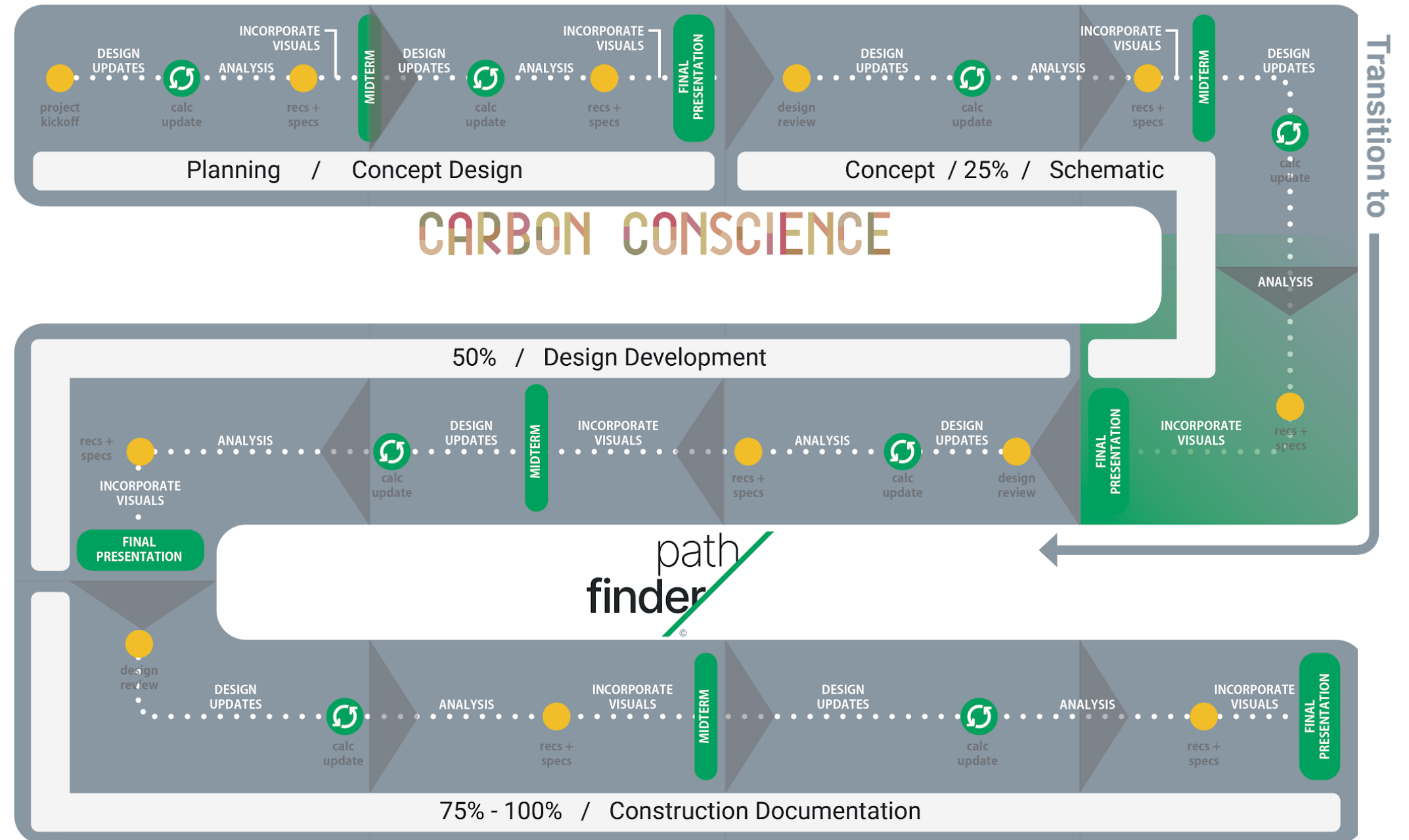
If your project is in an early master planning stage, consider starting your analysis in Carbon Conscience before transitioning into Pathfinder.

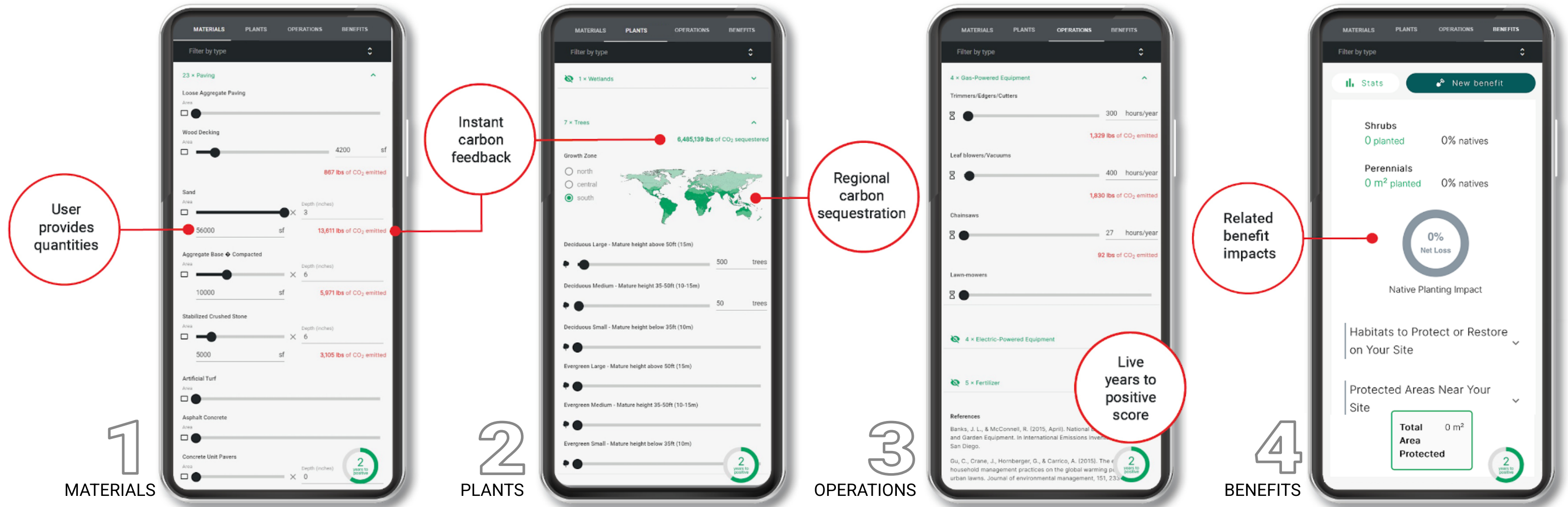
[Carbon Conscience](#) is an application for evaluating potential carbon impacts of urban design when quantity takeoffs are not yet available.

If your project concept already has general quantities, you can begin in Pathfinder.

[Pathfinder](#) aligns with the Carbon Conscience dataset, and is meant to be used from Concept (25% Design) through Construction Documentation (100% Design).

Use Pathfinder during each phase of design to set project goals, test design ideas, iterate, refine and measure the final project impacts.





Pathfinder is a free, accessible, life-cycle assessment (LCA) tool for landscape architects, designers, planners, and engineers to calculate the greenhouse gas emissions, carbon sequestration and related benefits associated with exterior built environment projects.

how pathfinder works



Get started using the Pathfinder

By using the Pathfinder, learn how to reduce carbon footprints and sequester more carbon. By participating, you can actively contribute to climate change solutions.

Click
here!

Use Pathfinder

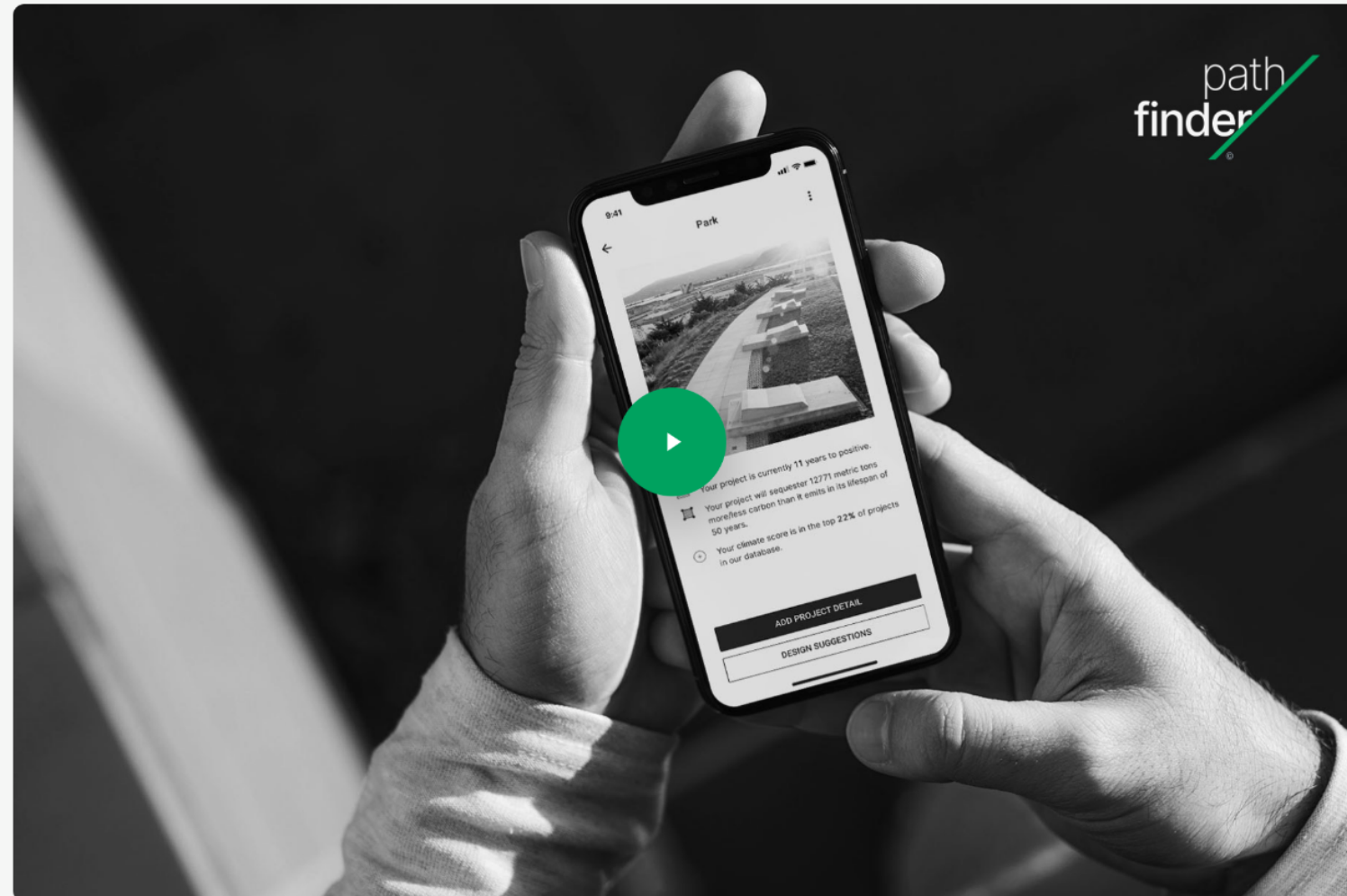
Sign-up for Pathfinder updates below.

First Name*

Last Name*

Email*

[Sign Up For Notifications](#)



[Click above to play the Pathfinder App demo](#)

Navigate to <https://climatepositivedesign.org/education/> to watch the demo video, and **click Use Pathfinder** to get started.

begin using pathfinder

Enter the project location

1

Search for a location

Draw your site boundary

9,877 m²

3

Click each boundary point of your site and close the polygon

Area calculated from boundary

9,877 m²

Do you have a more accurate figure available? Enter it below:

Confirm Project Area below. Adjust area as needed for accuracy and provide footprint of any buildings within Project Area.

Project Area	Units
9877.64	m ²

Building Footprint	Units
Project area	m ²
200	

Site Area	Units
9677.64	m ²

← Redraw boundary

Continue with existing value →

5

Approve mapped Project Area or adjust to specific quantity and add any proposed Building Footprints to establish Site Area

4

Check the circle to advance

Click the polygon button to define your site boundary

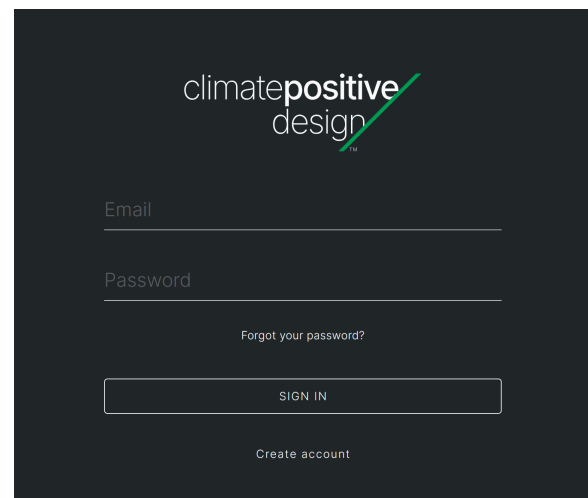
2



mapbox

Enter an address or location to find your site. Click the polygon button to draw the boundary of your site. When complete, click the checkmark and adjust the area and units as needed within the pop-up window as described above to establish your Site Area. Once set, click **Continue with existing value**.

define your site boundary



climatepositive
design

Email

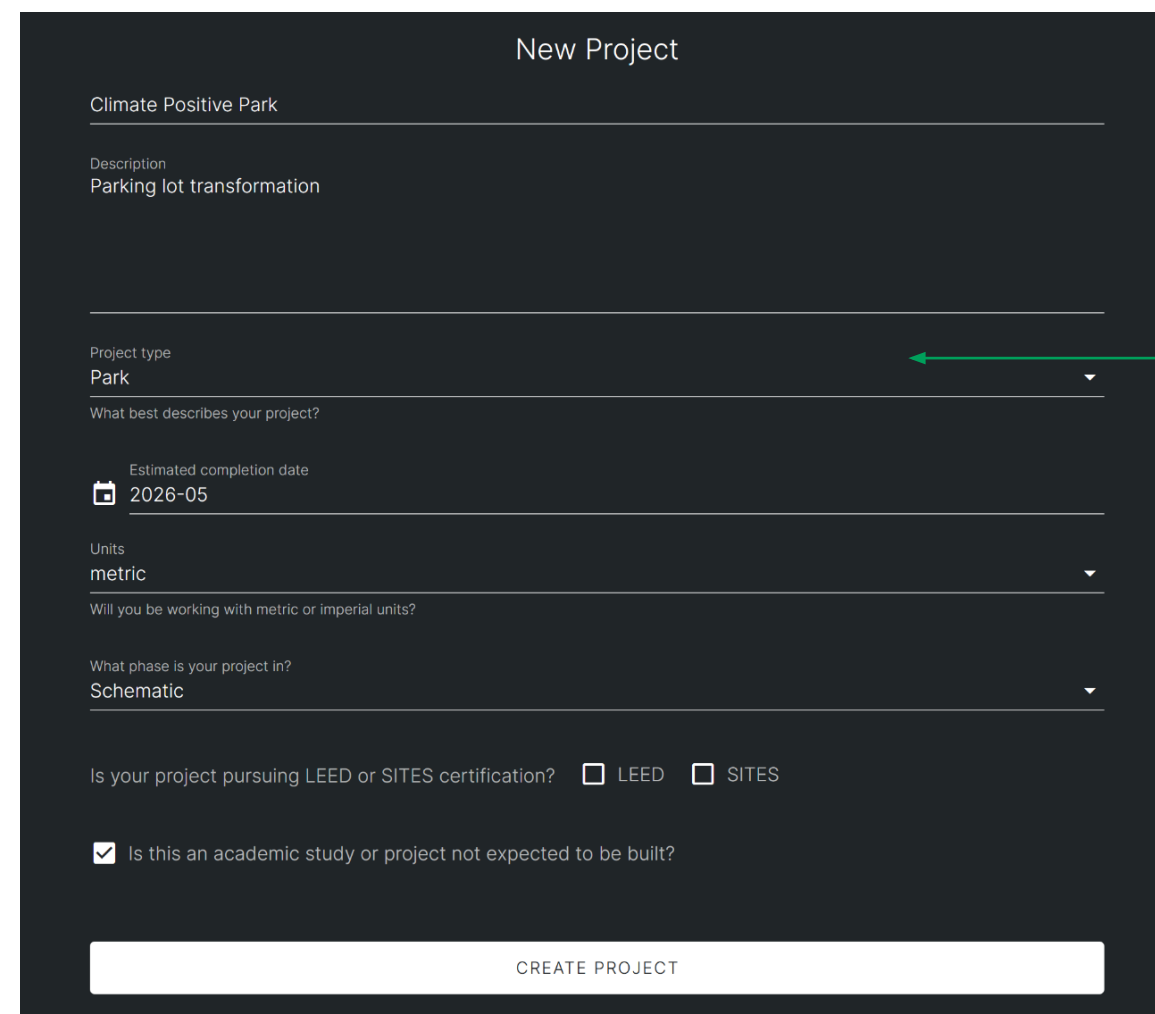
Password

[Forgot your password?](#)

[SIGN IN](#)

[Create account](#)

Sign in or create an account.

New Project

Climate Positive Park

Description
Parking lot transformation

Project type
Park

What best describes your project?

Estimated completion date
2026-05

Units
metric

Will you be working with metric or imperial units?

What phase is your project in?
Schematic

Is your project pursuing LEED or SITES certification? ☐ LEED ☐ SITES

☒ Is this an academic study or project not expected to be built?

[CREATE PROJECT](#)

Project Type: Select the site or infrastructure option that best describes your project:

- Bridge
- Campus
- Ecosystem Preservation
- Energy Distribution
- Garden
- Green Roof
- Hospitality
- Maritime/Port
- Mixed Development
- Park
- Plaza
- Residential
- Road
- Runway
- Streetscape
- Tunnel
- Other: Infrastructure
- Other: Site

Name and describe your project, select the Project Type, estimated completion date, units, and current design phase.

Select any certification pursued, and remember to check the academic study box if the project is not currently expected to be built, so that the data is not included in aggregated global exterior built environment projections.

set up your account and project

Click here to change
your project image

Duplicate any Baseline or Design version to
modify elements and compare.

Click to change to Design Alternative, Baseline, or
to make primary version.

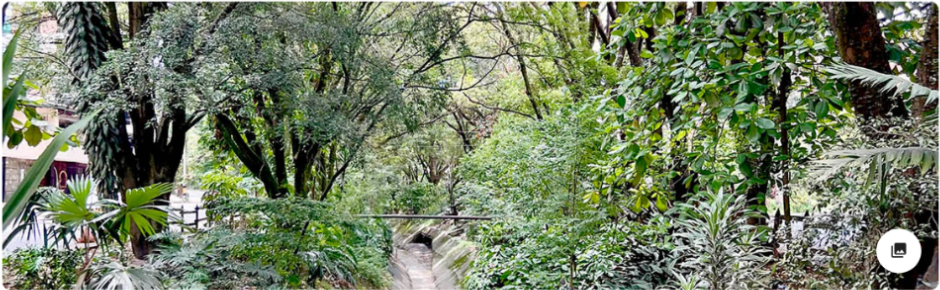
Click to adjust project info
and redraw site polygon.

Add existing biodiversity
site conditions info.

Site data,
see Benefits for more info.

CLIMATE POSITIVE PARK

Parking lot transformation



Project Information

Park April 2026 metric units millimetres 9,877 sq metres Schematic

Site Geolocation Data

+ Add Biodiversity Site Conditions

Magdalena Valley montane forests (Tropical & Subtropical Moist Broadleaf Forests) Annual Potential ET_o: 1,739.00 mm

Refresh Project Conditions

Versions

- Business As Usual (3.1) Baseline Design
Last modified 2nd April 2025
Typical park design - baseline
+ Add detail Primary baseline View scorecard
- 200% Sequestration Increase (3.1) Design Alternative
Last modified 31st March 2025
Typical park design
+ Add detail Primary design View scorecard
- 50% Emissions Reduction (3.1) Design Alternative
Last modified 31st March 2025
Typical park design
+ Add detail Make primary design View scorecard
- 50% Emissions +200% Sequestration (3.1) Design Alternative
Last modified 31st March 2025
Typical park design
+ Add detail Make primary design View scorecard

Create new version

Delete version

Duplicate version

Make this a design alternative

Establish one Baseline
Design alternative as Primary
for comparison to the
Primary Design Alternative on
the scorecard

Establish one Design
Alternative as Primary

View scorecard at any time

Add and update elements

Create new version of your project,
whether Baseline or Design Alternative

review your project page

In the Materials tab, search for or select material categories and subcategories.

1

Select each material that is part of the design.

2

4

Create custom elements for your project as needed. See next page for more information.

3

Pathfinder will suggest related elements. Select all that will be included in the design.

Pathfinder 3.1 Materials

Search for materials

Category

Search or select a category to load available materials
The materials will be sorted from least to most emissions.

Can't find what you're looking for?

Create a custom material

Looking for an EPD?

Search EC3 Database

1

If you'd like to add a specific material, or an assembly detailed in your project, create a custom material.

Enter the GWP kgCO₂e per unit. This can be found on the product EPD.

2

Note: If you're creating an assembly, sum the GWP of all constituent parts, per the unit measured.

New custom material

Name
Custom Low-Carbon Concrete Mix

Category
Concrete Hardscape

CO₂e per unit
218 kgCO₂e per

Element measured by
length x width x height

Select up to 3 dimension sets

Cancel

m

m2

ha

m3

kg

tonne

3

Select the unit of measurement. See EPD at right.

An Environmental Product Declaration (EPD) contains information about the environmental performance or impact of any product or material over its lifetime. Search for EPDs on [EC3](#) and other EPD databases.

Company Name
Environmental Product Declaration
Mix - Plant

This Environmental Product Declaration (EPD) reports the impacts for 1 m³ of ready mixed concrete mix, meeting the following specifications:

- ASTM C94: Ready-Mixed Concrete
- UNSPSC Code 30111505: Ready Mix Concrete
- CSI Section 03 30 00: Cast-in-Place Concrete

COMPANY
Company name
Address

PLANT
Plant name
Address

EPD PROGRAM OPERATOR
EPD Operator name
Address

DATE OF ISSUE
02/26/2019 (valid for 5 years until 02/26/2024)

ENVIRONMENTAL IMPACTS

Declared Product:
Mix 604
6.0SK 3/4 RECYCLED AD
Compressive strength: 4000 psi at 28 days

Declared Unit: 1 m³ of concrete

Global Warming Potential (kg CO ₂ -eq)	355
Ozone Depletion Potential (kg CFC-11-eq)	9.6E-6
Acidification Potential (kg SO ₂ -eq)	1.24
Eutrophication Potential (kg N-eq)	0.44
Photochemical Smog Creation Potential (kg O ₃ -eq)	26.3
Total Primary Energy Consumption (MJ)	2,436
Nonrenewable (MJ)	2,327
Renewable (MJ)	109
Total Concrete Water Consumption (m ³)	1.80
Batching Water (m ³)	0.08
Washing Water (m ³)	0.02
Nonrenewable Material Resource Consumption (kg)	1,855
Renewable Material Resource Consumption (kg)	2.44
Hazardous Waste Production (kg)	0.02
Nonhazardous Waste Production (kg)	3.28

Product Components: crushed aggregate (ASTM C33), , natural aggregate (ASTM C33), Portland cement (ASTM C150), fly ash (ASTM C618), batch water (ASTM C1602), admixture (ASTM C494)

Unit

GWP

Pathfinder 3.1 Materials

Search for materials

Category

Search or select a category to load available materials
The materials will be sorted from least to most emissions.

Can't find what you're looking for? [Create a custom material](#)

Looking for an EPD? [Search EC3 Database](#)

1

If you need to find an EPD or GWP data for a material or product, **Search** the EC3 Database

EC3 Database Search

Location Country or Region
United States of America - California

Category
Concrete

Subcategory
ReadyMix
Shotcrete
CementGrout
FlowableFill
Precast

Cancel

2

Add Location (optional), Category and Subcategory

EC3 Database Search

Location Country or Region
United States of America - California

Category
Concrete

Subcategory
ReadyMix

Search Options

> Compressive Strength mPa Curing Time ...

Options

☐ Air Entrained

☐ CO2 Cured

☐ SCC

☐ Fiber Reinforced

☐ Lightweight

Cancel

3

Click on the **Search Options** to see additional search parameters available for the material type

EC3 Database Search

Location Country or Region
United States of America - California

Category
Concrete

Subcategory
ReadyMix

Search Options

> Compressive Strength mPa Curing Time ...

Options

> uaGWP (kgCO2e) / 1m

Advanced Options

Search EC3

Cancel

4

Once complete, click **Search EC3**

EC3 Database Search

Location Country or Region
United States of America - California

Category
Concrete

Subcategory
ReadyMix

Search Options

Search EC3

Results

Product EPDs: 19,134.00
Industry EPDs: 0.00
Achievable: 287.39 kgCO₂e
Average: 363.17 kgCO₂e
Conservative: 434.55 kgCO₂e
Unit: 1 m³

Search for specific EPD Apply to custom material

Cancel

5

Results are returned from EC3

6

Either apply these results to a custom material or search for a specific EPD. More information on the next page.

create custom elements - EC3

EC3 Database Search

Location: Country or Region
United States of America - California

Category: Concrete

Subcategory: ReadyMix

Search Options

Search EC3

Results

Product EPDs: 19,134.00
Industry EPDs: 0.00
Achievable: 287.39 kgCO₂e
Average: 363.17 kgCO₂e
Conservative: 434.55 kgCO₂e
Unit: 1 m³

Search for specific EPD Apply to custom material

Cancel

1 If you search for a specific EPD, then you'll be able to select from a range of available EPDs and apply them directly to your custom material.

Search for specific EPD

Name	Manufacturer	Description	Declaration Type	uaGWP (kgCO ₂ e)
3154CC	Irving Materials Inc.	3000 N/A GRAVEL	Product EPD	202.3
50C50L1E-2PQ	Upstone Materials	5000 PSI Exterior	Product EPD	387.1
53434	CalPortland	-	Product EPD	225.7
61883	CalPortland	-	Product EPD	386.2
0932	CalPortland	5000	Product EPD	354.4
0766	CalPortland	5000PSI - AEA CITY PT	Product EPD	449.7
30-1114_IL_40SL_Arg	Vulcan Materials Company	3000 PSI VDOT A3	Product EPD	224.6
30-1114_IL_40SL	Vulcan Materials Company	3000 PSI VDOT A3	Product EPD	215.6
30-1114_IL_40SL_San	Vulcan Materials Company	3000PSI VDOT A3 GENERAL	Product EPD	219.9
4068RR	HC & D	4000 PSI - 3/4"	Product EPD	420.1
1617181	CEMEX	Ready-mixed concrete for business-to-business communication meeting ASTM C94, UNSPSC, CSA, and CSI standards with various concrete mixes and compressive strengths	Product EPD	268.0
61835V	CalPortland	-	Product EPD	269.6
60918	CalPortland	-	Product EPD	292.9
60953H	CalPortland	-	Product EPD	381.6
63335	CalPortland	-	Product EPD	369.5

Cancel Back Create Element

2 Select an EPD and then click **Create Element**

Concrete - Ready Mix - Custom

Name: O50D8

Description:
ORCA 1/2" 5000 PSI .50 W/C 8" ADVA

Manufacturer: CalPortland

EC3 Category: Concrete / ReadyMix

Impact type: once, during construction

Uncertainty Adjusted Global Warming Potential (uaGWP)
275.12 kgCO₂e per m3

Source
Click here: Environmental Production Declaration

Building Transparency - EC3
<https://buildingtransparency.org/ec3>

New EC3-based Custom Material

Name
Concrete - Ready Mix - Custom

Category
Aggregate & Asphalt Hardscape

Brick & Stone Hardscape

Concrete Hardscape

Demolition & Site Preparation

Exterior Lighting

Furnishings

Cancel Back Create Element

New EC3-based Custom Material

Name
Concrete - Ready Mix - Custom

Category
Concrete Hardscape

EC3 UA GWP kgCO₂e per unit

363.17 kgCO₂e per m3 : Average

287.39 kgCO₂e per m3 : Achievable

434.55 kgCO₂e per m3 : Conservative

Additional Notes

Cancel Back Create Element

New EC3-based Custom Material

Name
Concrete - Ready Mix - Custom

Category
Concrete Hardscape

EC3 UA GWP kgCO₂e per unit

287.39 kgCO₂e per m3 : Achievable

Element measured by

☐ length x width x height

☐ length x width x depth

☐ length x width x thickness

☒ area x depth

☐ volume

4 Then the custom material is complete. Click on the book icon for additional information.

Concrete - Ready Mix - Custom

Replacement Over 60 YRS.
0

Area

Depth

0 m2 0 mm

0 kgCO₂e

3 Once the EPD is selected or results are applied directly to a custom material, then name the material, place it within a Pathfinder Category, select which Uncertainty Adjusted Global Warming Potential (uaGWP) value is preferred, and determine the dimensions needed. Once complete, click **Create Element**.

create custom elements - EC3

Total emissions from materials, including transportation, installation/ construction and replacements

The screenshot displays the Pathfinder software interface with the following components:

- Top Navigation Bar:** MATERIALS, PLANTS, OPERATIONS, BENEFITS
- Left Sidebar:** A vertical sidebar with a search icon and a list of material categories.
- Main Content Area:**
 - Total material impact:** 192,597 kgCO₂e
 - Concrete Hardscape:**
 - Cast-in-Place Concrete Paving:**
 - Transportation Option: Assume 100% Truck (Typical)
 - Transportation Distance: Hyper-Local (16km or 10mi radius from site)
 - Material: Concrete (1:2:4, type 1 or 2, 3000-4000psi) (Typical)
 - Replacement Over 60 YRS: 1
 - Area: 1000 m²
 - Depth: 120 mm
 - Emissions: 133,818 kgCO₂e
 - Reinforcement for CIP Concrete Paving:**
 - Transportation Option: Assume 100% Truck (Typical)
 - Transportation Distance: Local (160km or 100mi radius from site)
 - Material: Steel (Primary Steel in BF-BOF (up to 30% recycled))
 - Replacement Over 60 YRS: 1
 - Area: 1000 m²
 - Rebar Diameter: 13 mm
 - Rebar Spacing (O.C.E.W.): 200 mm
 - Emissions: 51,552 kgCO₂e
 - Aggregate & Asphalt Hardscape:**
 - Compacted Aggregate Base:**
 - Transportation Option: Assume 100% Truck (Typical)
 - Transportation Distance: Hyper-Local (16km or 10mi radius from site)
 - Material: Aggregate Base (Crushed) (Typical)
 - Replacement Over 60 YRS: 0
 - Area: 1000 m²
 - Depth: 150 mm
 - Emissions: 7,227 kgCO₂e

Switch between Materials, Plants, Operations and Benefits at any time.

View or add internal reference notes to your element as needed.

Details and information

Options

Emissions of the element, including transportation, installation and replacements.

keep adding materials

Select type of transportation of the element to the site

Select material type

Enter dimensions / quantity and units

Click for climate positive design suggestions

The screenshot shows the 'MATERIALS' section of the Pathfinder interface. It displays two material input sections: 'Concrete Hardscape' and 'Aggregate & Asphalt Hardscape'. Each section has a 'Transportation Option' dropdown (set to 'Assume 100% Truck (Typical)'), a 'Transportation Distance' dropdown (set to 'Hyper-Local (16km or 10mi radius from site)' for concrete and 'Local (160km or 100mi radius from site)' for aggregate), a 'Material' dropdown, and a 'Replacement Over 60 YRS.' input (set to 1 for concrete and 0 for aggregate). Below these are sliders for 'Area' (set to 1000 m²) and 'Depth' (set to 120 mm for concrete and 150 mm for aggregate). A 'Rebar Diameter' and 'Rebar Spacing (O.C.E.W.)' are also specified for the concrete section. A 'Switch dimensions' button is present in each section. At the bottom, there is a 'Design suggestions' button with a lightbulb icon.

4 Switch dimension type as needed, i.e. length X width X height vs area X depth vs volume.

5 Choose the distance that the material will be transported to the site.

6 Enter the number of expected replacements of the element over the 60-year life of the project.

Materials can be added multiple times as different elements, with different dimensions and variables. For example, add a 4" slab of type 1 concrete and a 5" slab. Or add the total volume of type 1 concrete.

keep adding materials

Assemblies are pre-assembled groupings of materials within a unified system or section which is organized by subcategories. Every material within the Assembly is optional, so only use what is needed for your project.

The emissions from each material are aggregated at the bottom of the Assembly and then displayed as a single entry on the second page of the scorecard.

Version Stats3.1

Pathfinder 3.0 Materials

Search for materials

Concrete Hardscape

Paving & Slabs

Cast-in-Place Concrete Paving

Cast-in-Place Concrete Paving (AUS)

Cast-in-Place Concrete Subslab

Cast-in-Place Pervious Concrete Paving

CIP Stairs

Example Element - Assembly

Can't find what you're looking for? Create a custom material

Looking for an EPD? Search EC3 Database

1 Assemblies can be identified by the “ - Assembly”

Total material impact:
2,337 kgCO₂e

Concrete Hardscape

Example Element - Assembly

Example Assembly - Subcategory 1

Cast-in-Place Concrete Paving

Transportation OptionAssume 100% Truck (Typical)

Transportation DistanceHyper-Local (16km or 10mi radius from site)

MaterialConcrete (1:2:4, Type 1 or 2, 3000-4000psi) (Ty

Replacement Over 60 YRS.1

Area10 m2

Depth150 mm

1,673 kgCO₂e

Example Assembly - Subcategory 2

Reinforcement for CIP Concrete Paving

Transportation OptionAssume 100% Truck (Typical)

Transportation DistanceLocal (160km or 100mi radius from site)

MaterialSteel (Primary Steel in BF-BOF (up to 30% recyc

Replacement Over 60 YRS.1

Area10 m2

Rebar Diameter12 mm

Rebar Spacing (O.C.E.W.)450 mm

195 kgCO₂e

Welded Wire Mesh (Fabric) Reinforcement

Transportation OptionAssume 100% Truck (Typical)

Transportation DistanceLocal (160km or 100mi radius from site)

MaterialSteel (Primary Steel in BF-BOF (up to 30% recyc

Replacement Over 60 YRS.1

Area0 m2

Mesh Diameter0 mm

Mesh Spacing0 mm

0 kgCO₂e

Example Assembly - Subcategory 3

Compacted Aggregate Base

Transportation OptionAssume 100% Truck (Typical)

Transportation DistanceLocal (160km or 100mi radius from site)

MaterialAggregate Base (Crushed) (Typical)

Replacement Over 60 YRS.0

Area11 m2

Depth150 mm

469 kgCO₂e

Total Emissions: 2,337 kgCO₂e

2 Assembly name

Scorecard Results5

3 Assembly subcategory name

4 Total assembly impact

CARBON IMPACT	
Embodied Carbon Emissions	
Concrete Hardscape	
Example Element - Assembly	2,337 kgCO ₂ e
Subtotal	2,337 kgCO ₂ e
Total Embodied Carbon	2,337 kgCO ₂ e

keep adding materials - Assemblies

Project statistics are updated here.
Click to view scorecard.

Select each planting category and element, including Trees and Ecosystems to protect and restore, Perennials, Shrubs, Lawn and Green Infrastructure.

Select transportation type and distance. Select type of nursery stock specified. Enter area or quantity of plants.

Click for climate positive design suggestions.

add plants

1

2

3

8

The screenshot displays the Pathfinder 3.1 Plants interface. At the top, there's a navigation bar with 'MATERIALS', 'PLANTS', 'OPERATIONS', and 'BENEFITS'. The main content area is divided into several sections:

- Version Stats:** Shows project statistics, including carbon sequestration (304 tonnes) and climate positive years (16 years in 2042).
- Pathfinder 3.1 Plants:** A search bar and a list of ecosystems to protect and restore, such as Boreal Forest, Dry Forest (Mediterranean), Dry Meadows, Forested or Shrubby Peat Swamp, Mangrove Forest, Prairie Grassland, Subtropical Humid Forest, Temperate Continental Forest, and Temperate Oceanic Rainforest.
- Ecosystems - Existing To Protect:** A section for configuring existing ecosystems, with a slider for area (0 to 2500 m2) and a resulting carbon footprint of 99,964 kgCO₂e.
- Ecosystem Restoration:** A section for configuring ecosystem restoration, with a slider for area (0 to 3000 m2) and a resulting carbon footprint of 14,112 kgCO₂e.
- Trees:** A section for configuring trees, with a slider for area (0 to 100 quantity) and a resulting carbon footprint of 3,693 kgCO₂e.
- Perennials / Perennial Grasses:** A section for configuring perennials, with a slider for area (0 to 500 m2) and a resulting carbon footprint of 5,241 kgCO₂e.

At the bottom, there's a 'References' section with a link to 'Design suggestions' and a reference to '4). Balancing carbon sequestration and GHG emissions in a constructed wetland. Ecological'.

Total emissions and sequestration from plants, including nursery emissions, transportation, installation/construction and replacements.

4

Select the Growing Season Duration zone of your site. Click to enlarge the map.

5

Add the area of each existing habitat to be protected, or to be restored, from the UN FAO ecosystem types.

6

Ecosystem Restoration Target Condition:

- Good closely mimics a native ecosystem in structural and functional diversity, species mix and spacing.
- Moderate somewhat mimics the native ecosystem.

7

Select the percentage of all plants of this type that are native.



Pathfinder calculates the number of years until the plant sequestration offsets the emissions of the project. The target Years to Positive depends on the project type, see the [Climate Positive Design Challenge](#).

Total emissions from operations over the 60-year life of the project.

Select Operations category and element.

1

Version Stats

Your project will sequester **292 tonnes** more carbon than it emits in its estimated lifespan

Your project is expected to reach climate positive in **17** years, in **2043**.

Your positive score is in the **lower 49th** percentile of projects in our database.

View scorecard

Pathfinder 3.1 Operations

Search for operations

Landscape Water Use

Maintenance Equipment

Soil Amendments & Mulch

MATERIALS

PLANTS

OPERATIONS

BENEFITS

Total operational impact:

118,477 kgCO₂e

Maintenance Equipment

Electric Leaf Blowers / Vacuums

Power

120 watts

Hours Used Annually

200 hours

957 kgCO₂e

Landscape Water Use

Moderate Water Use

Planting Type

Trees

Irrigation Type

Drip Irrigation - Pressure Compensated

Area

500 m²

34,780 kgCO₂e

28,983,333 L

Low Water Use

Planting Type

Groundcover

Irrigation Type

Micro Spray Irrigation

Area

2000 m²

71,547 kgCO₂e

59,622,857 L

Soil Amendments & Mulch

Number Of Fertilizer Applications In 1st Year

10

Annual Fertilizer Application Frequency After 1st Year

2

NPK Fertilizer Application

N per area

0.2 kg/sf

P per area

0.06 kg/sf

K per area

0.06 kg/sf

Application area

5000 m²

11,193 kgCO₂e

Design suggestions

2

Enter power and annual usage of maintenance equipment.

3

Create an element for each hydrozone in the project. Select plant and irrigation type. Pathfinder calculates the projected water used over the 60-year life of the project, and the emissions of that water.

4

See Benefits - Water for further information about water use.

5

Add expected fertilizer frequency, quantity and contents.

6

Click for climate positive design suggestions.

add operations

18

Access the Biodiversity Site Conditions - Existing form from the Project or Benefits: Biodiversity page. May be edited at any time, but only one form is applied to all versions of the project.

Enter areas of existing ecosystems on site, from the [UN FAO Global Ecological Zones](#) classification.

Add existing general landscape planting including shrubs, groundcovers, perennials, annuals, etc., and indicate the percentage of all existing plants that are native to the site's ecoregion (see Benefits tab, Biodiversity).

Add turf lawn areas, selecting which type of management the turf receives, and indicate the percentage of turf that is native.

Add existing trees of each size and type, and indicate the percentage of each that is native.

add biodiversity site conditions: existing

Biodiversity Site Conditions - Pre-construction

Project Area: 9,877 sq metres

Enter the following pre-construction site information, by: ☒ Area ☐ Percentage

Hardscape and Buildings: 5877 m²

☒ Ecosystem ☐ General

	Area	Condition
<input type="checkbox"/> Boreal Forest	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Dry Forest (Mediterranean)	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Dry Meadows	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Forested or Shrubby Peat Swamp	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Mangrove Forest	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Prairie Grassland	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Subtropical Humid Forest	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Temperate Continental Forest	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input checked="" type="checkbox"/> Tropical Dry Deciduous	2000 m²	<input checked="" type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input checked="" type="checkbox"/> Tropical Moist Deciduous	1000 m²	<input type="radio"/> G <input checked="" type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Temperate Oceanic Rainforest	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Tropical Rainforest	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Tropical Shrublands	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P
<input type="checkbox"/> Temperate Wetland and Salt Marsh	0 m²	<input type="radio"/> G <input type="radio"/> M <input type="radio"/> P

☒ General ☐ Lawn

	Area	% Native
<input checked="" type="checkbox"/> General Planting (shrubs, groundcover, etc)	500 m²	20%
<input checked="" type="checkbox"/> High Management	500 m²	0%
<input type="checkbox"/> Moderate Management	0 m²	%
<input type="checkbox"/> Low Management	0 m²	%
<input type="checkbox"/> No-mow	0 m²	%

☒ Trees ☐ % Native

	Quantity	% Native
<input checked="" type="checkbox"/> Deciduous Large	150	50%
<input type="checkbox"/> Deciduous Medium		%
<input type="checkbox"/> Deciduous Small		%
<input type="checkbox"/> Evergreen Large		%
<input type="checkbox"/> Evergreen Medium		%
<input type="checkbox"/> Evergreen Small		%

Discard Save

2 Enter pre-demolition and pre-construction existing site condition information, in order to calculate biodiversity impacts for your design.

3 Select whether to enter information in areas, or in percentage of the total site (including building areas).

4 Enter total area of existing hardscape and buildings. All remaining area is considered planting area.

6 Select condition, compared to an optimal, healthy native ecosystem:

- Good (G) is close to optimal
- Moderate (M) shows some impacts
- Poor (P) ecosystem shows heavy impacts of human interference, invasive species, browsing and/or climate change

10 The sum of all areas or percentages entered must equal the Total Site Area

Add existing biodiversity site conditions info to calculate biodiversity impacts.

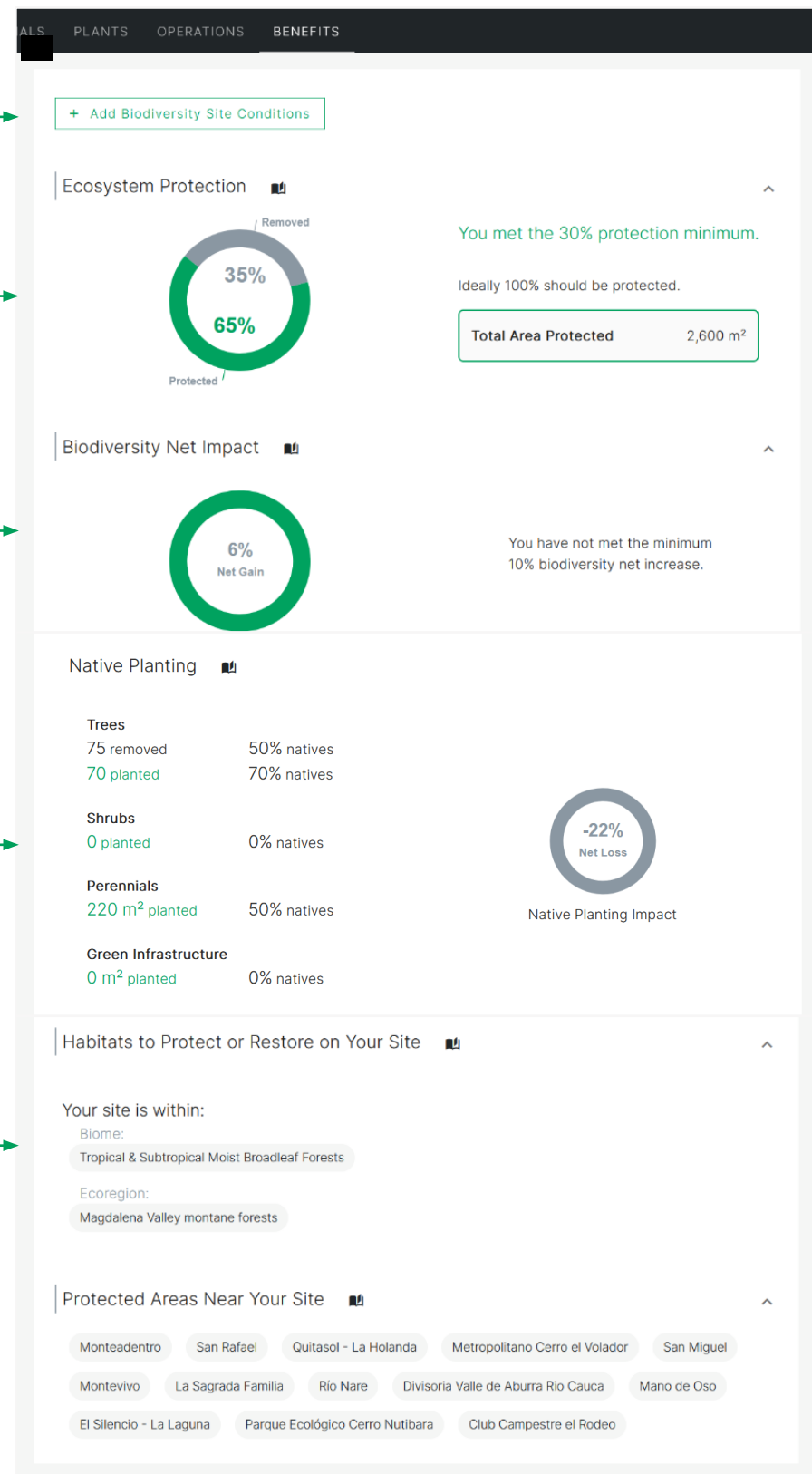
Areas of removed and protected ecosystems are compared.

The final quantity and condition of native ecosystems and planting is compared to the existing conditions. Existing ecosystems and trees are given greater weight than new planting. See Methodology Report for further information.

The final quantity of native trees, shrubs and perennials are compared to the existing conditions. Existing native trees are given greater weight than new planting.

The project site falls within this biome and ecoregion, according to the [RESOLVE Ecoregions and Biomes](#) map. These can be used to determine native habitats and species.

add benefits: biodiversity

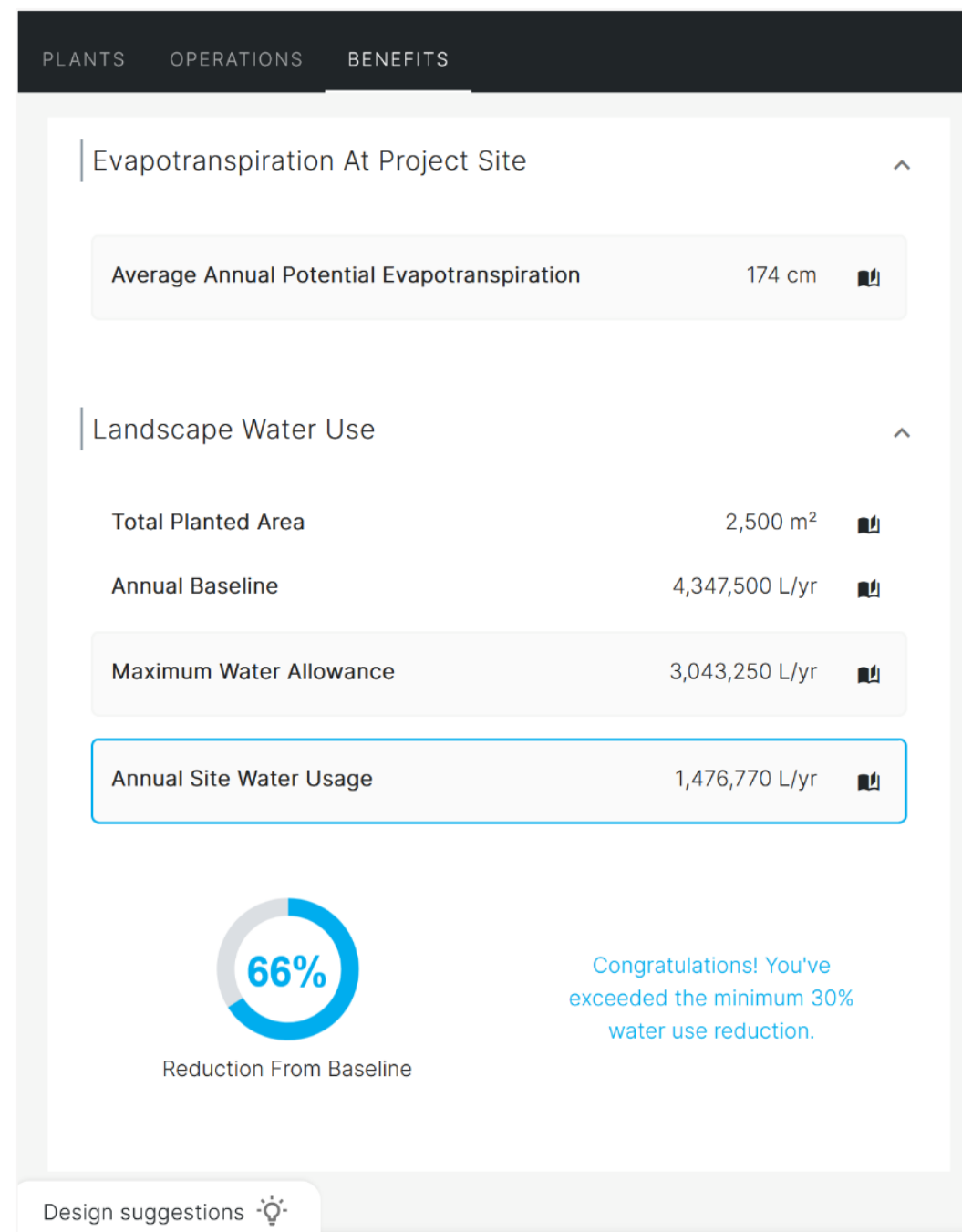


Per 30x30 goals, protect a minimum of 30% of existing ecosystems. Ideally 100% of good condition native ecosystems should be protected to avoid harming biodiversity.

Per biodiversity net gain goals, increase biodiversity by at least 10% from the existing site condition.

See the [World Database of Protected Areas](#) for protected areas near your site, such as those below within 10 miles (16km). It may be possible to provide habitat for fauna to migrate to your site from nearby protected areas, via wildlife corridors or a patchwork of habitat sites.

1 To calculate annual water usage, add Landscape Water Use elements in Operations, including areas with no irrigation, water features, pools and spas.



2 Potential Evapotranspiration (PET) is the amount of evaporation from land and surfaces, and transpiration from plants that would occur if soil moisture were unlimited. This is used to determine the maximum amount of irrigation water that may be required at a site.

3 Sum of all Landscape Water Use areas added in Operations.

4 Calculated from the site's potential evapotranspiration and the Landscape Water Use elements added in Operations.

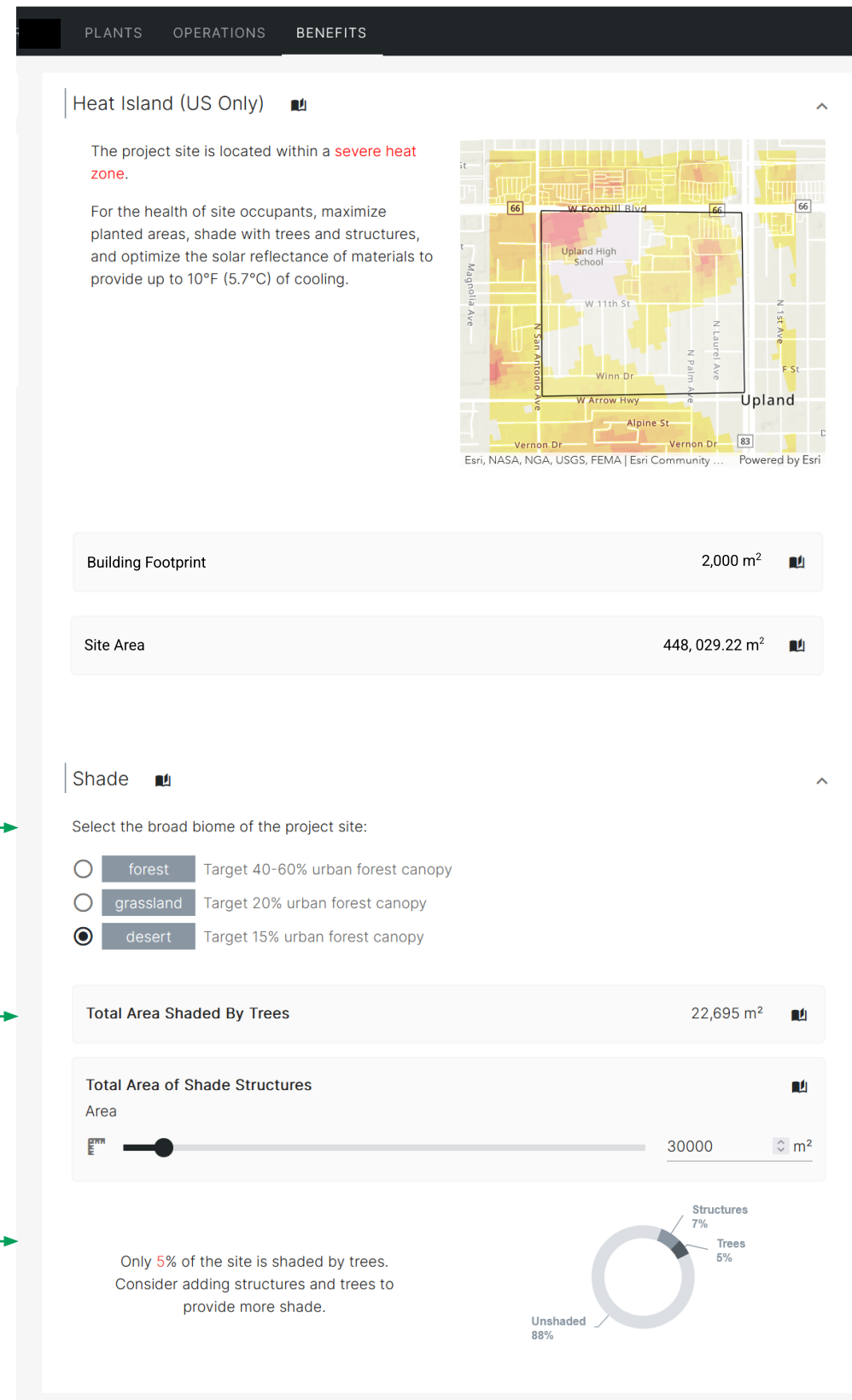
5 Reduce water use from the annual baseline by at least 30%, per US EPA WaterSense.

add benefits: water

Choose the broad biome that most closely matches your site area. Tree canopy targets are based upon these broad biomes.

Calculated from all trees entered in Plants tab.

Add more trees to your design in the Plants tab to reach the canopy target.



1 Within the US, sites with a heat measure of 4 or 5 out of 5 per map [Heat Severity - USA 2022](#) are indicated as severe heat areas.

2 Review the Building Footprint, the total area of all buildings on the site in the proposed design. This can be adjusted on the Project Area mapping page.

5 Enter total area of shade structures in the designed landscape, including awnings, arcades, and free-standing structures, soft or rigid.

add benefits: cooling

Within the US, the US Government's [Climate and Economic Justice Screening Tool](#) provides environmental, infrastructural, and demographic information about the site area. Overburdened and underserved communities are marginalized by underinvestment and overburdened by pollution.

1

PLANTSOPERATIONS

BENEFITS

Overburdened and Underserved Communities (US Only)

The project is located within an **underserved community**, according to the US Government's Climate and Economic Justice Screening Tool.

☐ Select if your site is located in an underserved community outside the United States, as defined by local authorities.

Community Engagement Spectrum

INCREASING LEVEL OF PUBLIC ENGAGEMENT

INFORM

Provide the public with objective information to assist with understanding problems, alternatives, opportunities and/or solutions.

○

CONSULT

Obtain public feedback on analysis, decisions and/or alternatives.

○

INVOLVE

Work directly with the public to ensure their concerns and aspirations are consistently understood and considered.

○

COLLABORATE

Partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.

●

CO-DESIGN

Place final decision making in the hands of the public.

○

Select highest level of public engagement intended or achieved

If your site is in an underserved community, extra care should be taken to collaborate with and support the local community, throughout the planning and design process.

2

Select if your site falls within an overburdened and underserved community outside the USA, as designated by NGOs, local, national, or international authorities.

3

Adapted from the Spectrum of Public Participation, developed by the [International Association for Public Participation](#).

4

Select the highest level of public engagement intended or achieved during the planning, design and construction process. Ideally projects are designed with greater community engagement (right side of the spectrum), especially when located in overburdened and underserved communities.

add benefits: equity

23

Click View scorecard at any time
for updated project results

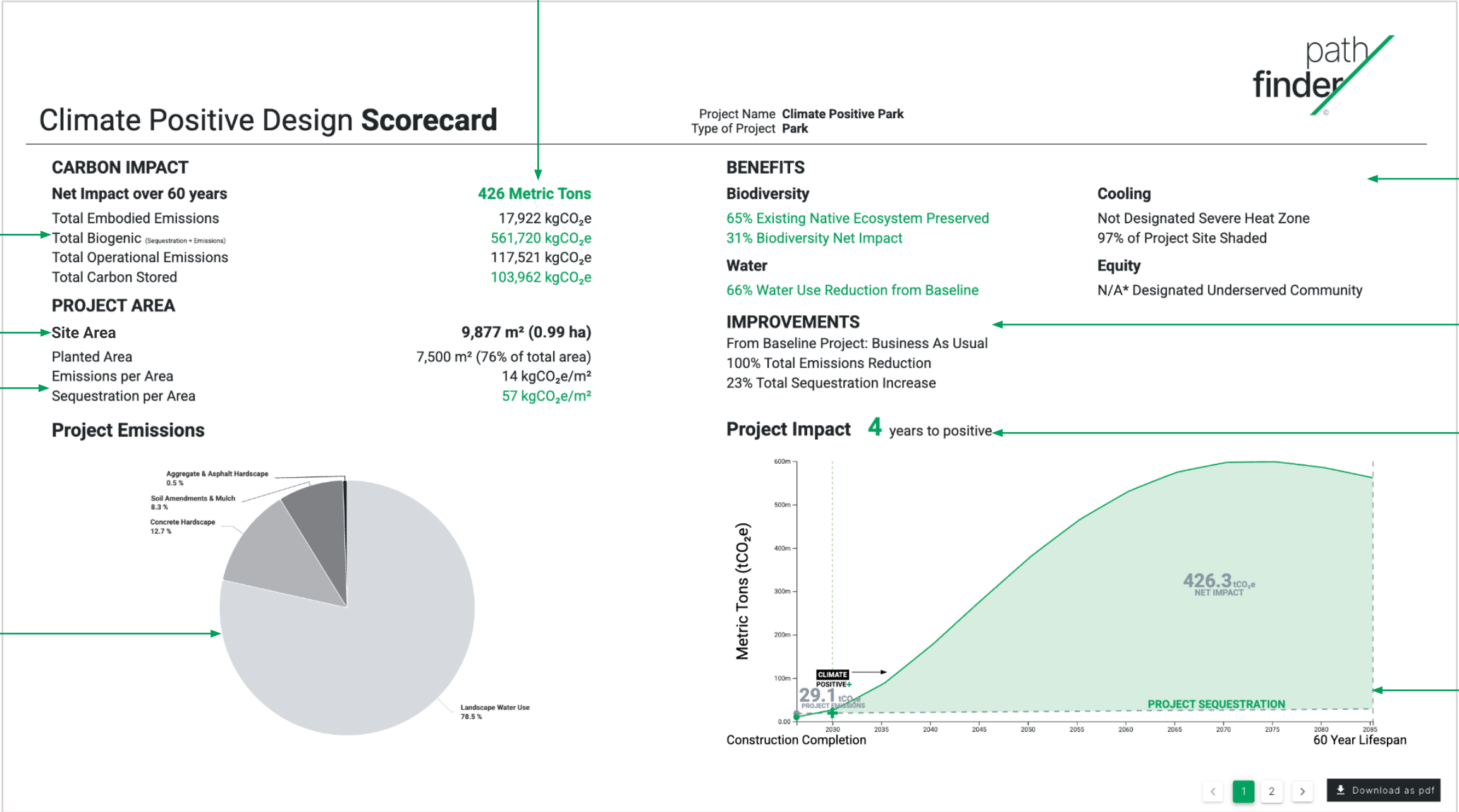
Net Impact: green text and number means the project will sequester more carbon than emitted over 60 years. Black text and number means the project will emit more carbon than sequestered.

Total Biogenic includes
planting-related emissions
and sequestration

Site Area is the proposed
site without any buildings

Emissions and
Sequestration per unit
area. Emissions includes
embodied, operational
and biogenic emissions.
See page 2.

Graph of emissions
sources by category



Benefits impacts.
Green scores have met
the targets.

Improvement
comparison to the
Primary Baseline

Years to offset
emissions. If “∞” infinity
symbol appears, the
project will never offset
those emissions.

Impact over the life of
the project. Gray
represents emissions,
green sequestration.
Project Emissions is the
sum of Operational,
Biogenic and Embodied
emissions.

Details of embodied, operations, and biogenic impacts and project benefits are included on page 2

pathfinder

Project Name

Climate Positive Park

Type of Project

Park

Climate Positive Design Scorecard

CARBON IMPACT

Embodied Carbon Emissions

Aggregate Asphalt Hardscape

Compacted Aggregate Base

723 kgCO₂e

Subtotal

723 kgCO₂e

Concrete Hardscape

Cast-in-Place Concrete Paving

12,044 kgCO₂e

Reinforcement for CIP Concrete Paving

5,155 kgCO₂e

Subtotal

17,199 kgCO₂e

Total Embodied Carbon

17,922 kgCO₂e

Biogenic (Sequestration + Emissions)

Ecosystem Restoration

Tropical Dry Deciduous

165,210 kgCO₂e

Subtotal

165,210 kgCO₂e

Ecosystems Existing To Protect

Tropical Dry Deciduous

4,034 kgCO₂e

Subtotal

4,034 kgCO₂e

Perennials Perennial Grasses

Perennials / Perennial Grasses

13,363 kgCO₂e

Subtotal

13,363 kgCO₂e

Trees

Deciduous Large Tree

379,112 kgCO₂e

Subtotal

379,112 kgCO₂e

Total Sequestration

594,227 kgCO₂e

Total Biogenic-Related Emissions

32,508 kgCO₂e

Total Biogenic Impact

561,720 kgCO₂e

Operational Emissions

Landscape Water Use

Moderate Water Use

34,780 kgCO₂e

Low Water Use

71,547 kgCO₂e

Subtotal

106,327 kgCO₂e

Maintenance Equipment

Electric Leaf Blowers / Vacuums

0 kgCO₂e

Gas-Powered Leaf Blowers / Vacuums

0 kgCO₂e

Subtotal

0 kgCO₂e

Soil Amendments Mulch

NPK Fertilizer Application

11,193 kgCO₂e

Subtotal

11,193 kgCO₂e

Total Operational Carbon

117,521 kgCO₂e

Net Impact over 60 Years

426,277 kgCO₂e

BENEFITS

Biodiversity

Ecosystem Protection

Native Ecosystems Protected

65 %

Native Ecosystems Removed

35 %

Biodiversity Net Impact

Native Ecosystem Impact

38 %

Native Ecosystem Restored

4,900 m2

Native Ecosystem Removed

1,400 m2

Native Planting Impact

-22 %

Native Tres Planted

70 %

Native Trees Removed

75

Native Shrubs Planted

0

Native Perennials Planted

220 m2

Habitats to Protect or Restore

Biome

Tropical & Subtropical Moist Broadleaf Forests

Ecoregion

Magdalena Valley montane forests

Water

Evapotranspiration

Average Annual Potential

1,739 mm/yr

Evapotranspiration (ETo)

Landscape Water Use

Total Planted Area

2,500 m²

Annual Baseline

4,347,500 L/y

Maximum Water Allowance

3,043,250 L/yr

Annual Site Water Usage

1,476,770 L/yr

Reduction From Baseline

66 %

Cooling

Heat Island

Severe Heat Area

No

Shade

Broad Biome

Forest

Total Area Shaded By Trees

7,565 m²

Percentage of Site Shaded By Trees

77 %

Total Area of Shade Structures

2,000 m²

Percent of Area Shaded by Structures

20 %

Equity

Overburdened and Underserved Communities

Underserved Community

No

Community Engagement

N/A*

Green text represents sequestration and targets met.

Total Biogenic Impact breakdown

* N/A: Not Applicable based on location or no data entered.

** : Based on data entered, project will not become climate positive.

1

2

3

Download as pdf

My Projects

GARDEN

years to positive

Demolition Study

Demo

GARDEN

years to positive

Bridge Project

PARK

11 years to positive

Climate Positive Park

Parking lot transformation

PARK

years to positive

Airport

Parking lot transformation

PARK

years to positive

Roof Garden

New project

Profile button



Your Name
Your Organization

My projects

climatepositivedesign.com

Donate

Logout

Select My Projects or hit the back button to access all your projects.

Click to access a project

Start a new project

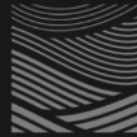
view all projects or start a new one

climate**positive**
design



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... and keep going!



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