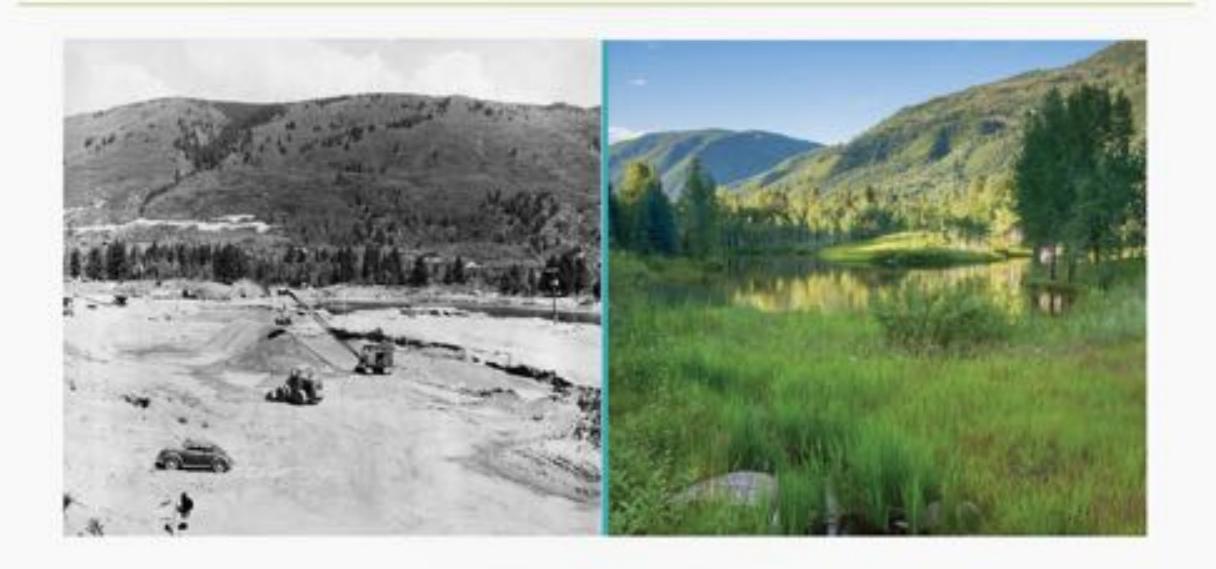
INNOVATIVE DEVELOPMENT OF PUBLIC RIGHTS OF WAYS FOR A SUSTAINABLE FUTURE







REGENERATIVE LANDSCAPES



#Sustainable SITES Initiative®

Sustainable SITES Initiative™

The SITES Rating System is administered by Green Business Certification Inc (GBCI), the premiere organization independently recognizing excellence in green business industry performance and practice globally. The material on which the SITES Rating System is based was developed through a collaborative, interdisciplinary effort of the American Society of Landscape Architects Fund, The Lady Bird Johnson Wildflower Center at The University of Texas at Austin, and the United States Botanic Garden.





Areas of Focus



ECOSYSTEM SERVICES

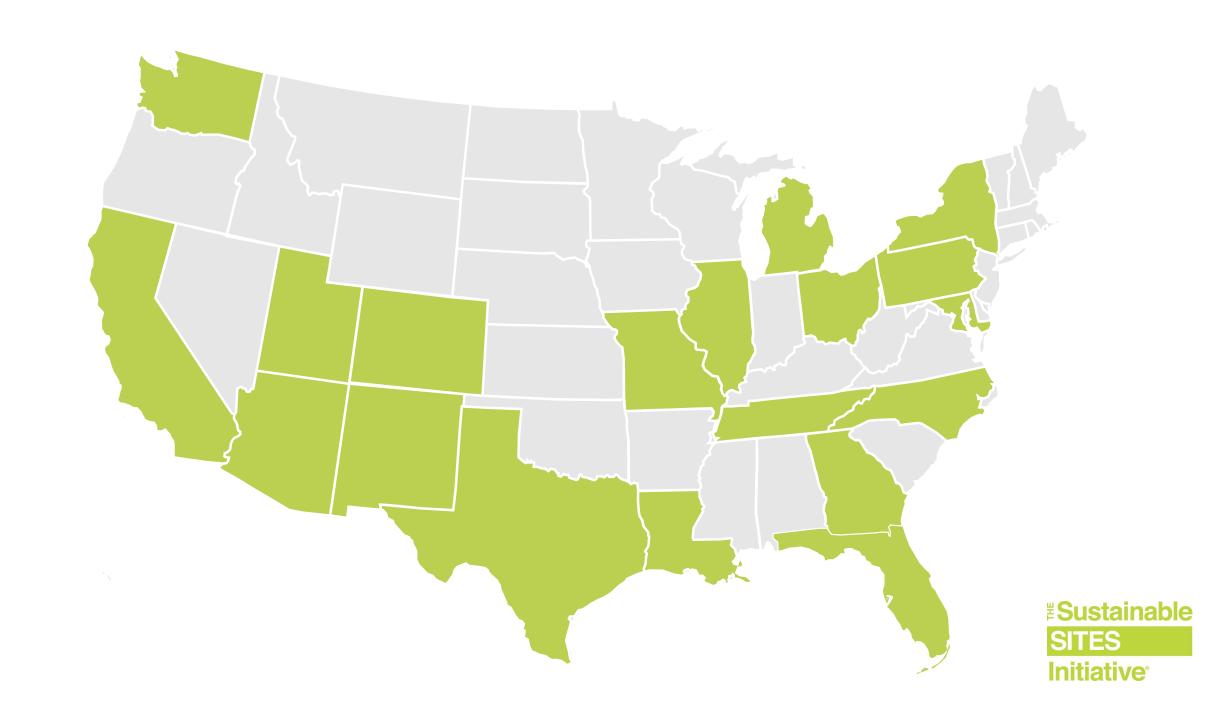


White House Memorandum: Incorporating Ecosystem Services into Federal Planning & Decision Making









SITES v2 Rating System

For Sustamente Land Design and Development.



Suntainable

24.0

Indiana in con-

SITES v2 Reference Guide

For Sustainable Land Design and Development



Supplemental

1000

Indicate to

SUITABILITY

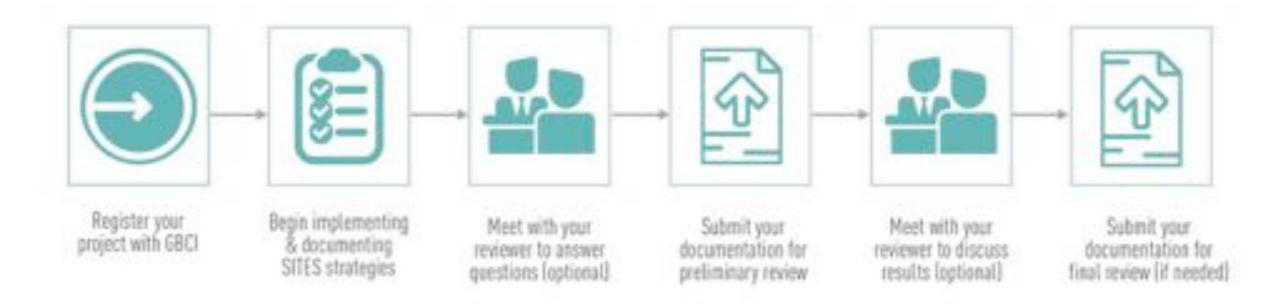
- New construction or major renovations
- No maximum size
- Minimum of 2,000 square feet
- Anywhere in the world
- Early engagement



SITES CERTIFICATION | 200 TOTAL POINTS

CERTIFIED	70
SILVER	85
GOLD	100
PLATINUM	135

CERTIFICATION PROCESS



Sustainable SITES Initiative



SITES v2 Rating System

For Sustamable Land Design and Development



CAMPACINE .

LEGISTIC STREET

Part and the

SECTION 1: SHE CONTEXT

SECTION 2: PRE-DESIGN ASSESSMENT & PLANNING

SECTION 3: SITE DESIGN - WATER

SECTION 4: SITE DESIGN - SOIL + VEGETATION

SECTION 5: SITE DESIGN — MATERIALS

SECTION 6: SITE DESIGN - HUMAN HEALTH + WELLBEING

SECTION 7: CONSTRUCTION

SECTION 8: OPERATIONS + MAINTENANCE

SECTION 9: EDUCATION + PERFORMANCE MONITORING

SECTION 10: INNOVATION + EXEMPLARY PERFORMANCE





















SITE

PRE-DESIGN ASSESSMENT

DESIGN DEVELOPMENT & CONSTRUCTION DOCUMENTS

CONSTRUCTION

OPERATIONS & MAINTENANCE

SITES GOALS

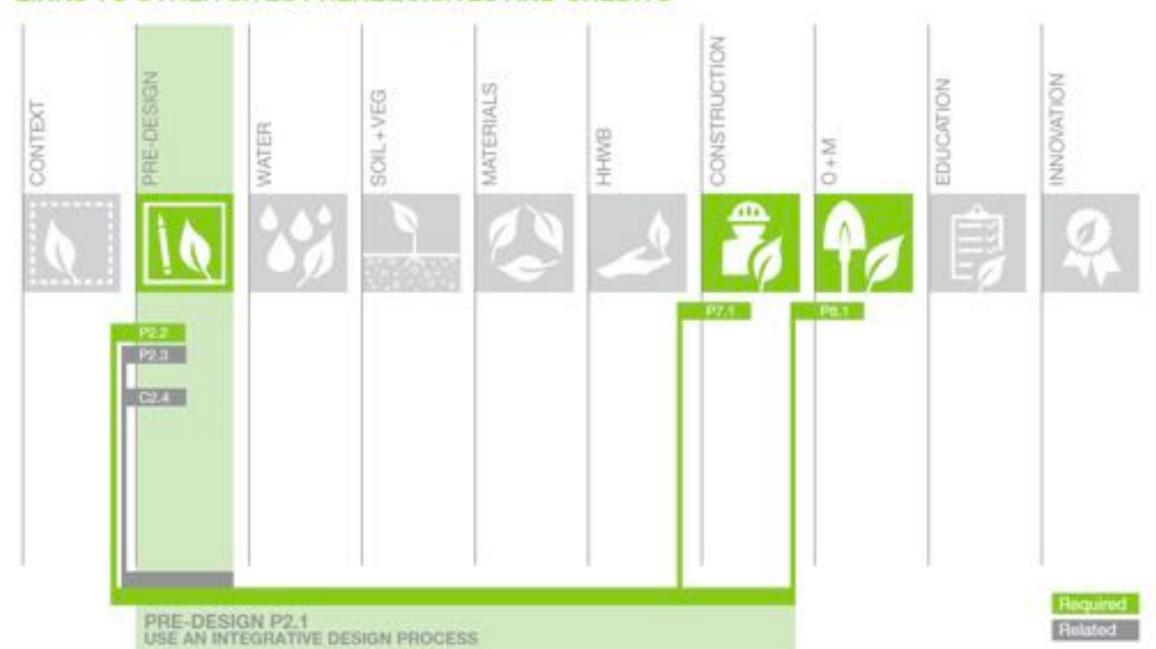
>> Transform the Market through Design, Development, & Maintenance practices

>>> Create Regenerative Systems & Foster Resiliency

>> Ensure Future Resource Supply & Mitigate Climate Change

>>> Enhance Human Well-Being & Strengthen Community

LINKS TO OTHER SITES PREREQUISITES AND CREDITS



SITES PROFESSIONAL CREDENTIAL

What is a SITES AP?

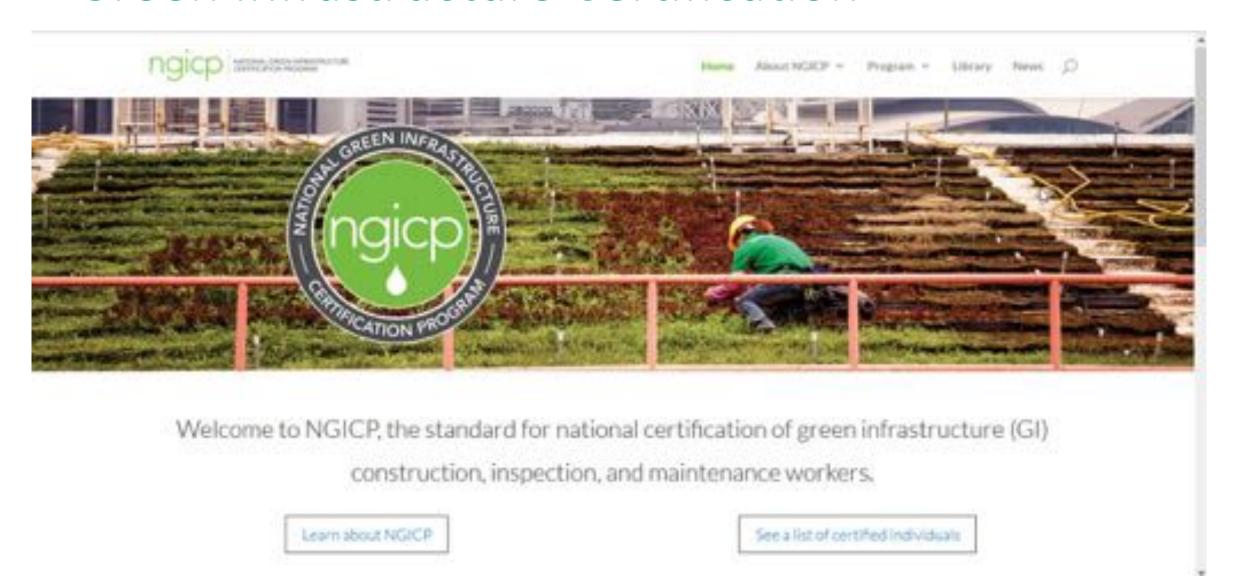
A SITES AP is an individual who possesses the knowledge and skills necessary to support the SITES certification process, including participating in the design and development process, supporting and encouraging integrated design, managing the application and certification process, and providing advocacy and education for the adopting of SITES.

RESOURCES

- SITES website: sustainablesites.org
- SITES v2 Rating System & Reference Guide
- Case studies of certified projects
- Educational webinars & workshops
- Quarterly calls
- Subscribe to newsletter



Green Infrastructure Certification



Chinatown Green Street Demonstration Project



Project Background

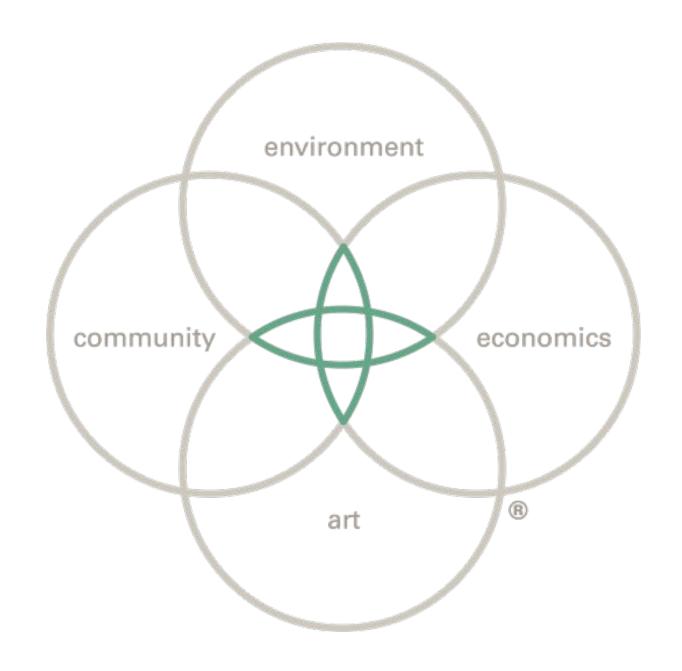






DESIGN WORKSHOP

- 45-year old company
- Landscape architecture, urban design and planning, environmental graphics and development services
- 10 offices (8 in US, 2 overseas)
- National leader in performance based design



DESIGN WORKSHOP TEAM

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS

LOCAL, NATIONAL AND INTERNATIONAL CITIZENS

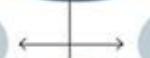
DEHME VAN SWEDEN

Cook Landscape Architect, Public Outsignth, Diobriet, State and

federal Parmitting

Lisa Didutace - CED Processel

Six Brott - Principal



STAKEHOLDERS

District Department of Transportation. DC Office of Planning, DC Water, DC Historic Preservation Office, District Department of the Environment, National Capital Planning Commission, Commission of Fine Arts

DESIGN WORKSHOP

Lead Design, Project Management, Public Outreach, Environmental Graphics/Interpretation, Green Infrastructure

Steven Spears - Principal in Charge Philip Koske - Project Manager Fenglin Du - Landscape Architect Kelan Smith - Environmental Graphic Designer

WALTER P MOORE Transportation Engineering

Structural Engineering Jenetie Post - Principal Elizabidh Bryasi - Senior Associate

VIKA CAPITOL Severing, Chil Engineering, Greek influstracture, District, Black and Federal Parenting

Kris Olivet - President

Middley Hal-

Director of Sarveys

BLAKEY & AGREW Public Relations

Jeff Agreey - Proceput Lede String - Printing

DESIGN WORKSHOP TEAM

LARRY KIRKLAND

Atted

GINNIE COOPER -

Agency Lieson

"Named J.C. complision.

CONSTRUCTION

ECOSERVICES Green Infrastructure

Doold Bath: - Director

Operations and Maintenance Robert Adeir - President



Indicates DC Based Firm

REGIONAL CONTEXT



O supplies contact of contact of

VISION

GREEN

A term used to refer to goods and services, laws, guidelines and policies claimed to inflict reduced, minimal, or no harm at all, upon ecosystems or the environment.







STREET

Paved public thoroughfare in a built environment; a public parcel of land adjoining buildings in an urban context, on which people may freely assemble, interact, and move about.







DEMONSTRATION

Showing by reason or proof, explaining or making clear by use of examples or experiments; to clearly show.

A NATIONAL DILLEMMA

As a society, we now understand the unintended negative consequences of the current model of street infrastructure investment, and are also experiencing an infrastructure that has reached the end of its lifecycle. Simply put, the majority of our infrastructure in the U.S. is coming upon exhaustion and a new model must be created and implemented.





A NATIONAL DILLEMMA: EXHAUSTED INFRASTRUCTURE



Interstate 10 in California collapsed after heavy rain. Photograph: Nick Ut/AP

THESIS

On average, street rights of way are the largest collection of public domain in any given city in the U.S. Road reconstruction offers a great opportunity to integrate green infrastructure into new, vibrant streetscapes. Since they are more than a transportation network, **streets should take full opportunity** to ensure the most appropriate stormwater management, energy use, and long lifecycle, thus making the corridors green, complete, and smart streets.

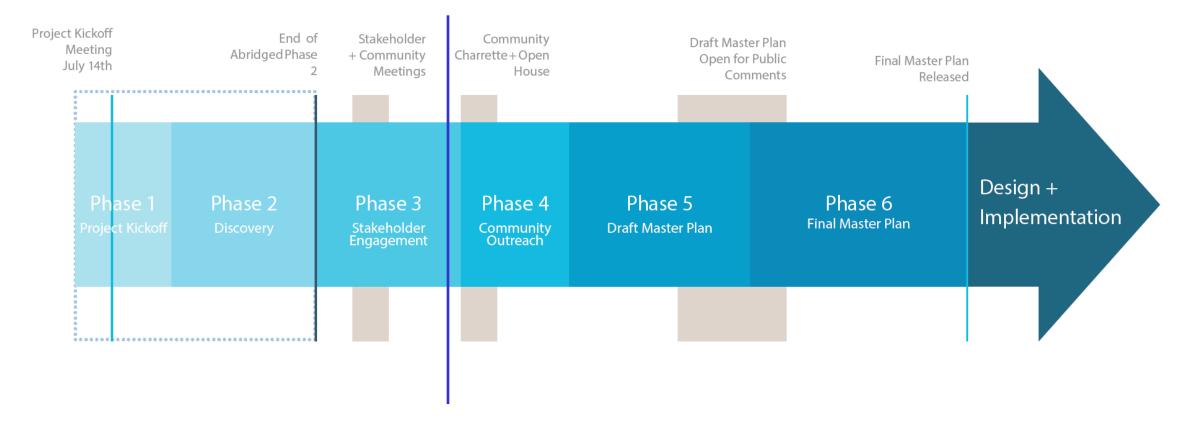






NEW YORK CITY 28% area public right of way

SCOPE



- PHASE I: Project Kickoff
- PHASE II: Discovery
- PHASE III: Initial Stakeholder Engagement Meetings and
 - **Public Relations**

- PHASE IV: Preliminary Alternatives and Community Outreach
- PHASE V: Draft Master Plan and Preliminary Cost Estimate
- PHASE VI: Final Master Plan and Opinion of Probable Costs

THE ASLA METHOD

Define the scope, boundaries, dilemma, thesis, success factors and goals for the project. Explore the existing conditions of the site and determine the function and potential of the project.

Determine strategies based on the project goals, level of reconstruction, and project potential. Incorporate and test strategies in the design, implementation, and maintenance of the block.

Construct the preferred alternative based selected set of strategies. Incorporate and test strategies in the design, implementation, and maintenance of the street.

Define the approach Discover >
the personality
of each block

Partners and



Implement the preferred alternative Monitor
 and report



Clearly articulate the scope, measures of success, and goals of the project from the start.

DISCOVER

the personality of each block



Rather than using a typical cross section across an entire street, each block should be examined individually to determine its unique use and potential.

REFERENCE

Partners and benchmarks



Identify goals and strategies that can be quantified. Reference national models and benchmark projects in other communities to see what methods have proven to be successful. This will make it possible to measure success and adjust approaches if desired metrics are not met.

TEST Strategies through design

Identify potential pilot sites to test ideas on a small-scale. Doing so will ensure success when implemented across the site.

IMPLEMENT

The preferred alternative

Draw from lessons learned in the test phase and employ those strategies that showed greatest success.

MONITOR

And report



By returning to the site after implementation, maintenance regimes can be adjusted as needed, and one can validate whether the goals and strategies were relevant and measure the economics, environment, community, and artistic benefits. This data can then inform future decisions.

PROJECT GOALS

Deluor a project that represes aciding tree and vegetation health.

Reduce Roof-event frequency.

6

GOAL PRELIMINARY SYSTEM OF HEASUREHEMT Maveries landscape to abooth and relain stormester. Sittle gallore copiused and persont of 0.5" rain sweet. Flotum stormwater to system as a clean resource. Percent of total public space treated to (K) water quality sharebards. Reduce ambient air temporatures and heat taland offect. Percent reduction in insurance or temperature. Mornios energy budget needed to power infrastructure. Reduction in arrange year by cost in dollars. Utilize recycled content and minimum wasts in high-impact ways. Percent by material cost of regionally-accuracy materials. Percent by majorial cost of regionally-enumed majorials. Dya regional resources. Improve local air quality. Tors of CO2 allerment Maximize appropriate bird and much habital. NUA Miranico prisibile water Incligat. Gallors of potable solar delerned from project (or city?). Evaluate how the project can improve resiliency to climate change. Reduce light pollution.

Reduction of pipe back-spx in the amplyoners.

Community



GOM		PRELIMENARY SYSTEM OF MEASUREMENT
1.	Oreate and preserve unique social rodes.	Number of distinct places createst.
2	Promote probettion safety.	Reduced owne rate and reduced pertentries accordings.
2	Expand public private organizated for the priject.	Number of agencies and groups engaged.
A	Educate the public about the proposed improvements and how sustainability impacts their daily Ms.	Number of people reached:
1	Achieve buy-in and support from local developiers, non-profits, residents and ASLA community.	Number of agencies and groups that endorse the project.
6.	Imprise accessibility stony the contain	Percent of site ACA compliant.
2	Increase the reportunities for healthy-living within the combox.	Number of apportunities for active living and wellness.
1.	Understand has the project impacts hands related to germification and shifts in local population.	Percentage of new residents/businesses to existing veridents/businesses.
8	Understand from the project may impact homeless communities and related impact.	You can the combir provide appropriate services for the formisse?

PROJECT GOALS

Economic GOAL PRELIMINARY SYSTEM OF HEASURGHENT Projected Bosper of the project/CM cost. Mow for a design that lasts. Provide a series of projects that contribute to local commerce and economy. Dollar value added to local businessess. increase entrepreneurial investment in the area. Dollar value of private investment. Capture additional funding for construction and implementation of the project. Funds raised for Project. Create new job opportunities in the community. Number of jobs added to the area. Increase 34 hour vitality of project site. Number of pedestriare at indicator times. Increase Return on Investment for developers and properly owners. Number of pedestrians at indicator lines. Increase connectivity of Convention Center, Carnegie Library, Verticon Center, Portrait Salary and other large scale operators. Walk Score, bike share travel data, pedestrian havel counts and data Minimize construction phese disruption to local businesses and services. Number of business days affected by construction. Dollars reduced in baseline operating costs. Minimize overall operating costs.

Art			
· consumer	GOA		PRELIMINARY SYSTEM OF HEASUREMENT
(6)	1.	Harbor startify, whally and personally within the district by improving overall access to art.	
(40)	2.	Ensure that art program resonates with the local community and spirit of place.	
	3,	Create a diverse retwork of art.	
	4.	Employ local artists to participate and contribute to the design.	Number of erisis engaged in the process.
	6.	Utilize art to demonstrate project systems and ideas.	
	6.	Improve the overall beauty and seathering of the area.	

	SOAL		PRELIMINARY SYSTEM OF HEASUREMENT	
AMBRICAN .	1.	Embedy the relation of ASLA *lead the design and stress-below of land and communities*.		
LANDACAPE	2.	Support and empower the community.		
	3.	Leverage the expertise and resources of ASLA and its members to support community, economic, and environmental austainability.	Number of ASLA members who participated throughout the project	
	4.	Increase the violatity of the tendocape architecture profession.	Number of media events	
	6.	Promote the value of Landscape Architecture.	Total contributions to AULA for project	

SYSTEMS ANALYSIS FOR A COMPREHENSIVE STREET DESIGN





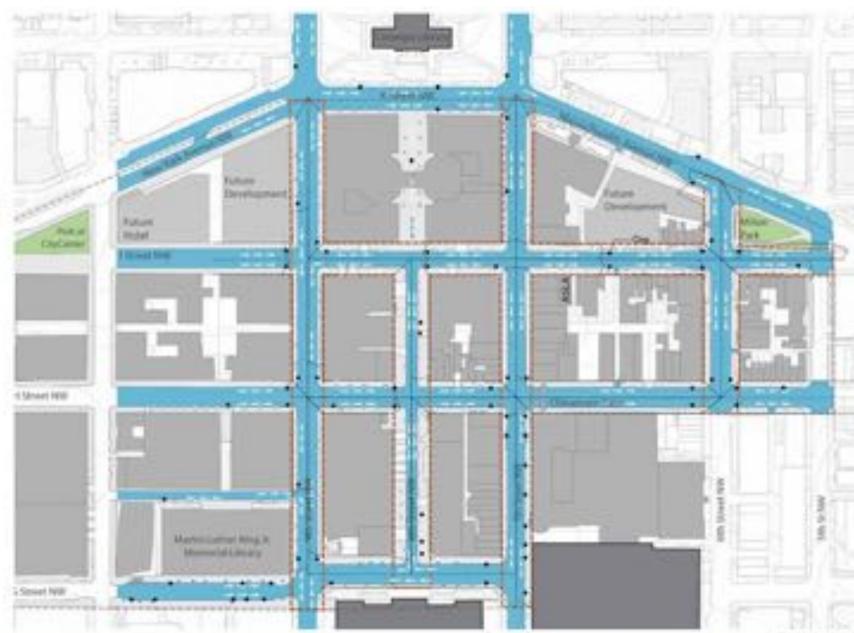


- Overall Site.
- Geotechnical/subsurface
- Traffic and transit analysis
- · Pavement conditions
- Franchise and public utilities
- Overlays and guidelines (CFA, Historic, L'Enfant, Ownership, etc.)
- Historic time line of development significance
- · Itee health
- · Existing land use and use intensity
- Views and viewsheds

- Walking distance
- Sun/shade analysis
- Surface temperature
- · Lumen/footcandle
- · Existing impation
- · Existing on street parking
- Pedestrian circulation
- · Existing wayfinding, signage and interpretive aspects
- Stornwater Drainage
- Energy Use

EXISTING CONDITIONS ANALYSIS: STORMWATER

- The study area is approximately 90% impervious.
- Water in the study area predominantly flows south at a rapid pace.
- The site is at the intersection of three combined sewer system watersheds.
- Areas where drain inlets are failing are consistent with where pavement is failing.





EXISTING CONDITIONS ANALYSIS: URBAN SHADE

- . Only 2% building shade in the study area mid-day in June.
- · Through all seasons, north-south running streets receive full sun at the heat of the day.
- The project team measured a +20° average surface temperature difference between shade and sun in July.
- . In the winter, east/west streets are at least 75% in the shade all day



Legand

And the last transfer

EXISTING CONDITIONS ANALYSIS: PEDESTRIAN MOBILITY AND ACTIVITY

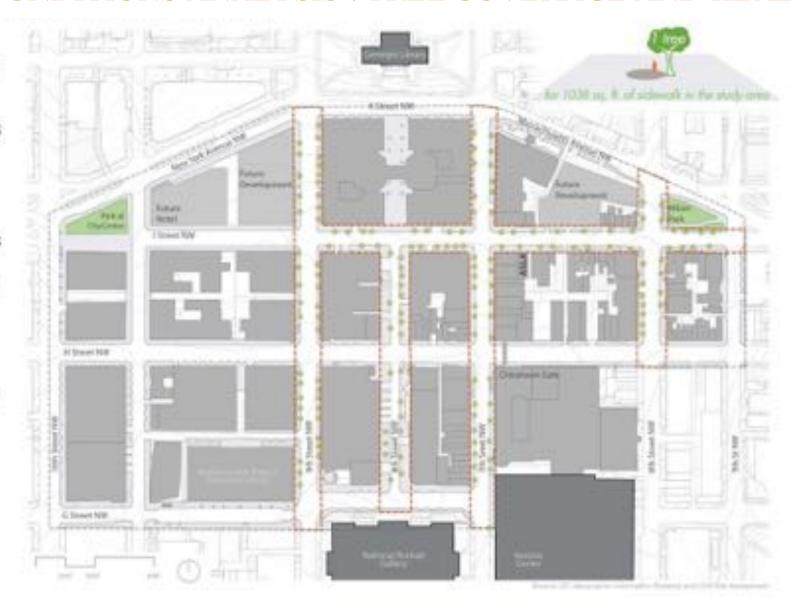
- 7th Street NW currently functions as the predominant north-south pedestrian route through the area.
- The sidewalks along 7th Street NW are among the narrowest yet busiest in the neighborhood.
- 8th Street NW has the widest sidewalks (25 feet) and very low pedestrian traffic.





EXISTING CONDITIONS ANALYSIS: TREE COVERAGE AND HEALTH

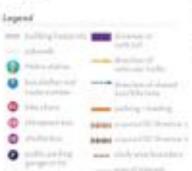
- 57% of the trees in the study area are in fair or poor health.
- The majority of trees in poor health are located on southfacing blocks.
- 50% of all tree boxes in the study area contain an electrical box.
- 120 average cubic feet of visible soil area for trees within the study area.

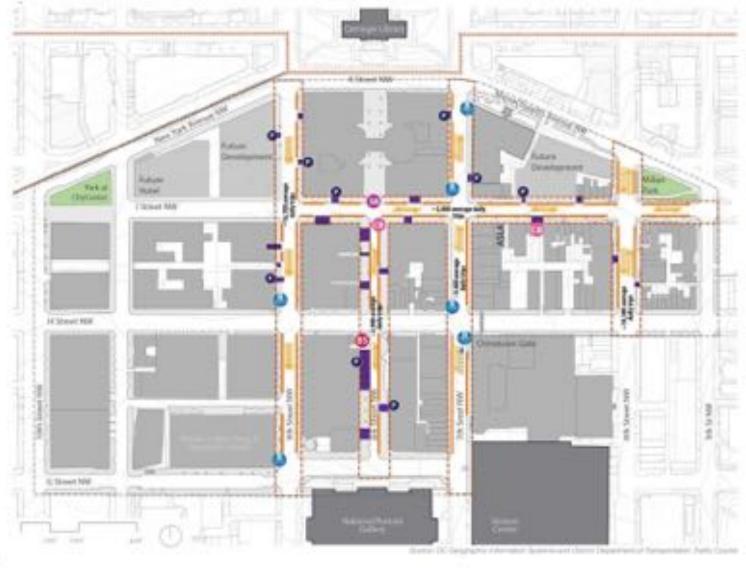




EXISTING CONDITIONS ANALYSIS: AUTO CIRCULATION AND INTENSITY

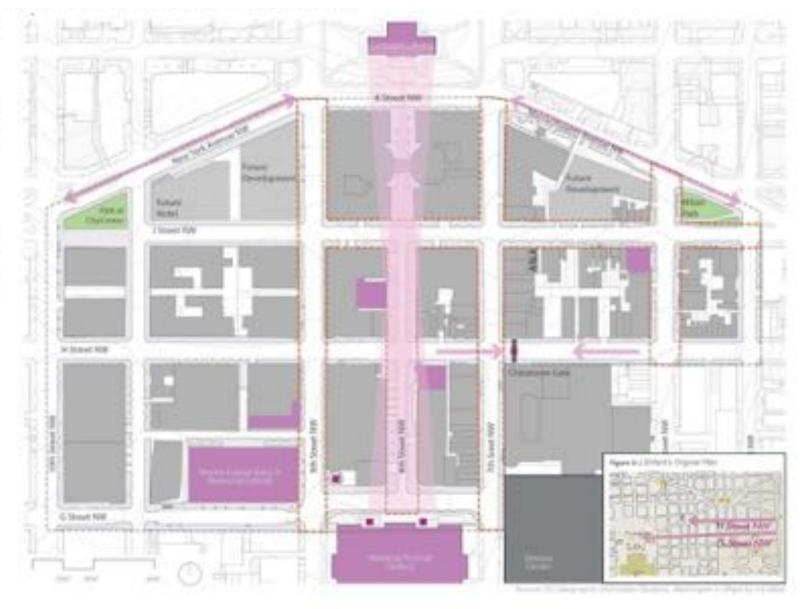
- 6th and 9th Streets NW carry the most automobile traffic in the study area.
- 6th Street NW is designed for the heaviest vehicular capacity, with four lanes of traffic.
- 7th Street NW provides the most mobility options with multiple bus lines and a shared bus/bike lane.
- Loading and garage entry curb cuts are located on 8th Street NW.





EXISTING CONDITIONS ANALYSIS: CULTURAL AND HISTORIC SYSTEMS

- The L'Enfant Plan for Washington, D.C. positioned a strong vertical axis along 8th Street NW between the Carnegie Library and the National Portrait Gallery.
- The Chinatown Gate on H and 7th Street NW also serves as a wayfinding and sculptural element.

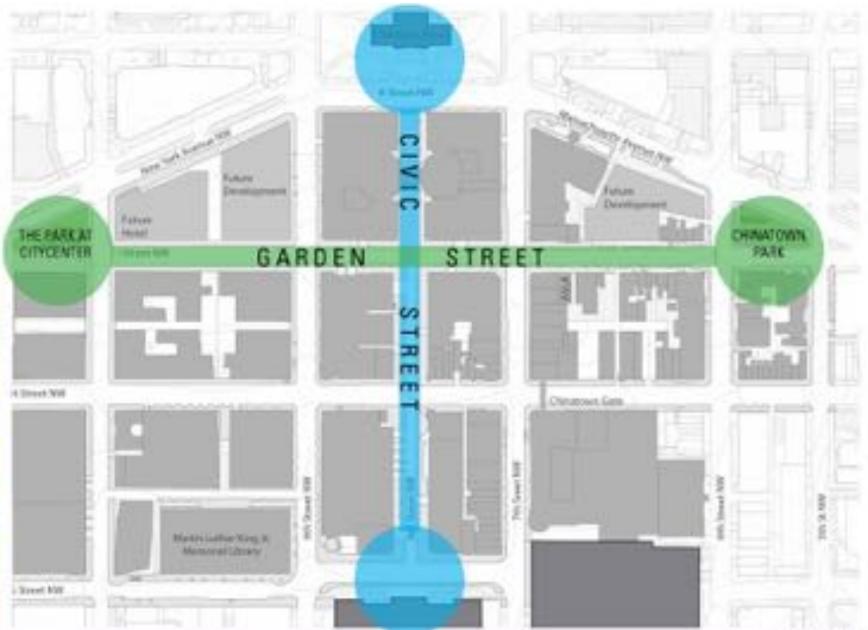




CODE DIAGNOSTICS

Environment	Suntainable DC Plan	DOOT Gream Mrastructure Standards	Washington, D.C. Downtown Streetscape Regulations	Greenwada Reference	SITES Reference
Ex. Maximize landscape to absorb over	Credition of terror worker	ý.			
Esa Direct plumenter rollumente per visus synfecies.	Water 3.2: Increase the use of green infrastructure along public rights of was			EW.3 Burell Filter Control I. S. Seduce runoff questio, PT-5. Permeable Personant as a U.D. technique.	Credit J. J. Plenage precipitation on site (valuit the coth perpetite rain event for impercious stead). Credit J. J. Manage precipitation beyond lesseline (both, soth or 05th percentilid.
E.S. Use regulation to alwork: alumnester.					Arrestoner 9
E)c Create holding capacity of colour face conditions.		Soil volume sizing benchmark. Small trav- actors, Medium Irea L. cottos. Large tree- 1.000.	Downtown Streetscape Regold tone 1 504.9. Depaires a 4 fact to 10 fact planter per tree, appears to be the only per visco pone allowers.		
E1d the returned dominates for original purposes.	Wyber 3.5 Expandium of neighborhood- scale water collection rections.		Downtown Streetscape Regulations 1155 Department adming by adjacent property prenant.	EW3 Bured Film Control 1.3 Reduce rated quantity.	Credit 1.5 Reduce-Sostativi water use for fandscape inligation, Credit 5 & Bolisse subdoor water use.
Esa. Danalop and implement a pervisos system cleaning plan.		Provides a basic subtractor paving maintenance.			
Ept. Develop and implement a soil maintenance plan.			Dipartment Streetscape Regulations (300) Requires maintenance by adjacent property owners.		
Ex. Debura sharmonther to syntam as a c	Searcesource :	3/		Annual Control of the	
Cts. Reduce total TSS from row elonewater.				EW3-Runoff Quality 1.5. Treat-stormwater to a higher level of quality.	
E26. Reduce total bacterial content of new photosystes.				EH 3-Rorall Quality L.S. Freel stormester to a higher brail of quality.	
E3c. Reduce levels of heavy metals have ran alcomoster.				CHI 3-Russell Quality 5.3. Treat stormweler to a higher fenal of quality.	
East Deduce levels of remerals and chemicals from one stormwater.				EW3-Runoff Quality 1.3 Freel stormwater to a higher level of quality.	

PARTI DIAGRAM



CHERRY CREEK MORTH - DEMYER, CO.



I STREET PILOT PROGRAM



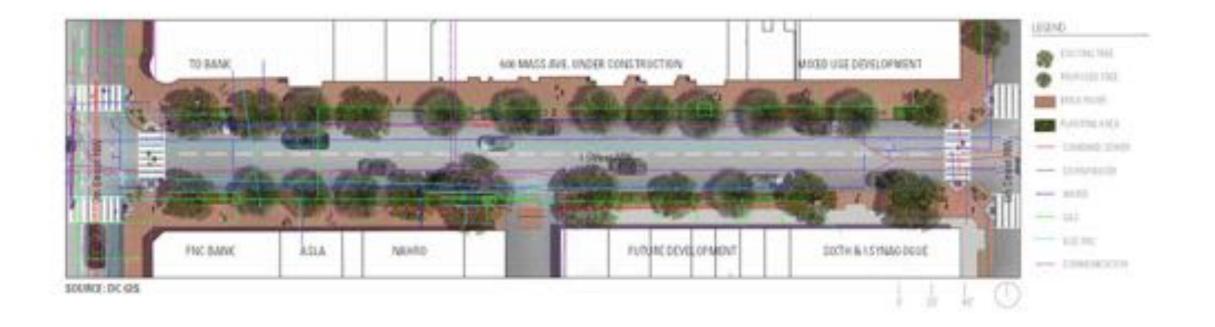


ANALYSIS AND STRATEGIES





UTILITY CONSTRAINTS

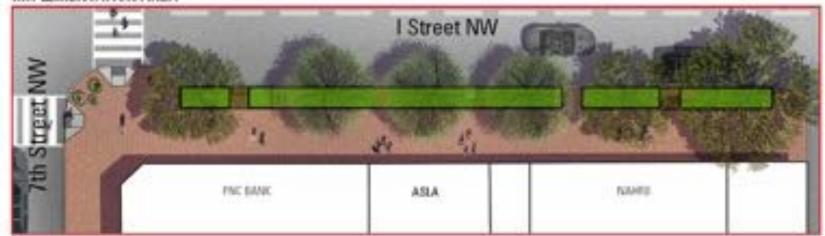


STRATEGY 1: INCREASE PERVIOUS AREA THROUGH INCREASED PLANTING AREA

600 - 700 I STREET NW



IMPLEMENTATION AREA



3% EXISTING PERVIOUS SURFACE

24% PROPOSED PERVIOUS SURFACE

STRATEGY 1: INCREASE PERVIOUS AREA THROUGH INCREASED PLANTING AREA



CHERRY CREEK NORTH - DEMVER, CO.

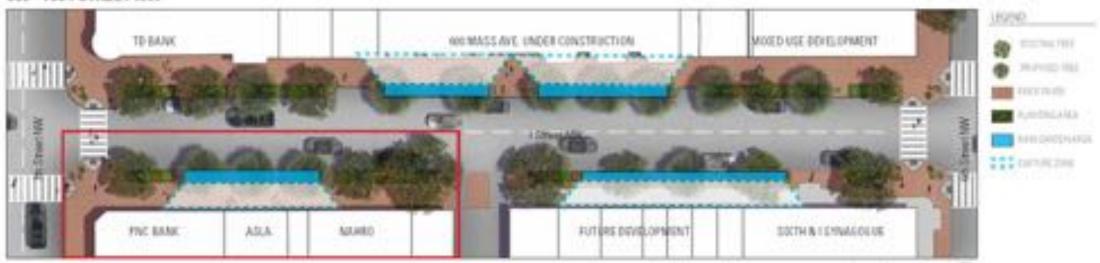
WESTER DES

STRATEGY 1: INCREASE PERVIOUS AREA THROUGH INCREASED PLANTING AREA

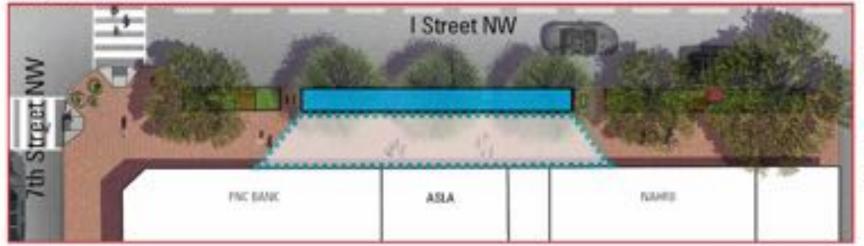


BAGBY STREET - HOUSTON, TX

600 - 700 I STREET NW



IMPLEMENTATION AREA



2775 CF

RAIN GARDEN RETENTION

100% +

12" STORM EVENT WITHIN CAPTURE AREA



ELMHURST QUEENS, NY





CLETURAL TRAK - INDIANA/YOUR. IN





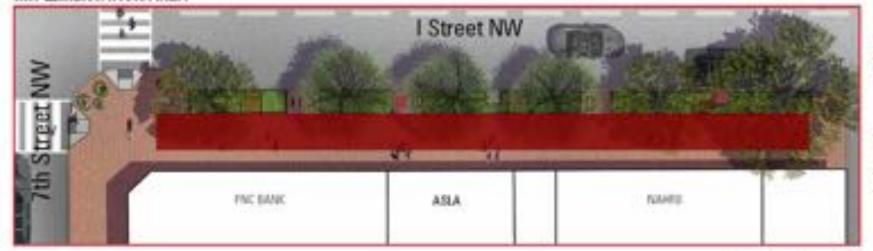


STRATEGY 2: RETAIN STORMWATER - PERMEABLE PAVERS

600 - 700 I STREET NW



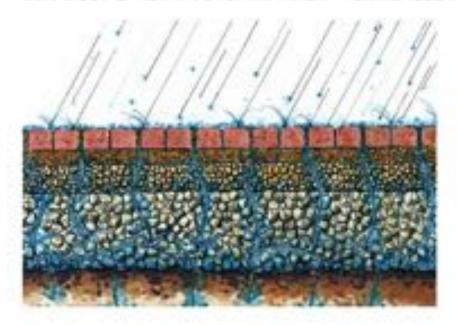
IMPLEMENTATION AREA



17243 CF PERMEABLE PAVER RETENTION

100% + 12" STORM EVENT WITHIN CAPTURE AREA

STRATEGY 2: RETAIN STORMWATER - PERMEABLE PAVERS



I Street NW currently uses Pine Hall Red (PH-1) 4x8x2-1/4
 pavers in basketweave pattern. Pine Hall Brick also makes a
 matching permeable brick paver called StormPave that is used
 on several municipal, institutional and commercial projects in
 the district.

STRATEGY 2: RETAIN STORMWATER - PERMEABLE PAVERS

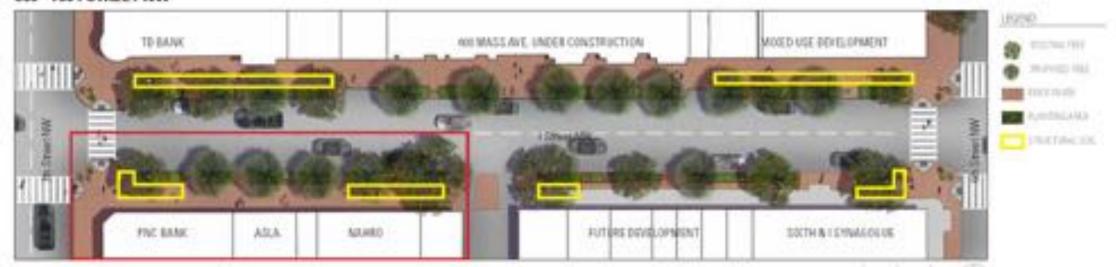


BAGBY STREET - HOUSTON, TX

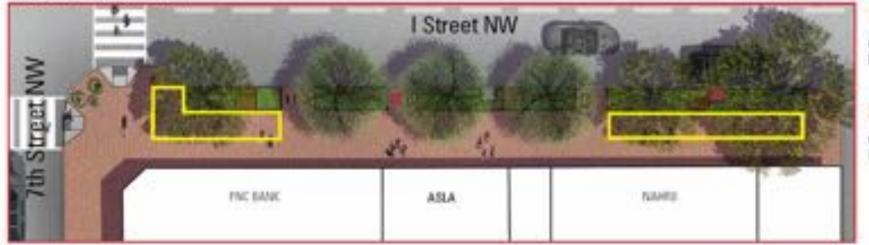


STRATEGY 3: INCREASE SOIL VOLUME

600 - 700 I STREET NW



IMPLEMENTATION AREA



130 CF

AVG SOIL VOLUME EXISTING PER TREE

800 CF

AVG SOIL VOLUME PROPOSED PER TREE

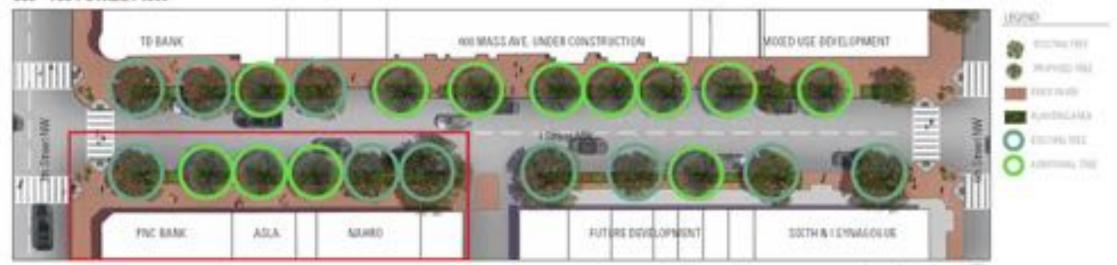
STRATEGY 3: INCREASE SOIL VOLUME



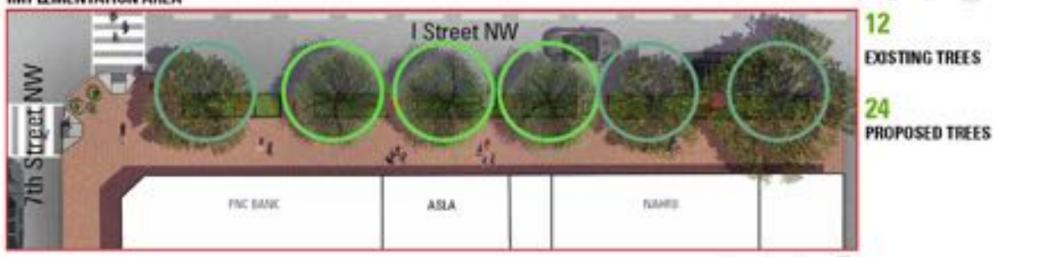


STRATEGY 4: PLANT MORE TREES

600 - 700 I STREET NW



IMPLEMENTATION AREA



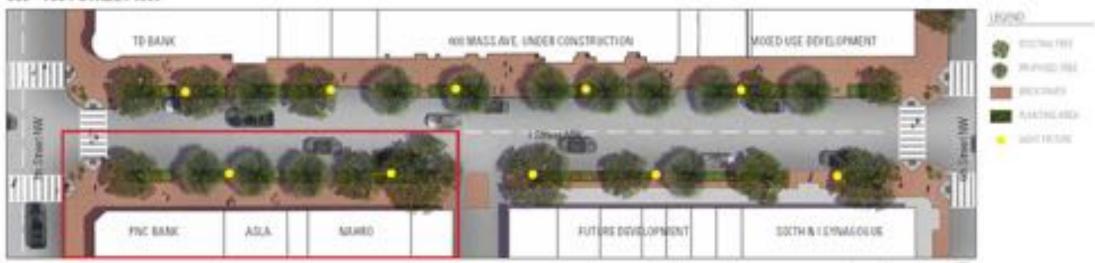
STRATEGY 4: PLANT MORE TREES



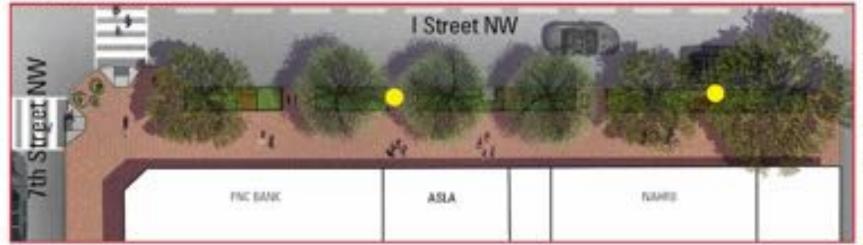
THE DOMAIN - AUSTIN, TR

STRATEGY 5: REDUCE ENERGY CONSUMPTION BY SWITCHING TO LED

600 - 700 I STREET NW



IMPLEMENTATION AREA



293 kWh

WATTAGE PER HOUR OF EXISTING LIGHT

141 kWh

WATTAGE PER HOUR OF PROPOSED LIGHT:

52% ENERGY REDUCTION

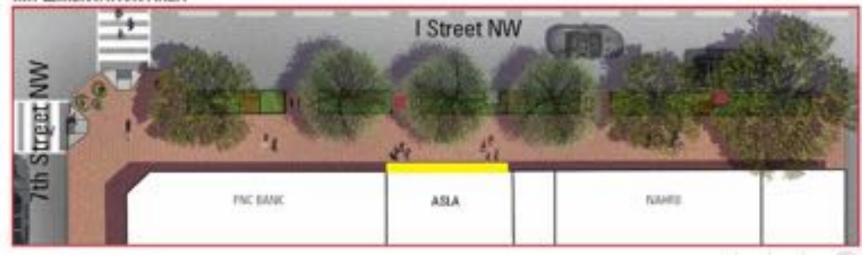


STRATEGY 6: USE TECHNOLOGY TO MONITOR AND DISPLAY DATA

600 - 700 I STREET NW



IMPLEMENTATION AREA



STRATEGY 6: USE TECHNOLOGY TO MONITOR AND DISPLAY DATA



BACEY STREET - HOUSTON, 1X

GREEN, COMPLETE, AND SMART STREETS

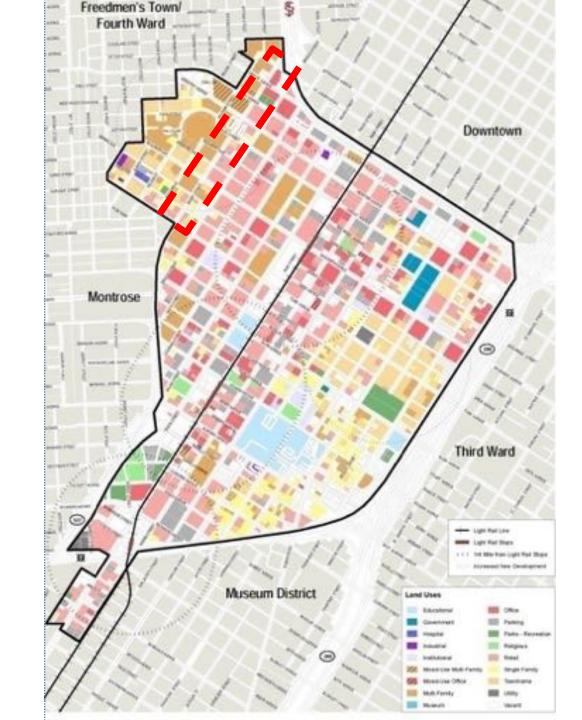


GREEN, COMPLETE, AND SMART STREETS

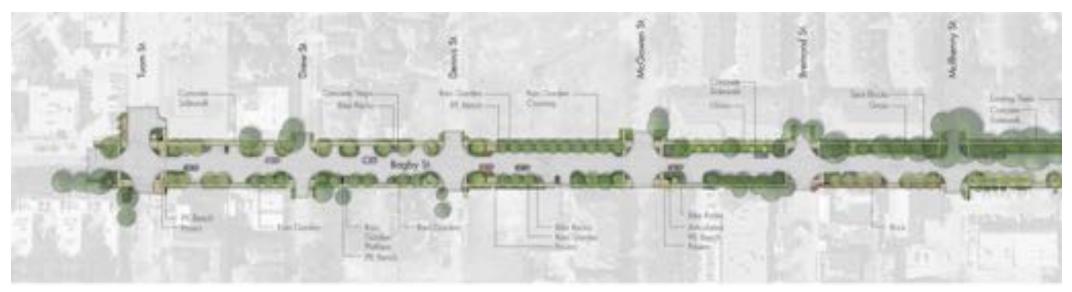


BAGBY STREET

- Midtown Redevelopment Authority
- Located immediately south of downtown
- Emerging mixed use district
- Cultural arts and entertainment district



MASTER PLAN: NOT A ONE SIZE FITS ALL

























ECONOMIC IMPACT OF GREAT STREETSCAPES



BAGBY STREET HOUSTON, TX

- \$55 million in reinvestment along the corridor.
- 22% increase in lease rates along the corridor.



CHERRY CREEK NORTH DENVER, CO

- 16% in district sales tax in just the first year.
- This was more than double the rates of increase for both the city and the entire Denver Metro Area.



LINCOLN ROAD MIAMI, FL

- 85% increase in the total assessed value of properties within 1/2 block of improvements.
- 80% (1.2 million) increase in property values.



NORMAL, IL

- UPTOWN STREETSCAPE \$1.5 million (or 9%) of increased property values.
 - \$680,000 increased revenue by adjacent conference center.



SOUTH GRAND BLVD ST. LOUIS, MO

• 14% increase in sales tax after 1st year. Proforma projected a 19% increase over 10 years.

THANK YOU



