LOUISVILLE, KY

SUSTAINABLE NEIGHBORHOOD ASSESSMENT

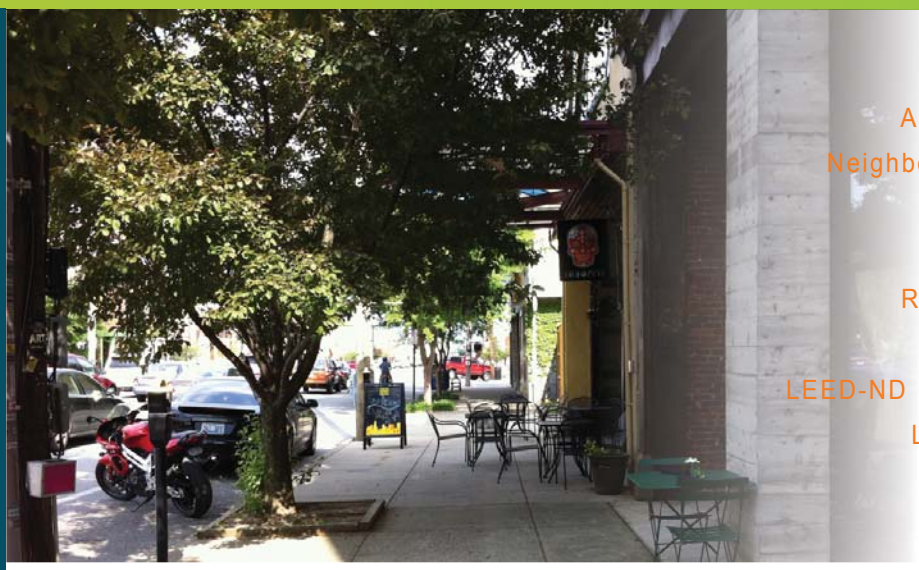
May 16 - May 18, 2012

Sustainable Neighborhood Assessment Using LEED-ND

Through the Sustainable Neighborhood Assessment Tool developed by Global Green USA, public officials and local government staff are using the LEED for Neighborhood Development (LEED-ND) rating system to determine ways that future development in their communities can achieve high levels of environmental, economic, and social sustainability. LEED-ND integrates the principles of smart growth, walkable urbanism and green building into the first national rating system for neighborhood design. In Louisville, KY, Global Green used the assessment tool to reveal the existing, planned, and potential sustainability levels of the City's East Market District and to make sustainability-related recommendations.

Environmental Protection Agency

Technical Assistance provided by Global Green USA with Raimi + Associates and the US Green Building Council to the City of Louisville was made possible through funding from the US EPA's Office of Sustainable Communities Building Blocks for Sustainable Communities Grant Program.



Contents

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GLOBAL GREEN USA

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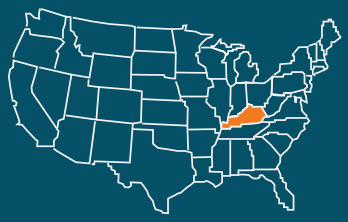
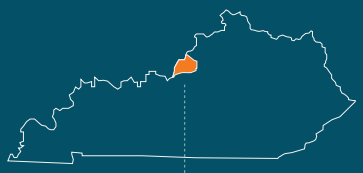
Neighborhood Location

Kentucky



Jackson/Louisville County



East Market Street District

Sustainable Neighborhood Assessment Process

The goal of the sustainable neighborhood assessment process is to establish several focus areas where policy and planning changes in a particular area can promote sustainable urban development over the short and long term. To define these focus areas, Global Green USA and its team use a sustainable neighborhood assessment tool whose backbone is a modified LEED-for Neighborhood Development (ND) checklist and associated metrics. Prior to visiting the target neighborhood, the team conducts a thorough review of relevant planning documents, code requirements, and city and stakeholder priorities for the neighborhood and creates an initial augmented LEED-ND checklist, marking each credit as "achieved", "not achieved," "unknown," or "not applicable" according to baseline conditions. This initial checklist ranks credits within the three LEED-ND categories (Smart Location & Linkages, Neighborhood Pattern & Design and Green Infrastructure & Building) as they compare to local policy priorities, regulatory support, technical feasibility, market support, and stakeholder input. The checklist for the East Market Street District is provided on pages 15-17.

The Global Green team then conducts a three-day site visit that includes walking every block of the target neighborhood, several meetings with city staff and other targeted stakeholders, and an open community meeting. Throughout this process, the preliminary checklist is edited and augmented to incorporate the team's visual observations, issues raised during stakeholder meetings, and priorities developed during the community workshop. The checklist helps to group individual sustainability components into the broad focus areas noted on the next page in the green box. It also provides specific sustainability performance metrics – taken directly from LEED-ND – for those focus areas. These metrics often then serve as the technical criteria of the team's specific policy and planning recommendations.

At the end of this process in Louisville, the Global Green team developed a unique set of recommendations related to pursuing formal certification under LEED-ND Rating System based on the City's desire to brand the neighborhood as a "green neighborhood." There are four critical steps to achieving certification which will include collaboration among many public and private sector partners. Although the intention behind the team's assessment process is not to formally certify the neighborhood, but rather to suggest policy, planning, and development changes that promote the sustainable growth of East Market Street District, the City's Office of Sustainability, the Louisville Downtown Development Corporation (DDC), and stakeholders in the design and development profession have shown a unified desire to pursue formal certification. This could serve as the State's first certified LEED-ND project and provide the notoriety needed to catalyze future sustainable development throughout the district.

Neighborhood Background

The East Market Street District, also referred to as NuLu (short for "New" and "Louisville"), is an unofficial district of Louisville, Kentucky, situated along Market Street between downtown to the west and the Highland and Butchertown neighborhoods to the east. A growing, district, the area is located within one of Louisville's oldest neighborhoods, Phoenix Hill. Recent developments of sustainable architecture, historic building renovations and infill development have begun creating a foundation and impetus for the success and continued development of the District. Throughout this redevelopment process over the last several years, the neighborhood has been focused on implementing sustainable development and is home to the first LEED Platinum certified building in Louisville.

The East Market Street District received federal planning funds for a streetscape improvement on East Market Street also known as US 31 East. The four-lane, one-way arterial connects Downtown Louisville to the assessment area, which quickly transitions into a three-lane arterial with a counter flow lane just one block prior to the East Market Street District boundary. This project is in conjunction with the Metropolitan Sewer District's (MSD) Green Management Practices incentive program and is a continuation of existing efforts, which include the creation of a conceptual master plan for the project area through the offices of the Louisville Downtown Development Corporation. The completed Master Plan for this streetscape project can serve as a mechanism for garnering points within the Neighborhood Pattern & Design (NPD), and Green Infrastructure & Building (GIB) credit categories within the LEED-ND Rating System as it will address urban design and public infrastructure. The District is also served by a combined sanitary and storm sewers and has been specifically targeted for significant infrastructure improvements to reduce stormwater discharge into the combined system, which provides another opportunity to utilize LEED-ND metrics to enhance functionality on a neighborhood scale.

Overall the Sustainable Neighborhood Assessment area, bound by East Main Street, Baxter Avenue, Muhammad Ali Boulevard, and South Floyd Street, coincides with the project boundary proposed for certification. It is approximately 207 acres and includes access to public transportation, including a free shuttle bus. It is approximately one mile from the center of the assessment area to the Downtown core, less than one mile away from the University of Louisville (UofL) medical campuses, and over half a dozen medical related facilities including the UofL teaching hospitals. The proximity of the assessment area to major job centers and to public transportation makes this neighborhood ideal for increase residential density while paying close attention to sustainable and equitable development. At present the assessment area is home to two LEED certified buildings with another one planned for construction. The Nucleus site, located on the western most blocks within the area is a health science business incubator that is undergoing a major expansion for which LEED-NC is targeted on all four buildings.

Neighborhood Highlights

INSTITUTIONS

GREEN BUILDINGS

LOCAL BUSINESSES

NEW DEVELOPMENT

FOCUS AREAS

Related LEED-ND Credits

LEED-ND Certification Boundary

Category: Smart Location & Linkages
- Smart Location (credit 1)
- Flood Plain Avoidance (pre

Category: Neighborhood Pattern & Design
- Walkable Streets (prerequisite & credit 1)
- Compact Development (prerequisite 2 & credit 2)
- Connection and Open Communities (credit 4)
- Street Network (credit 6)

Category: Green Infrastructure & Building
- Certified Green Building (prerequisite 1 & credit 1)
- Minimum Energy and Water Efficiency (prerequisite & credit 1 and 2)

Diversity of All Types

Category: Neighborhood Pattern & Design
- Mixed Income Diverse Communities (credit 1)
- Transit Facilities (credit 7)

Transportation and Parking

Category: Smart Location & Linkages
- Bicycle Network and Storage (credit 4)

Category: Neighborhood Pattern & Design
- Walkable Streets (prerequisite 1 & credit 1)
- Mixed-Use Neighborhood Centers (credit 3)
- Reduced Parking Footprint
- Transit Facilities (credit 7)

Green Building and Infrastructure

Category: Green Infrastructure & Building
- Building Energy Efficiency (prerequisite & credit 2)
- Building Water Efficiency (prerequisite & credit 3)
- Stormwater Management (credit 8)
- District Heating & Cooling (credit 12)
- Infrastructure Energy Efficiency (credit 13)

Catalytic Projects

The Louisville Downtown Development Corporation in conjunction with the Mayor's Office of Sustainability applied for technical assistance for the East Market Street District based on three catalytic projects. The first is the East Market Street Corridor Streetscape Improvement Plan. The Streetscape Master Plan was completed in July of 2011 and is directly within the assessment area and includes South Jackson Street and extending to South Campbell Street and including Billy Goat and Nanny Goat Strut Alleys to the north and south of East Market Street, respectively. East Market Street is currently flanked by a mix of uses with building heights ranging from two to three stories. It has three lanes of traffic east bound and one lane of traffic west bound. The street is currently dominated by impervious asphalt. The streetscape plan aims to balance vehicular traffic with pedestrian traffic and more pervious surfaces by repurposing land within the public right of way. The main concept of the Mast Plan is to create a diverse range of experiences that also enhance the stormwater runoff issues to reduce CSO issues. This will be done in conjunction with the MSDs Green Management Practices incentive program. The Plan includes the development of gathering spaces targeted for active and passive uses. The Plan calls for the creation of a variety of social spaces. Paving and seating near restaurants will replace currently underutilized areas, gallery spaces will provide a backdrop for public art, and courtyard seating with planting beds will address the surrounding history through signage. Funds have been awarded to the City to take the conceptual Master Plan to engineering and construction level documents for the streetscape improvements along with other improvements.

The second catalytic project is the Nucleus Development project. Nucleus is the research, innovation and commercial arm of the University of Louisville Foundation. It is redeveloping the former Haymarket site (former open air market that closed in the 60's) into Nucleus Innovation Park. The project is located at Market Street and S. Floyd Street with plans to achieve LEED certification. Design renderings show multiple high-rise buildings covering the entire block up to eight-stories each. It will be home to the International Center for Long Term Care Innovation, and will serve as an incubator for companies that develop products and services for the aging care sector. It will create many jobs both in the short term construction, which is expected to be complete in March of 2013 (for the first building), and over the long term with facility staff and business incubating/tenants.

The third catalytic project is the second phase of a HOPE VI Public Housing Redevelopment Project. Phase one of the project, known as Liberty Green, replaced the 1940's era Clarksdale public housing development. Some of the public housing units in Phase I became available for occupancy in 2006. The current developer, City Properties Group (CPG), is currently constructing Phase II, the market rate homeownership, student housing, and commercial portions of the master planned project known as The Edge at Liberty Green. The developer has an affiliation agreement with the University of Louisville to rent units to graduate students in medicine, nursing, and public health to capitalize on the proximity to the Universities Health Science campus and Nucleus. More student housing is under way and eventually, The Edge at Liberty Green will extend from Marshall Street north to Jefferson Street, and be bounded on the west by Jackson Street and by Shelby Street to the east. CPG has development rights to the property and will buy land as they build. Currently the land is owned by Louisville Metro Housing Authority (LHMA). The initial plan was for Liberty Green to be the first mixed-income community in Kentucky to achieve Energy Start certification.

Recommendation 1

Creating an Overlay District

RESPONSIBLE DEPARTMENT

City Planning Department, with support from the Office of Sustainabilty and the Louisville Downtown Development Corporation

With the understanding that the City's office of Sustainability and the Louisville Downtown Development Corporation will pursue LEED-ND certification for the assessment area, the following recommendations have identified the critical path towards a successful application to the Green Building Certification Institute (GBCI), the third party verifier of the Rating System.

The LEED-ND certification process bases every calculation and qualification of credits on the land which falls within a defined "project boundary". A project boundary must follow existing parcel lines and may include the public right of way adjacent to private parcels. Certification generally has three components in addition to the project boundary, they include the development program, a series of maps at various scales (project site maps, vicinity maps, and special maps), and a series of calculations. The development program will determine many of the base calculations such as the development footprint, land densities, and building information for existing, new, and renovated buildings. Beyond the base project information there are a menu of point options, some of which are only applicable to new or substantially renovated buildings, and new streets. For an existing neighborhood this means that only ceratin credit adds to the baseline score, while others are not applied to existing buildings. However, it also means that some LEED-ND standards are not attainable because only a fraction of the neighborhood is undergoing redevelopment, therefore reducing the number of points available to the project. With a minimum 40 points required to achieve certification, the Global Green team sees value in establishing an overlay district that will identify the standards to which new construction or renovations will adhere.

Similar to the Bardstown Road Baxter Avenue Overlay Districts, a LEED-ND overlay will identify which green principles are applicable within the existing neighborhood, and lay out the standards for achievement. The overlay district will serve as one of the main reference documents for the certification process. This overlay district should be adopted to amend the Louisville Metro Code of Ordinances (LMCO). Once adopted, this will create development standards that are predictable and can reduce development cost and emphasize the integrated "green" design approach expected for this neighborhood.

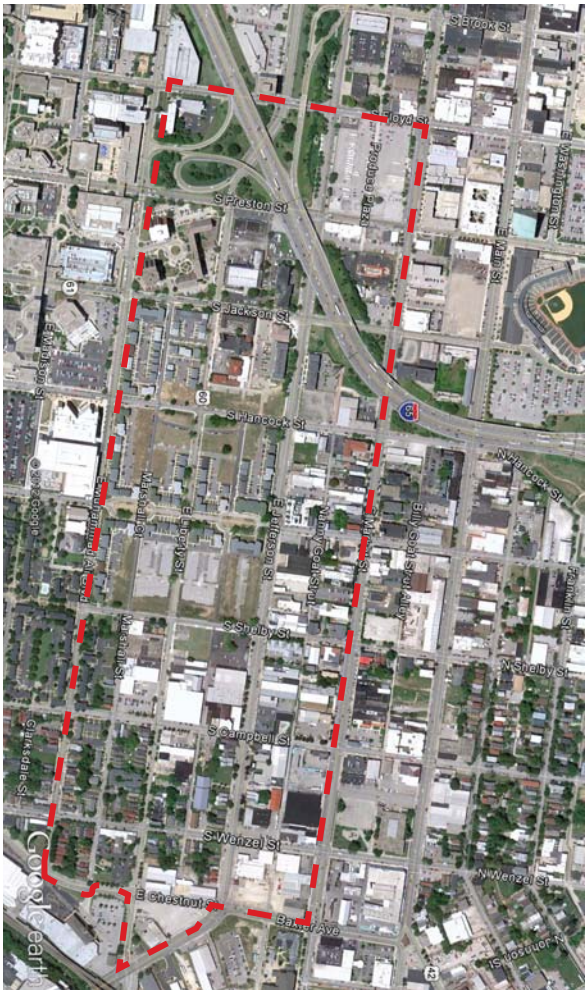
Existing urban form within the district that complies with LEED-ND Neighborhood Pattern & Design standards for walkable streets credit

Existing green buildings within the district that comply with LEED-ND Green Infrastructure & Building standards for certified green buildings credit

Creating an Overlay District

Recommendations:

1. Create an East Market Street Overlay District that coincides with the proposed project boundary-once the boundary has been finalized. This should include a citizen-review panel and be administration by the City's Division of Planning and Design Services.
    - Confirm that the Urban Design Administrator and Staff have the capacity to administer, manage, and evaluate project proposals.
    - Create and implement an overlay district checklist for both public and private improvement projects per the example starting on page 6. In the short term, prior to passing this overlay district ordinance, implement the detailed standards into the design and engineering documents for funded projects, such as the streetscape plan, which is addressed elsewhere in this document.
    - Cross reference which LEED-ND sustainability metrics are legally enforceable at the local level, in addition to which metrics the project will pursue in certification and incorporate the them into the ordinance language. In the long run the overlay metrics could serve as a case study-applicable to other neighborhoods or to local public policy.



Proposed Phoenix Hill LEED-ND Overlay: East Market Street District

Creating an Overlay District

EAST MARKET STREET OVERLAY
REVIEW CHECKLIST

DATE:

LEED for NEIGHBORHOOD DEVELOPMENT

+ Meets LEED-ND Guidelines
- Does Not Meet LEED-ND Guidelines

NA Not Applicable
NSI Not Sufficient Information

Public Projects

SPECIFICATIONS	LEED-ND STANDARD	REVIEW RESULTS
Bike Lanes	Signage for bike lanes and stripping 5 feet wide on lanes or one way paths or trails.	
Principle Entires	Entries must face apublic space or street and not a sidewalk.	
Buiding Height	Building heights should have a ratio of 1:3 to the adjacent street width from bld front to bld front.	
Continuous sidewalks	All new streets must have sidewalks.	
Reduce Surface Parking Footprint	No surface parking lot shall be more then 2 acres and any new surface lot shall be places at the side or the rear of buildings.	
Transit Facilities	All transit stations should have a covered shelter, seating, bike racks information kiosks, and appropriate signage.	
Civic and Public Spaces	Civic and public space should be at least 1/6 of an acre	
Tree Lined Streets	Within 10 years of planting, either 60% of streets must be tree-lined with appropriate trees planted every 40ft excluding driveways and utility easements.	
Green Buildings	Buildings should consider pursing LEED certification for buildings	
Water Efficient Landscapes	Landsapes shall use 40% less water from baseline useage.	
Existing Building Reuse	Whenever possible reuse 50% or more of a building and never demolish any historic structures per the HPP	
Stormwater Management	the project area should retain, on-site, stormwater from a percentile rainfall event starting at the 80% percentile whenever possible.	
Heat Island Reduction	Install pervious materials or materials with an SRI reflectance index of 29 or higher for roofs or sidewalks.	
Infrastructure Energy Efficiency	Reduce energy use by public infrastructure by at least 15% from baseline	
Recycled Content in Infrastructure	New infrastructure should use at least 50%, by mass, recycled and reclaimed materials.	
Solid Waste Management Infrastructure	Provide proper disposal of hazardous waste, recycle and compost.	

Creating an Overlay District

Private Projects

SPECIFICATIONS	LEED-ND STANDARD	REVIEW RESULTS
Bike Storage	Residential: 1 space per occupant for 30% of planned occupancy. Retail: 1 space per new retail worker for 10% of retail worker planned occupancy. See reference guide for more detail.	
Principle Entires	Entries must face apublic space or street and not a sidewalk	
Buiding Height	Building heights should have a ratio of 1:3 to the adjacent street width from bld front to bld front	
Reduce Surface Parking Footprint	No surface parking lot shall be more then 2 acres and any new surface lot shall be places at the side or the rear of buildings.	
Green Building	Buildings should consider pursing LEED certification for buildings	
Water Efficient Landscapes	Landsapes shall use 40% less water from baseline useage.	
Existing Building Reuse	Whenever possible reuse 50% or more of a building and never demolish any historic structures per the HPP	
Stormwater Management	Projects should retain, reuse, or infiltrate, on-site, all the stormwater that falls on their parcel(s).	
Heat Island Reduction	Install pervious materials or materials with an SRI reflectance index of 29 or higher for roofs or sidewalks.	

Recommendation 2

Request for Proposals for LEED-ND Certification

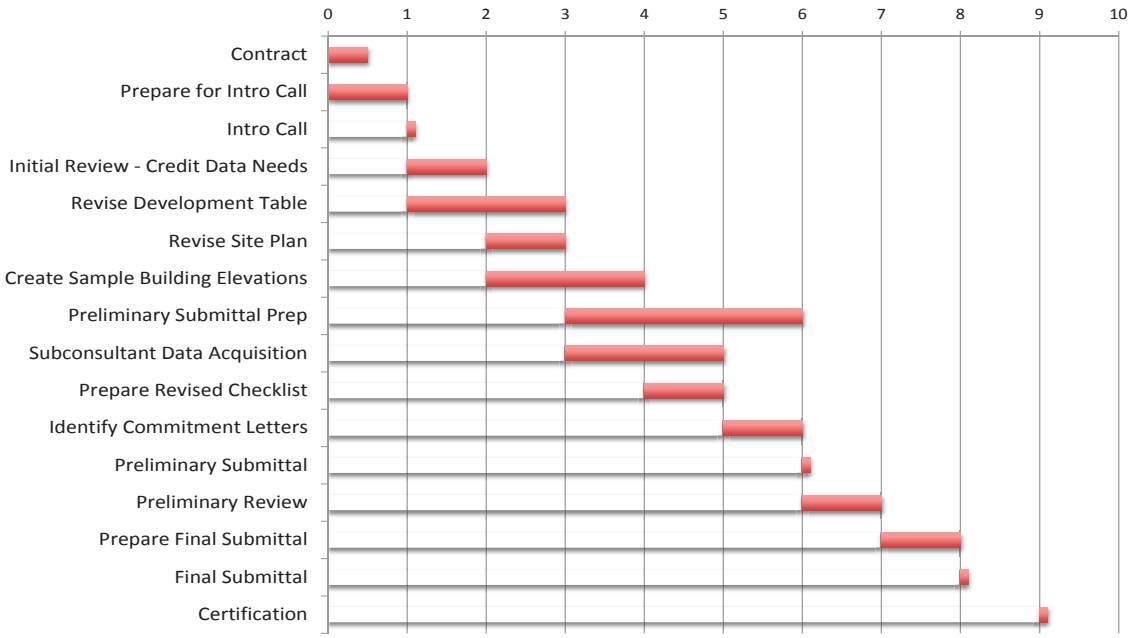
RESPONSIBLE DEPARTMENT

Louisville Downtown Development Corporation, and the City's Office of Sustainablity

The LEED-ND certification process is very detailed and in order to complete the process there are three main steps. The first is registration, the second is documentation and submission, and the third is completing certification post preliminary review. Focusing on the documentation process, this recommendation will identify what components should be included in the Request for Proposals (RFP). As the first applicant of a LEED-ND project in the state of Kentucky, the Louisville Downtown Development Corporation will need a consultant team that has both the experience of certifying an existing neighborhood, knowledge of state and local land use and policy issues, and most importantly- access to the project area to document existing conditions.

The documentation process can take approximately between 300 and 500 hours or up to 10 months of consultant work, depending on the amount of existing project information, the project acreage, the amount of inventory needed to document the existing urban form.

The RFP put for by the Louisville DDC of the City of Louisville's Office of Sustainability should include the components in the recommendation on the following page.



Example of a certification time line (in months) showing majors milestones and deliverables for a project that is an Affordable Green Neighborhoods Grant Recipient (AGN). AGN recipients typically have an Introductory Call hosted by the USGBC staff and project team.

Request for Proposals for LEED-ND Certification

Recommendations:

1. *Introduction:* The Louisville Downtown Development Corporation in conjunction with the City of Louisville's Office of Sustainability requests statements of qualifications and proposal from qualified consultants to assist in the LEED-ND certification of the East Market Street District neighborhood.

2. *Project Location:* The project area that we are seeking to certify as LEED-ND is centered on East Market Street, near downtown Louisville, Kentucky. The district is bounded by East Main Street to the North, Muhammad Ali Blvd to the South, Baxter Avenue to the East, and South Floyd Street to the West.

3. *The Louisville Downtown Development Corporation/City's of Louisville Role:* The Louisville Downtown Development will be the applicant to the US Green Building Council (USGBC) for certification, with the Office of Sustainability will direct the consultant and coordinate between various City Departments and the consultant.

4. *Project Elements/Deliverables:* The Louisville DDC and the City are seeking a consultant partner(s) to provide LEED-ND certification of an existing neighborhood. The process will include, but is not limited to:
   - Gathering project information,
   - Inventorying existing urban form for buildings/block that will remain unchanged,
   - Interaction with the Green Building Certification Institute (GBCI) for project registration and management,
   - Preparation of a LEED-ND compliant development table and corresponding site plan,
   - Preparation of East Market Street District credit compliant letters of attestation,
   - Preparation and uploading of all maps, images, data and credit documentation forms for preliminary submittal,
   - Preparation of responses to preliminary review comments, preparation and uploading of final maps, images, data, and credit documentation forms.

Recommendation 3

Existing Building Inventory

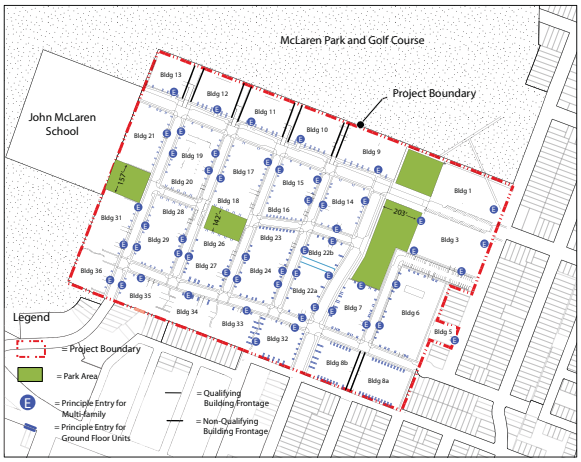
RESPONSIBLE DEPARTMENT

Louisville Downtown Development Corporation

The Rating System has four documentation sections; Project Information (PI), Smart Location & Linkages (SLL), Neighborhood Pattern & Design (NPD), and Green Infrastructure & Building (GIB). The first and arguably the most important section, PI, is broken into three forms. PI form one addresses the stage of the project, the development program, building information, trip generation information, base densities, infill site determination, and previously development site determination. PI form two addresses the project time line, and occupancy dates while PI form three addresses project location, base maps, and transit service.

The remaining three sections have forms related to their respective prerequisites and the selected credits that are draw from the Project Information forms. Due to the detailed information needed to complete the PI forms, the Global Green team suggests creating an inventory of existing and planned urban form to expedite the certification process. The "Building Information" forms shown on the next page outline the data points needed to complete PI form one. The urban form information needed to satisfy the prerequisite within NPD, namely "Walkable Streets" will also require field enumeration. The inventory of existing urban form will need to be spatially annotated as maps will be generated from this data set for the certification. The images to the right serve as an example of how the data should be spatially rendered to illustrate the respective forms in order to gain certification.

Walkable Streets (principle funtional entries)



A stage 1 LEED-ND project map showing the spatial location of principal entries on buildings for compliance with Walkable Streets prerequisite 1, part a

Walkable Streets

A stage 1 LEED-ND project map showing the spatial location of garages and service bays for compliance with Walkable Streets prerequisite 1, part d

Existing Building Inventory

Recommendations:

1. Create an inventory for *Building Information* for the project area with the data points referenced in the screen shots below.
2. Create an Urban Form building-by-building inventory of the following. This data should be spatially referenced for map making purposes.
   - The length of building facades whose principal entry faces a public space.
   - The length of buildings that meet the building-height-to-street-width ratio requirement.
   - The length of garage bays and service entrances on existing buildings.
   - The length of any street without a sidewalk.

BUILDING INFORMATION

Table PIf1-3. Existing Buildings To Be Demolished (Optional)

Description / ID of Existing Buildings to be Demolished	Dwelling Units	Residential Building Area [sf]	Nonresidential Building Area[1] [sf]
Residential			
Nonresidential			
Mixed-Use			
Total	0	0	0

Table PIf1-6. New Buildings To Be Constructed (Optional)

Description / ID of New Buildings to be Constructed	Dwelling Units	Residential Building Area [sf]	Nonresidential Building Area[1] [sf]	Nonresidential Building Type	Full-Time Equivalent Employees
Residential					
Nonresidential					
Mixed-Use					
Total	0	0	0		0

Table PIf1-5. Existing Buildings Remaining Unchanged or Undergoing Minor Renovations (Optional)

Description/ID of Existing Buildings Remaining Unchanged or Undergoing Minor Renovations	Dwelling Units	Residential Building Area [sf]	Nonresidential Building Area[1] [sf]
Residential			
Nonresidential			
Mixed-Use			
Total	0	0	0

Table PIf1-9. Building Types (Optional)

Type		Buildings	
		New	Undergoing Major Renovations
Single-Family Residential	Single		
	Duplex		
	Triplex		
Multiunit Residential	3 stories or less		
	4 stories or more		
Subtotal		0	0
Total new residential buildings and building undergoing major renovations			0
New and major renovation nonresidential buildings			
New and major renovation mixed-use buildings			

Table PIf1-4. Existing Buildings Undergoing Major Renovations (Optional)

Description / ID of Existing of Buildings Undergoing Major Renovations	Dwelling Units	Residential Building Area [sf]	Nonresidential Building Area[1] [sf]
Residential			
Nonresidential			
Mixed-Use			
Total	0	0	0

Table PIf1-10. New Multiunit Dwelling Units (Optional)

Bedroom Types	Dwelling Units
Studio units	
One bedroom units	
Two bedroom units	
Three bedrooms or more units	
Total multiunit residential dwelling units	0

East Market Street District LEED-ND Project Information (PI) forms available on LEED Online (post registration)

Recommendation 4

LEED-ND Based Streetscape Improvement

RESPONSIBLE DEPARTMENT

Public Works Department

The certification process for the East Market Street District lends itself to being a stage 2 certification otherwise known as a Pre-Certified LEED-ND Plan. This stage is available after 100% of the project's total new and/or renovated building square footage has been fully entitled. The project can also be under construction, as is the case with much of the Edge at Liberty Green, but with no more than 75% of the total square footage constructed. During a stage 2 certification, there will be a number of standards within the NPD, and GIB credit categories that are addressed by the streetscape improvement project. This provides an opportunity to garner partial points related to public infrastructure and urban design. By having a reference document for these credits, the required proof of commitment is simplified since specific standards can be housed in the design and construction specification for the project. In an existing neighborhood where much of the developable footprint is unchanging, this streetscape project is a real asset for achieving certification.

The Global Green team recommends specifying the standards within this recommendation when the design and engineering plans are created. This will serve as another reference document for certification and ensure sustainable urban design and development elements are integrated into the project. Additionally, the City and the Downtown Development Corporation will have an avenue whereby they can interact with private property owners in order to highlight the City's commitment to sustainable improvements. The Office of Sustainability may also be able to make projections based on the environmental benefits garnered by this project including energy, and water savings. These standards and projections may potentially be used as a case study for how future infrastructure investments could be made.

Aerial of the East Market Street study area produced by CARMEN showing the potential public infrastructure that could require LEED-ND standards as part of the Streetscape improvement plan

LEED-ND Based Streetscape Improvement

Recommendations:

- *NPDc1: Walkable Streets- Sidewalk Intrusion*

At-grade crossings within driveways account for no more than 10% of the length of sidewalks within the streetscape project area.

- *NPDc14: Tree-Lined and Shaded Streets*

Design and build the streetscape to provide street trees on both sides of the street between the vehicle travel way and walkway, at intervals averaging no more than 40 feet (excluding driveways and utility vaults).

Obtain a registered landscape architect to determine that planting details are appropriate to grow healthy trees- taking into account tree species, root medium, and width and soil volume of planter strips or wells, and that the select tree species are not considered invasive according to the USDA or the state agriculture extension service.

- *GIBp4: Construction Activity Pollution Prevention*

Create and implement an erosion and sedimentation control plan for the streetscape project and list the Best Management Practices (BMPs) employed, describing how they accomplish the following objectives:

a. Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including but not limited to stockpiling of topsoil for reuse.

b. Prevent sedimentation of any affected stormwater conveyance systems or receiving streams.

c. Prevent polluting the air with dust and particulate matter.

Identify the BMP measures in the Construction Activity Pollution Prevention Plan as being equivalent to, or more stringent then, Washington State Department of Ecology's Stormwater Management Manual for Western Washington, Volume II, Construction Stormwater Pollution Prevention (2005).

- GIBc4: Water Efficient Landscape

Calculate the reduction in water consumption for outdoor landscape irrigation from a midsummer baseline case such that the streetscape uses 50% less then the baseline (see page 355 in the LEED-ND Reference Guide for baseline and design case calculations). Reductions may be attributed to any combination of the following strategies:, among others:

a. Plant species, plant density, and microclimate factor.

b. Irrigation efficiency.

c. Use of captured rainwater.

d. Use of recycled wastewater.

e. Use of water treated and conveyed by public agency specifically for non potable uses.

- *GIBc8: Stormwater Management*

Determine total streetscape improvement area (in square feet) in order to establish the amount of stormwater to be retain.

Obtain local precipitation data to calculate the amounts of precipitation per rainfall event over a 20-to-40 year + period.

Determine the volume to be retained by ranking rainfall data and using excel percentile function to calculate the percentile rainfall event at 80%, or higher (up to 95%- based on what is feasible).

Multiply the development area (in square feet) by the inches of rainfall (converted to cubic feet). One hundred percent of all the stormwater that falls on the streetscape site must be retained, reused, or otherwise recycled on site.

LEED-ND Based Streetscape Improvement

Recommendations:

- *GIBc9: Heat Island Reduction*

Use any combination of the following strategies for 50% of the projects hardscape (including roads, sidewalks, courtyards, parking lots, parking structures, and driveways):

a. Provide shade from open structures, such as those supporting solar photovoltaic panels, canopied walkways, and vine pergolas, all with a solar reflectance index (SRI) of at least 29.

b. Use paving materials with a SRI of at least 29.

c. Install an open-grid pavement system that is at least 50% pervious.

d. Provide shade from tree canopy (within ten years of landscape instillation).

- *GIBc13: Infrastructure Energy Efficiency*

Ensure that all new infrastructure purchased for the streetscape, including but not limited to traffic lights, street lights, and water and wastewater pumps, achieve a 15% annual energy reduction below and estimated baseline energy use. The baseline is calculated with the assumed use of lowest first-cost infrastructure items.

- *GIBc15 Recycled Content in Infrastructure*

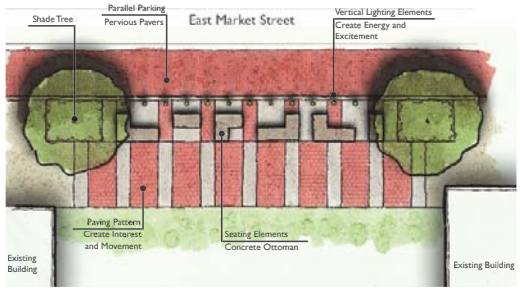
Materials for new infrastructure should have a post consumer recycled content, in-place reclaimed materials, and one-half of the pre consumer recycled content constitute at least 50% of the total mass of infrastructure materials. The following infrastructure should considered for achieving this credit:

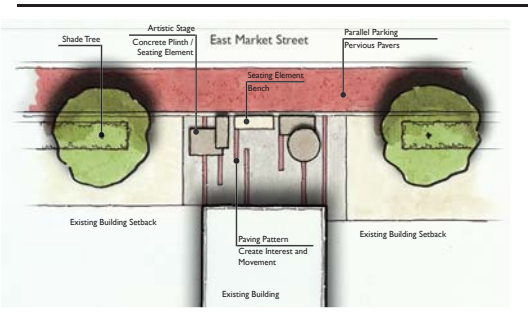
a. Roadways, parking lots, sidewalks, unit paving, and curbs.

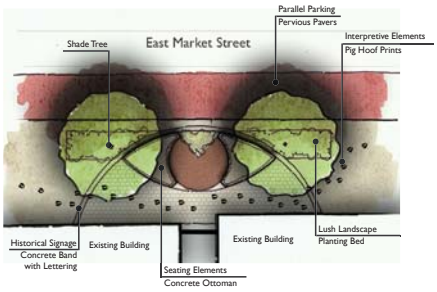
b. Water retention tanks and vaults.

c. Base and subbase materials for the above.

d. Stormwater, sanitary sewer, steam energy distribution, and water piping.







Renderings of the Streetscape Master Plan (CARMEN Associate) showing staging opportunities that should have LEED-ND related specifications such as Recycled Content in infrastructure

Sustainability Assessment

Checklist

The Project Assessment Checklist below is an annotated LEED-ND checklist created by Global Green. It is a key component of the tool used to document and compare the assessment area against the LEED-ND prerequisites and credits. Each credit within the three credit categories (Smart Location & Linkage, Neighborhood Pattern & Design, and Green Infrastructure & Building) is marked as "achieved," "not achieved," "unknown," or "not applicable" under baseline conditions. Additional analysis has been done based on local planning policy, regulatory support, technical feasibility, market support and stakeholder input. The preliminary checklist analysis was edited and augmented during our site visit, stakeholder meetings, and the community workshop. This information was then translated into an overall assessment of sustainable neighborhood performance.

LEED for Neighborhood Development: Project Assessment Checklist

EAST MARKET STREET DISTRICT- LOUISVILLE, KENTUCKY

Baseline Conditions	Local/Regional Planning Priority	Regulatory Support	Technical feasibility	Market Support	Neighborhood Need/ Stakeholder Input

Legend	
✔	Achieved
?	Unkown
✕	Not Achieved
-	Does not exist/ NA
	Explicit support/ no technical issues
	Lack of explicit support/ minor technical issues
	Opposition/ signficant technical issues
	Not Applicable

		Smart Location and Linkage	Total Points
✔	P 1	**Smart Location**	Required
✔	P 2	**Imperiled Species and Ecological Communities**	Required
✔	P 3	**Wetland and Water Body Conservation**	Required
✔	P 4	**Agricultural Land Conservation**	Required
✔	P 5	**Floodplain Avoidance**	Required
✔	C 1	**Preferred Locations**	
✔	C 2	**Brownfield Redevelopment**	
✔	C 3	**Locations with Reduced Automobile Dependence**	
✕	C 4	**Bicycle Network**	
✕	C 4	**Bicycle Storage**	
✔	C 5	**Housing and Jobs Proximity**	
✔	C 6	**Steep Slope Protection**	
-	C 7	**Site Design for Habitat or Wetland and Water Body Conservatior**	
-	C 8	**Restoration of Habitat or Wetlands and Water Bodies**	
-	C 9	**Long-Term Conservation Management of Habitat or Wetlands an**	

Checklist

LEED for Neighborhood Development: Project Assessment Checklist

EAST MARKET STREET DISTRICT- LOUISVILLE, KENTUCKY

Baseline Conditions	Local/Regional Planning Priority	Regulatory Support	Technical feasibility	Market Support	Neighborhood Need/ Stakeholder Input			
								Neighborhood Pattern and Design
✔						P 1	**Walkable Streets- Principal Entries**	Required
✔						P 1	**Walkable Streets- Building Height to Street Width Ratio**	Required
✔						P 1	**Walkable Streets-Continuous Sidewalks**	Required
✔						P 1	**Walkable Streets-Garage and Service Bays**	Required
✔						P 2	**Compact Development**	Required
✔						P 3	**Connected and Open Community**	Required
✔						C 1a	**Walkable Streets : Facades and Entries**	
✔						C 1b	**Walkable Streets: Ground-Level Use and Parking**	
✘						C 1c	**Walkable Streets:Design Speed for Safe Ped and Bike Travel**	
✔						C 1d	**Walkable Streets: Sidewalk Intrusions**	
✔						C 2	**Compact Development**	
✔						C 3	**Mixed-Use Neighborhood Centers**	
✔						C 4	**Mixed-Income**	
✔						C 4	**Diverse Communities**	
✘						C 5	**Reduced Parking Footprint**	
✘						C 6	**Street Network**	
✘						C 7	**Transit Facilities**	
✘						C 8	**Transportation Demand Management**	
✘						C 9	**Access to Civic and Public Spaces**	
✘						C 10	**Access to Recreation Facilities**	
✔						C 11	**Visitability and Universal Design**	
?						C 12	**Community Outreach and Involvement**	
✔						C 13	**Local Food Production**	
✘						C 14	**Tree-Lined and Shaded Streets**	
✔						C 15	**Neighborhood Schools**	

Legend
✔ Achieved
? Unkown
✘ Not Achieved
– Does not exist/ NA
Explicit support/ no technical issues
Lack of explicit support/ minor technical issues
Opposition/ signficant technical issues
Not Applicable

Louisville, Kentucky 2 5/17//2012

Sustainability Assessment

Checklist

LEED for Neighborhood Development: Project Assessment Checklist

EAST MARKET STREET DISTRICT- LOUISVILLE, KENTUCKY

Baseline Conditions	Local/Regional Planning Priority	Regulatory Support	Technical feasibility	Market Support	Neighborhood Need/ Stakeholder Inpu

	Legend
✔	Achieved
?	Unkown
✘	Not Achieved
	Does not exist/ NA
	Explicit support/ no technical issues
	Lack of explicit support/ minor technical issues
	Opposition/ signficant technical issues
	Not Applicable

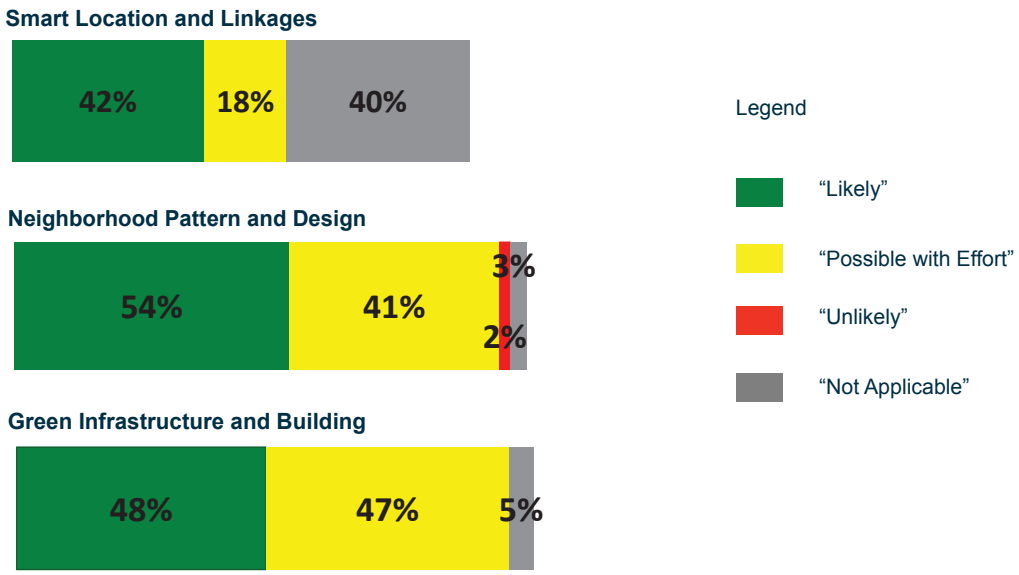
Green Infrastructure and Buildings

✔	P 1	**Certified Green Building**	Required
✘	P 2	**Minimum Building Energy Efficiency**	Required
✘	P 3	**Minimum Building Water Efficiency**	Required
✔	P 4	**Construction Activity Pollution Prevention**	Required
✘	C 1	**Certified Green Buildings**	
✘	C 2	**Building Energy Efficiency**	
✘	C 3	**Building Water Efficiency**	
✘	C 4	**Water-Efficient Landscaping**	
✔	C 5	**Existing Building Use**	
✔	C 6	**Historic Resource Preservation and Adaptive Reuse**	
✔	C 7	**Minimized Site Disturbance in Design and Construction**	
✘	C 8	**Stormwater Management**	
✘	C 9	**Heat Island Reduction**	
✔	C 10	**Solar Orientation**	
✘	C 11	**On-Site Renewable Energy Sources**	
✘	C 12	**District Heating and Cooling**	
✘	C 13	**Infrastructure Energy Efficiency**	
✘	C 14	**Wastewater Management**	
?	C 15	**Recycled Content in Infrastructure**	
✘	C 16	**Solid Waste Management Infrastructure**	
✘	C 17	**Light Pollution Reduction**	

Sustainability Assessment

Summary

Based on in-field assessment, planning document review, various stakeholder meetings, and the community workshop, the Global Green team estimated which LEED-ND credits were "Likely," "Possible with Effort," "Unlikely" to be achieved, or "Not Applicable," considering existing conditions, technical feasibility, policy readiness, financial burden, and applicability to neighborhood conditions. The bar graph summary identified the overall level of sustainable neighborhood performance for the East Market Street District. In all three of the LEED-ND credit categories many of the credits fall into the "Likely" category, which affirms the teams perception that the area has many already existing attributes of sustainability. Of the remaining credits, many fall in the "Possible with Effort" category, which shows the large potential for improving the neighborhood's level of sustainability specifically by pursuing the high-priority recommendations described in this report.



The summary table below shows the numeric values extrapolated from the percentage of credits identified as "Likely" above. While these number values do not correlate exactly to specific LEED-ND points, they provide a broad estimate of the neighborhood's potential level of future achievement. It should be noted that this is a rough measure of performance, and not an exact representation of the project's level of certification if it was to purse full certification under the rating system.

Point Requirements for LEED-ND Certification

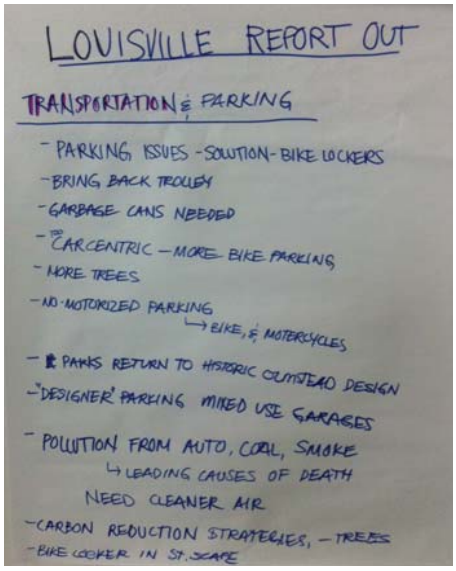
Certified:	**40-49**
Silver:	**50-59**
Gold:	**60-79**
Platinum:	**80+**

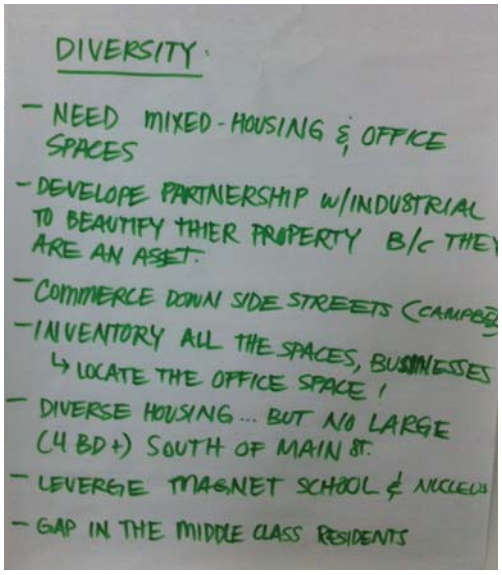
Louisville-East Market District

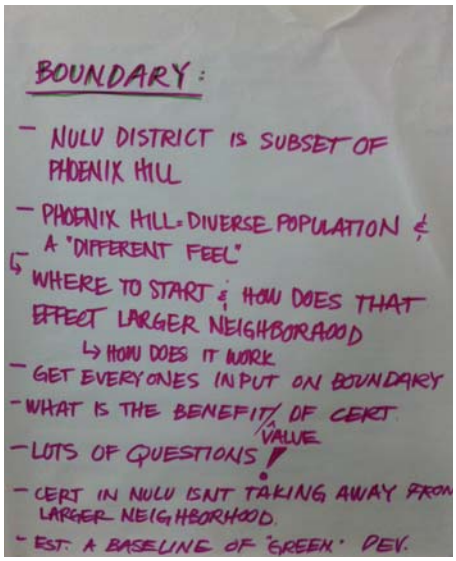
LEED for Neighborhood Development

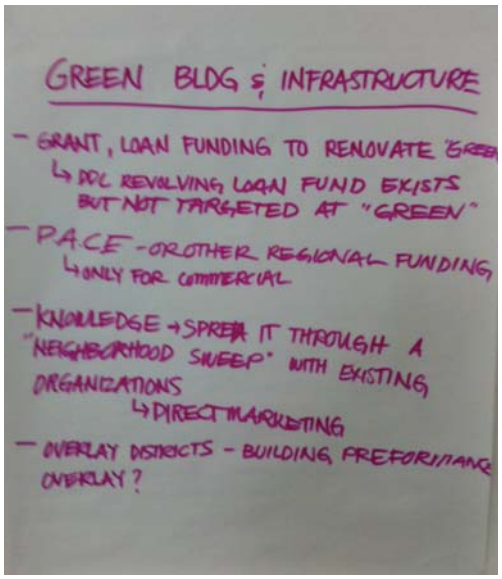
	Total	Likely
Smart Location and Linkage	27	11
Neighborhood Pattern and Design	44	24
Green Building and Infrastructure	29	14
	100	49

Workshop Notes

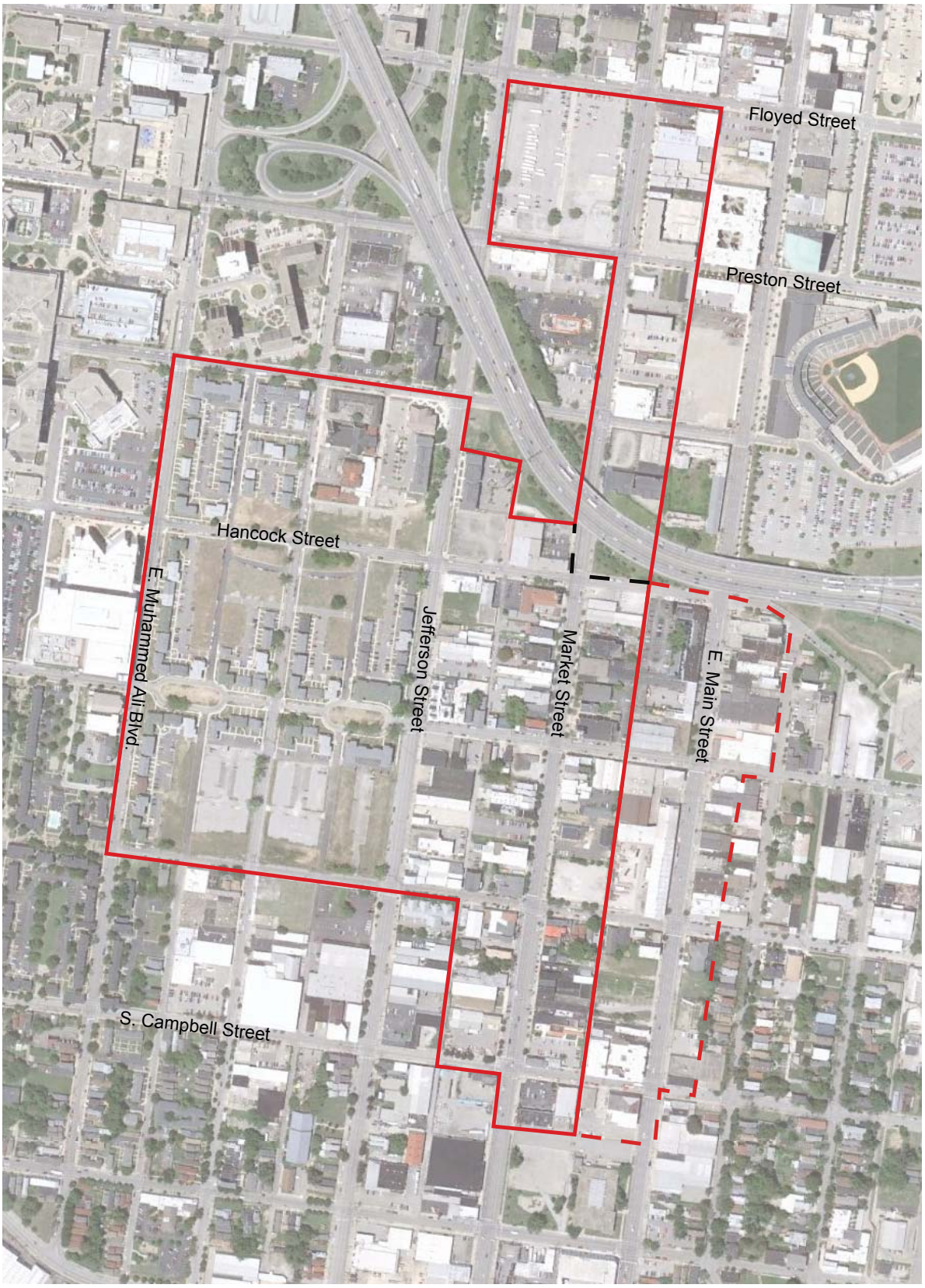








LEED-ND Project Boundary Alternatives



IDEAL BOUNDARY

OPTIONAL MAIN ST ADD-IN

OPTIONAL NUCLEUS EXCLUSION

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