

NEHEMIAH DEVELOPMENT | COMMUNITY

Becoming a

Sustainable Neighborhood

IDEAS FOR CREATING A SUSTAINABLE COMMUNITY
THAT RESPECTS LIFE

INTRODUCTION

Rarely does the chance to impact the lives of residents in such a positive manner. Society is at a tipping point with the design professionals to create liveable urban streets.

Community will be a transitional urban development that embodies the principals of LEED for neighborhood development 4.0. But also looks to future opportunities in technology to make it a flagship for development creating innovative solutions. Examples of net zero development can help develop guidelines for a revolutionary new urban space that looks to develop a pattern language that ties together people, place, education, and employment.

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SMART LOCATION & LINKAGE

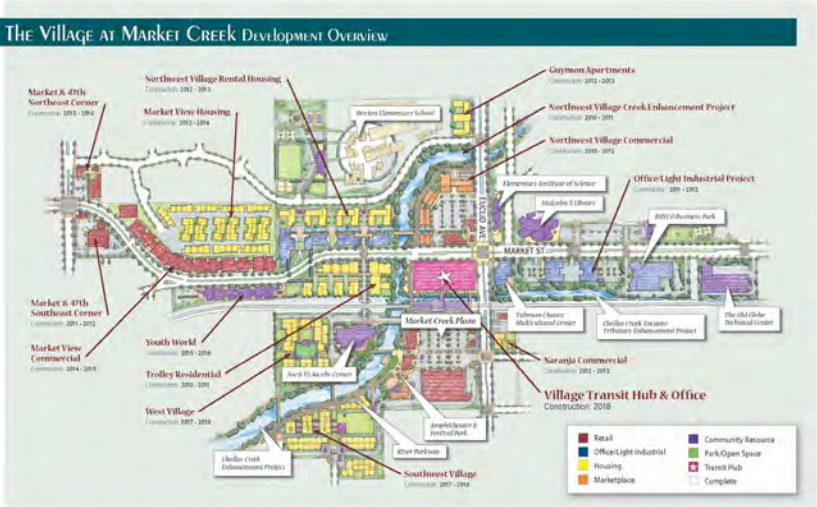
Community: Increase the public transportation, increase activity in the community



SMART LOCATION

LEED GOALS

Intent: To encourage development within and near existing communities and public transit infrastructure. To encourage improvement and redevelopment of existing cities, suburbs, and towns while limiting the expansion of the development footprint in the region. To reduce vehicle trips and vehicle distance traveled. To reduce the incidence of obesity, heart disease, and hypertension by encouraging daily physical activity associated with walking and bicycling.



Community: Creates a city within a city

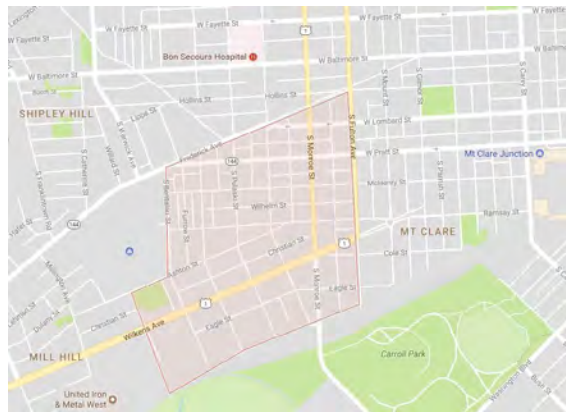
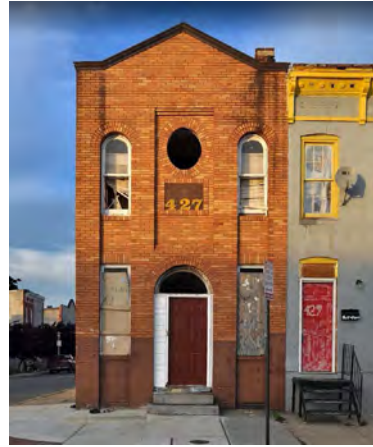
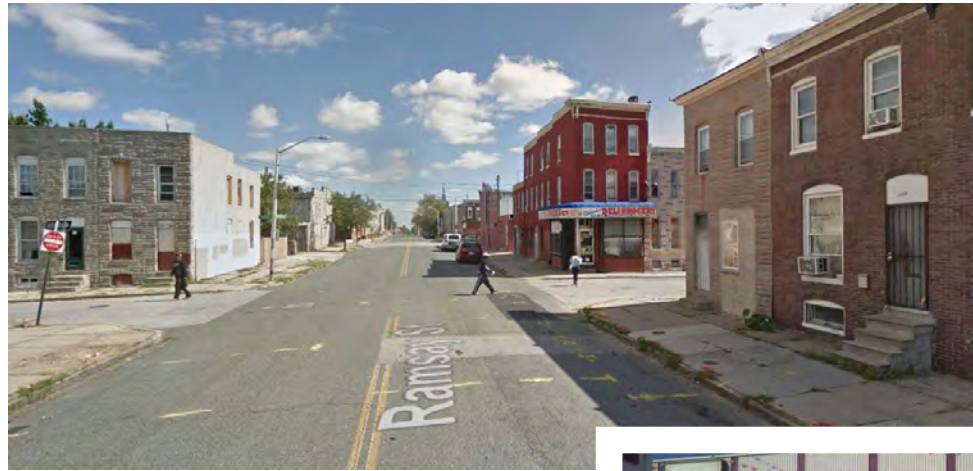


PREFERRED LOCATIONS

LEED GOALS

Intent: To encourage development within existing cities, suburbs, and towns to reduce adverse environmental and public health effects associated with sprawl. To reduce development pressure beyond the limits of existing development. To conserve natural and financial resources required for construction and maintenance of infrastructure.

The scale of Community provides the design team a challenge to think positively about how the architecture can be part of the catalyst for change and not a passing fashion that fades with time. Community will grow over time and continue to mature into a responsible sustainable neighborhood - an example to the city and beyond.



Community: High-rate development area base off the location of the neighborhood

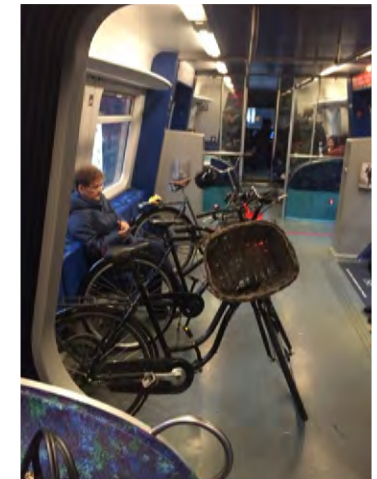
BROWNFIELD REDEVELOPMENT

Community has been allowed to decay, but its renaissance is at hand and it can be saved. Rather than destroying virgin territory, the Community represents a large Brownfield development.

LEED GOALS

Intent: To encourage the cleanup of contaminated lands and developing sites that have been identified as contaminated.

Community: Baltimore can enhance the connectivity of its public transportation network by making it bicycle friendly.



LOCATIONS W/ REDUCED AUTOMOBILE DEPENDENCE

Working with the city to provide multiple options for transportation. Looking to link Community with other communities, allowing a positive flow while reducing dependence on fossil fuel.

LEED GOALS

Intent: To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other environmental and public health harms associated with motor vehicle use.

[Intersection of multiple lines]



[Starting in a residential neighborhood]



[At places of work]



Community: Helps promote physical activity, reduce vehicle pollution, improve the efficiency of transportation.

LEED GOALS

Intent: To promote bicycling and transportation efficiency and reduce vehicle distance traveled. To improve public health by encouraging utilitarian and recreational physical activity.

BICYCLE NETWORK AND STORAGE

Looking to private business to encourage the use of bicycles, supported by a transportation network that enhances safety, promotes sustainable living, exercise and access to work. Examples of this include Copenhagen.

Community: Having jobs and businesses close to households to reduce travel distances and convert vehicle trips to walking and cycling.

JOBS-HOUSING BALANCE

1.2 - 2.8 <small>Marginal changes in VMT are small when the jobs-housing ratio is between 1.2 and 2.8</small>	↑10% = ↓3.3% <small>Every 10% increase in numbers of jobs in the same occupational category within four miles of one's residence is associated with a 3.29% decrease in daily work-hour VMT</small>	↑Urban > ↑Suburb <small>Density increases in urban areas were more than twice as effective in reducing VMT than in suburban zones due to vehicle travel elasticities and density maintenance</small>
22% <small>Of people list convenience to job as the most important reason for neighborhood choice</small>	2xDiversity = ↓5%VMT <small>The EPA study found that a doubling of the diversity (ration of employment to population) indicator would result in a five percent reduction in VMT</small>	↑10% = ↓3.5% <small>Population Density Household VMT</small>

HOUSING AND JOBS PROXIMITY

Community can look to develop business incubators, innovation centers, tying in with adjacent areas, looking to create housing that supports professionals, such as teachers, police, fire, and others that benefit from being close to their work, and the neighborhood benefits from their presence 24x7.

LEED GOALS

Intent: To encourage balanced communities with a diversity of uses and employment opportunities.





NEIGHBORHOOD PATTERN & DESIGN

Community: Provides a safe street environment that encourages pedestrian activity.



LEED GOALS

Intent: To promote transportation efficiency, including reduced vehicle distance traveled. To promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging daily physical activity.

WALKABLE STREETS

Cities have been dominated by the car, the pedestrian becomes an after thought. Current thinking changes that dynamic, the master planning of Community must reassert the dominance of the human scale and circulation.



Community: Promotes efficient transportation system.



COMPACT DEVELOPMENT

Moving away from urban sprawl, the goal for Community is to provide for a mixed use of residential, local retail, business incubators to encourage a grass roots investment in building a lasting community.

LEED GOALS

Intent: To conserve land. To promote livability, walkability, and transportation efficiency, including reduced vehicle distance traveled. To leverage and support transit investments. To reduce public health risks by encouraging daily physical activity associated with walking and bicycling.



Community: encourages projects and connections in the community



CONNECTED AND OPEN COMMUNITY

Encouraging a design that allows people to connect with each other, to see each other on a regular basis, in the street, in the corner shop, at the PTA meeting, at work, at church to provide the community with the tools to connect with each other. Technology can facilitate this through social media, through access to the internet, through grass root involvement.

LEED GOALS

Intent: To promote projects that have high levels of internal connectivity and are well connected to the community at large. To encourage development within existing communities that promote transportation efficiency through multimodal transportation. To improve public health by encouraging daily physical activity.



Community: Increase community involvement and activity

MIXED-USE NEIGHBORHOOD CENTERS

Part of the investment in the neighborhood is the Youth Development Center, that provides an anchor against the fast pace of life. The center will reach out to the neighborhood and local faith groups to make it include and have the community both givers and receivers, educators and educated.

LEED GOALS

Intent: To cluster diverse land uses in accessible neighborhood and regional centers to encourage daily walking, biking, and transit use, reduce vehicle distance traveled and automobile dependence, and support car-free living.

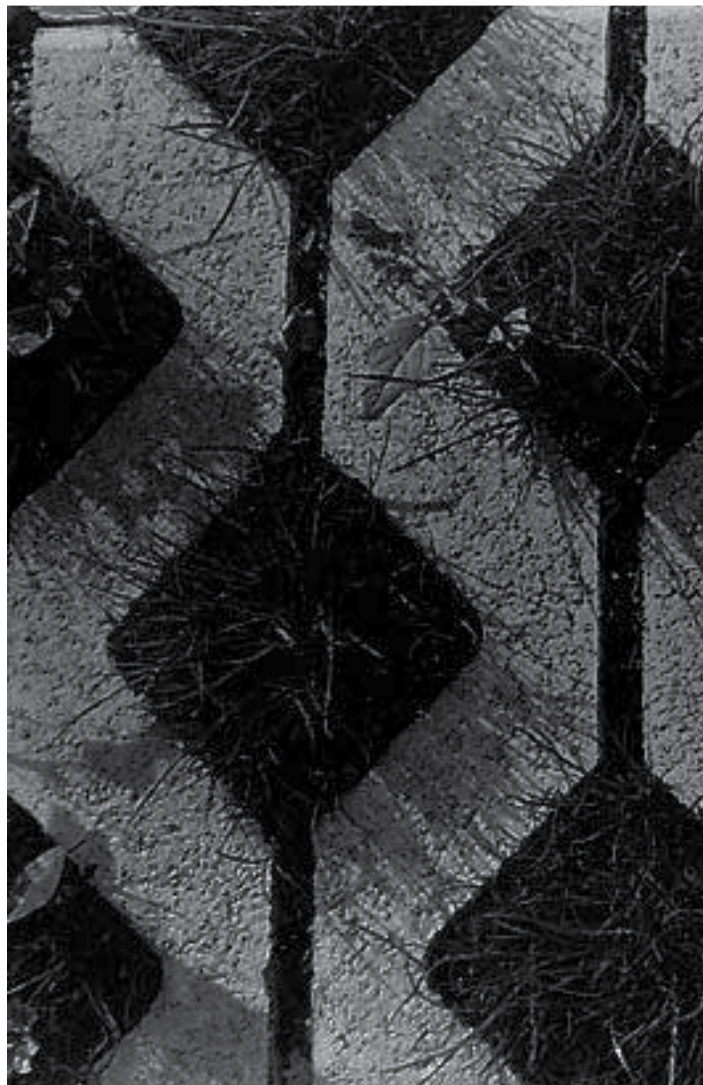
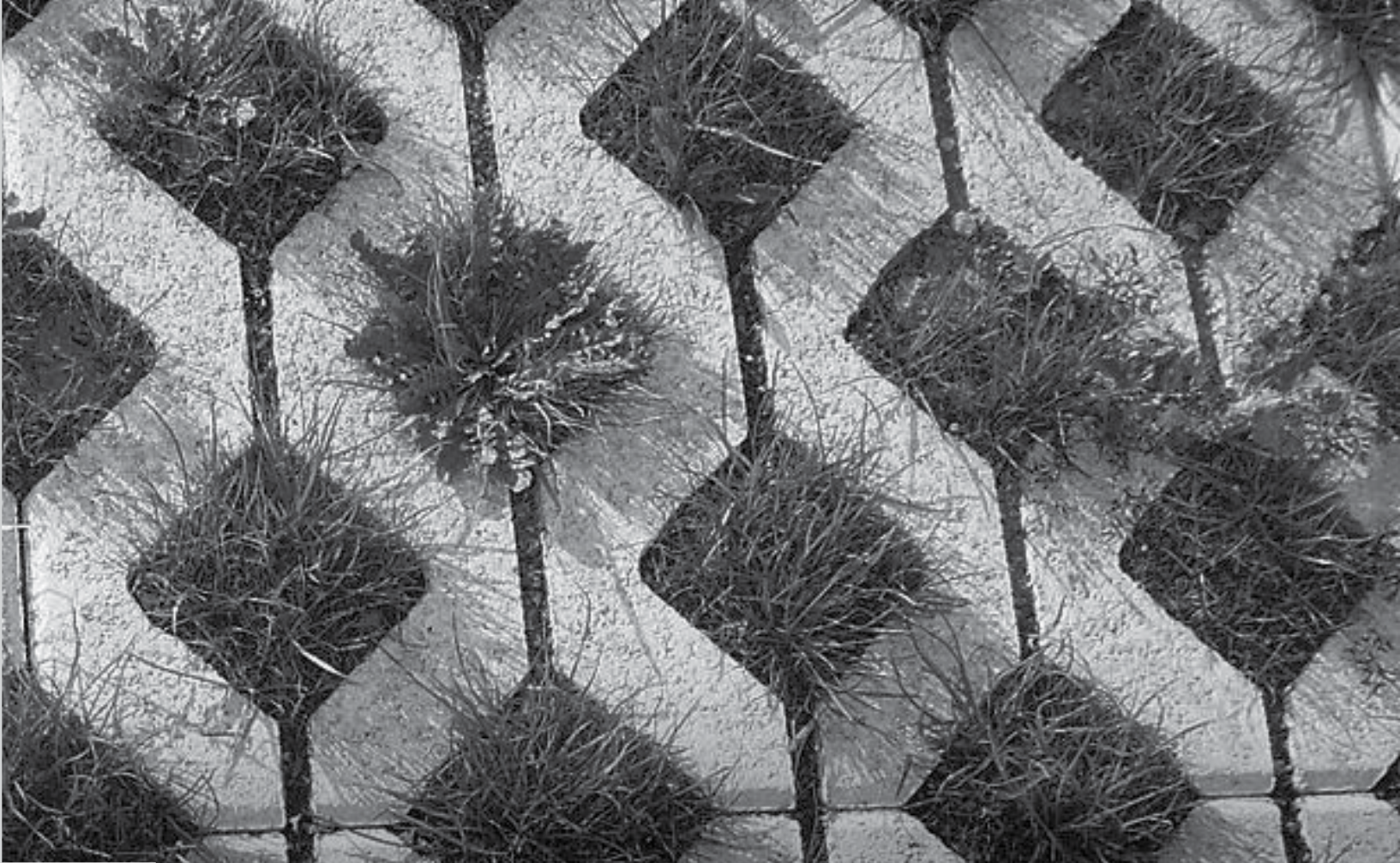
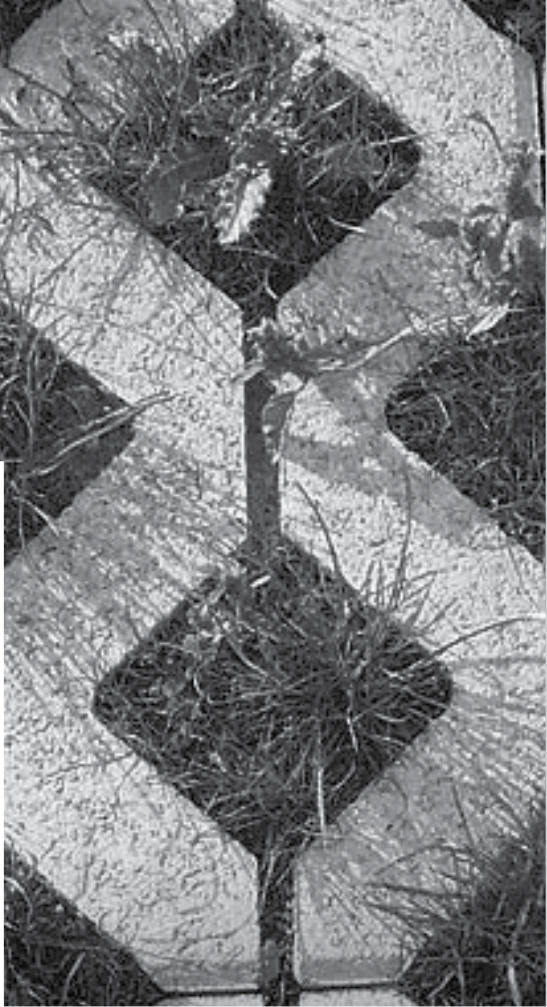
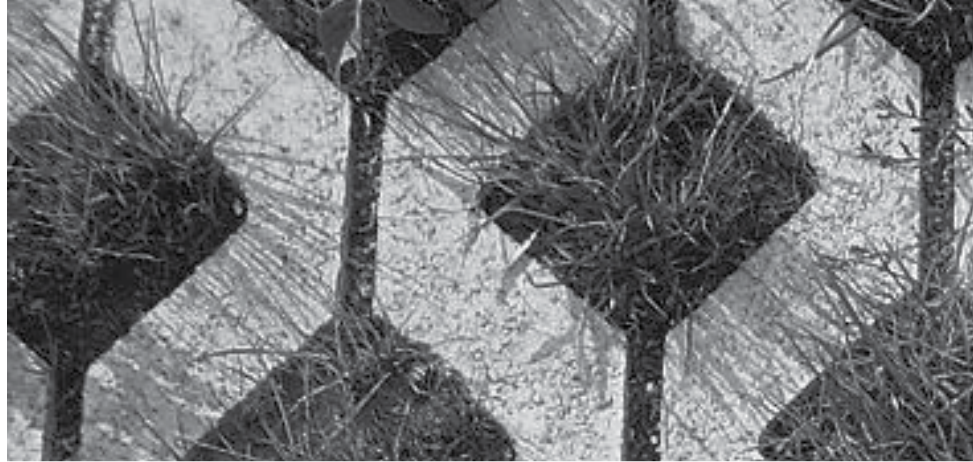


MIXED-INCOME DIVERSE COMMUNITIES

Creating a mixed and diverse community that supports a wide range of housing types providing developers the opportunity to get reinvestment to get a return. While creating a community that has the strength to take root and grow.

LEED GOALS

Intent: To promote socially equitable and engaging communities by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community.



Community: reduces the dependence of motor vehicles

LEED GOALS

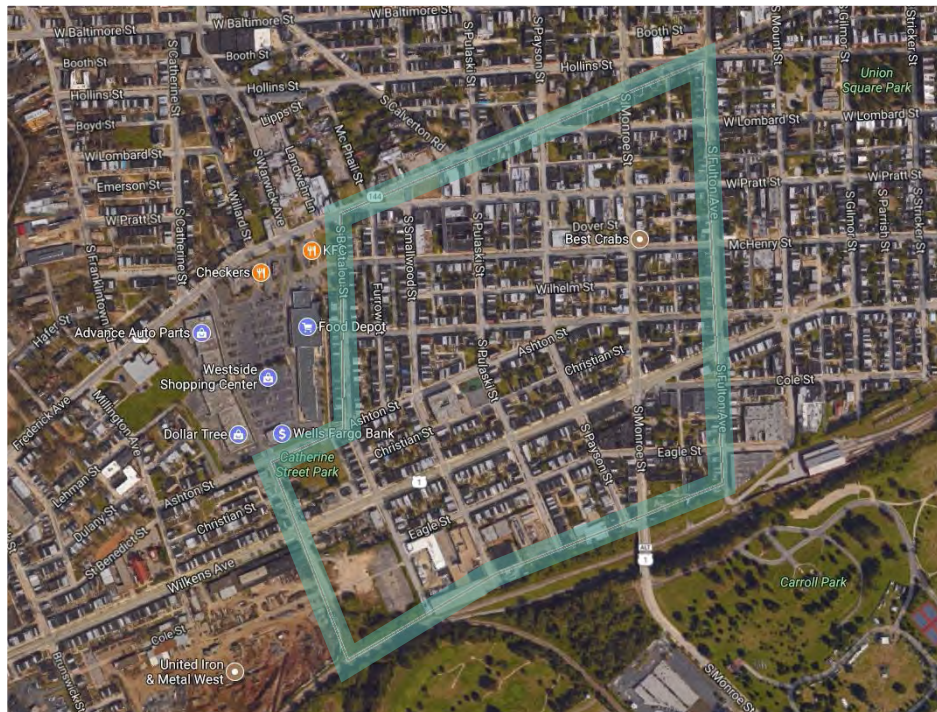
Intent: To minimize the environmental harms associated with parking facilities, including automobile dependence, land consumption, and rainwater runoff.

REDUCED PARKING FOOTPRINT

The automobile has become a critical ingredient to social mobility. It provides access, but it has come at a huge price. So the goal is to look at alternative solutions to reduce the dependence on fossil fuel driven vehicles that requires large areas of parking.

There are multiple ways to reduce the impact:

1. Street Design
2. Parking Surfaces
3. Alternative means of transport
4. Storm Water Management



[Aerial view of
Community
neighborhood]

STREET NETWORK

Community can become an island within a city, that needs to find ways to connect with other centers, downtown, Inner Harbor, Tech Center, John Hopkins, hospitals. Allowing a free flow of people, without bottlenecks.

LEED GOALS

Intent: To promote projects that have high levels of internal connectivity and are well connected to the community at large. To encourage development within existing communities, thereby conserving land and promoting multimodal transportation. To improve public health by encouraging daily physical activity and reducing the negative effects of motor vehicle emissions.



Community: Reducing dependence on motor vehicles.

TRANSIT FACILITIES

Enhancing public transportation options to provide comfortable, flexible and economical means to access work and other resources such as rail hubs and airports. The flexibility enhances the attractiveness of the community making it appealing to a wider audience.

LEED GOALS

Intent: To encourage transit use and reduce vehicle distance traveled by providing safe, convenient, and comfortable transit waiting areas.



Community: Increase public health and reduces greenhouse gases.



TRANSPORTATION DEMAND MANAGEMENT

There are alternatives but it will take a comprehensive approach to change the commuting mentality of one person to one car. Community provides an opportunity to design a new type of neighborhood from the road up!

LEED GOALS

Intent: To reduce energy consumption, pollution, and harm to human health from motor vehicles by encouraging multimodal travel.



Community: Increase connectivity and involvement in the community.



ACCESS TO CIVIC AND PUBLIC SPACES

Community has many public places adjacent. Downtown Baltimore has theaters, convention centers, sports stadiums, casinos, aquariums, not to mention the Inner Harbor. It is hard to find such depth in spaces the neighborhood can link to these areas through pathways, signage and education.

LEED GOALS

Intent: To improve physical and mental health and social capital by providing a variety of open spaces close to work and home to facilitate social networking, civic engagement, physical activity, and time spent outdoors.

Community: Increase community involvement

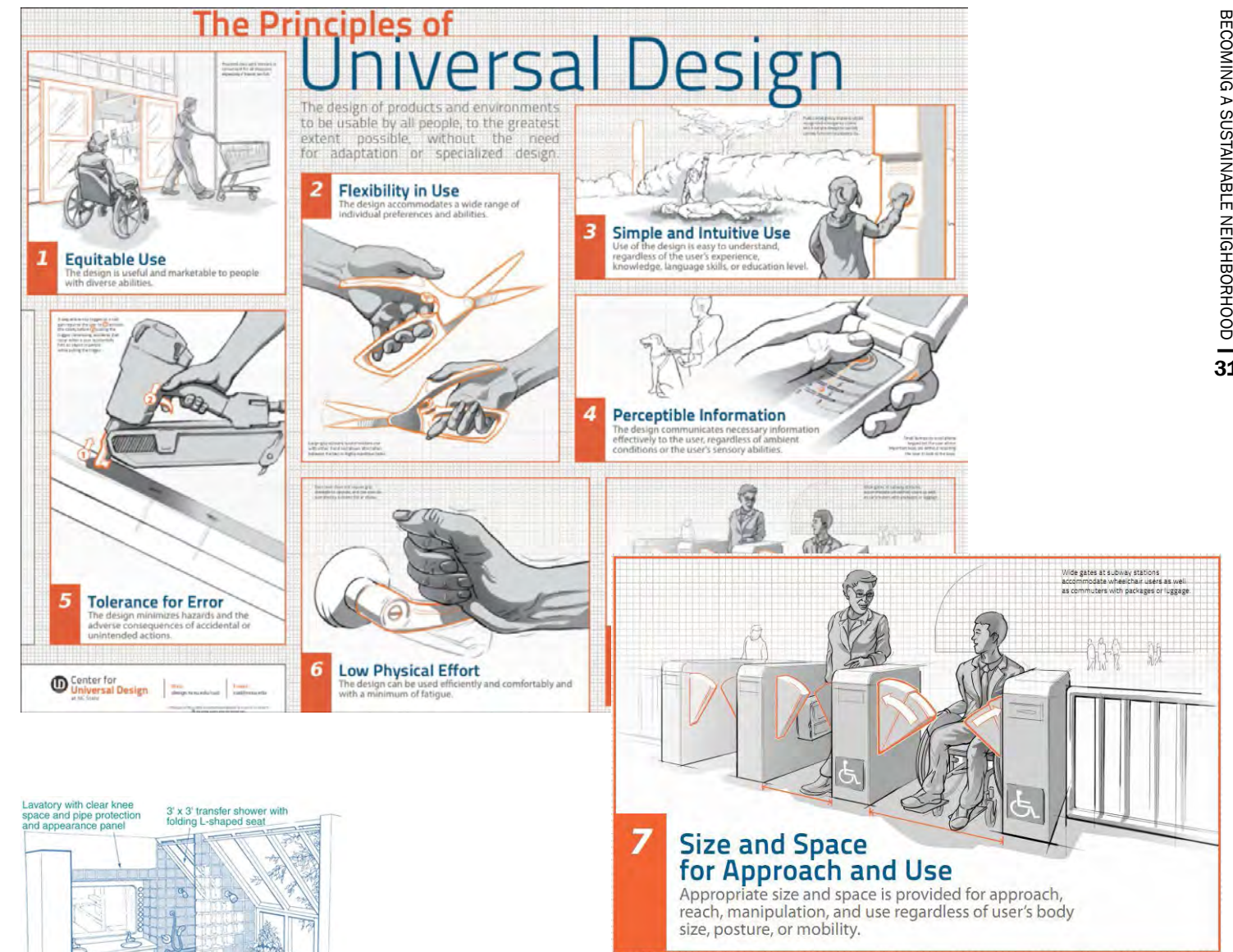


ACCESS TO RECREATION FACILITIES

Within the neighborhood the new community center will provide some of the recreation. Providing connectivity to adjacent areas as it is close to downtown Baltimore, and encouraging a mix of businesses to provide a diverse range of facilities to entertain at a scale appropriate to the neighborhood. For example, a 20 theater multiplex will be out of scale and increase traffic. Given the rise of on demand new type of complex where groups of 10-15 can watch what they want when they want that may be part of the recreation center or a coffee shop.

LEED GOALS

Intent: To improve physical and mental health and social capital by providing a variety of recreational facilities close to work and home to facilitate physical activity and social networking.



Community: Promotes a livable community for all ages.

VISITABILITY AND UNIVERSAL DESIGN

Universal design moves beyond just issues of accessibility but provides a parallel philosophy to sustainable design looking at the environment holistically.

LEED GOALS

Intent: To increase the proportion of areas usable by a wide spectrum of people, regardless of age or ability.

Community: Promotes and increase community involvement in the neighborhoods

COMMUNITY OUTREACH AND INVOLVEMENT

Bricks and mortar alone will not solve Community's challenges. Bringing together support groups from faith based organizations, from charitable organizations, and foundations to build a solid support network to build up families and care for children, working to make the human being achieve potential. It is too late to provide help once families fail, the community must develop a proactive approach. The community center is not just a physical structure, it can become home for the heart and soul of the community.

LEED GOALS

Intent: To encourage.



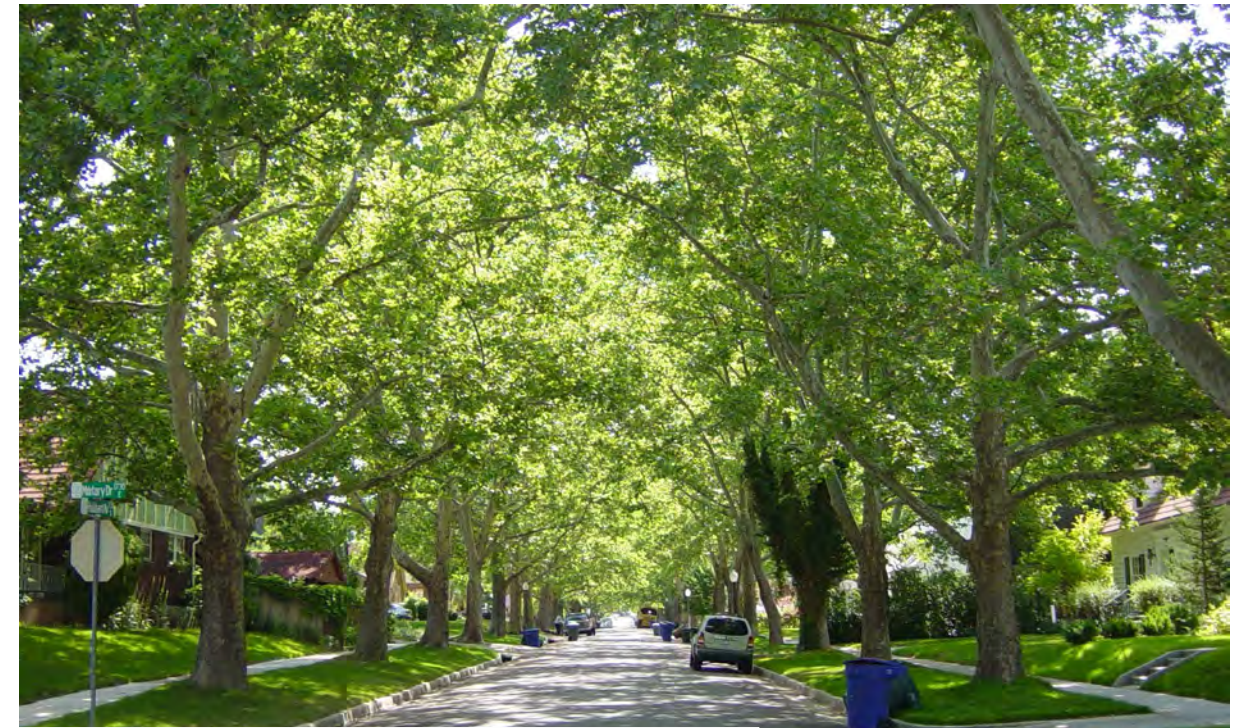
*Community:
Increase the
involvement and
activity in the
community by the
use of public
spaces and
buildings such as
farmers market.*

LOCAL FOOD PRODUCTION

Creating spaces for local farmers to bring fresh produce to the neighbors. Supporting healthy lifestyles through diet builds on this holistic approach to a sustainable neighborhood that works to support the health and heart of people.

LEED GOALS

Intent: To promote the environmental and economic benefits of community-based food production and improve nutrition through better access to fresh produce.



*Community:
Provide
access to
green-spaces.*

TREE-LINED AND SHADED STREETS

Street design will evolve. Helping trees grow requires care and maintenance. Community is not just a design and construction projects, it will become a lifestyle but the design must look to support the people's long term goals. This will be a sustainable neighborhood that will mature.

LEED GOALS

Intent: To encourage walking and bicycling and discourage speeding. To reduce urban heat island effects, improve air quality, increase evapotranspiration, and reduce cooling loads in buildings.

LEED GOALS

Intent: To promote community interaction and engagement by integrating schools into the neighborhood. To improve students' health by encouraging walking and bicycling to school.

Community: Promotes health, community involvement with public buildings, and safety of the children

NEIGHBORHOOD SCHOOLS

Within the existing community, there are schools failing to support the needs of the families. While looking to understand why, it is important to move forward. The children must understand that this education is a gift from one generation to another. Parents must understand that education is the key to their childrens future and it does not begin and end at the school gate. The community and businesses must provide support to help families succeed as there are many challenges to overcome and one size does not fit all. Society must invest in education as it is the key to a sustainable future.



GREEN INFRASTRUCTURE & BUILDINGS



*Community:
generates
less waste for
the building,
lowers the cost
of operations,
and promotes
healthier living.*

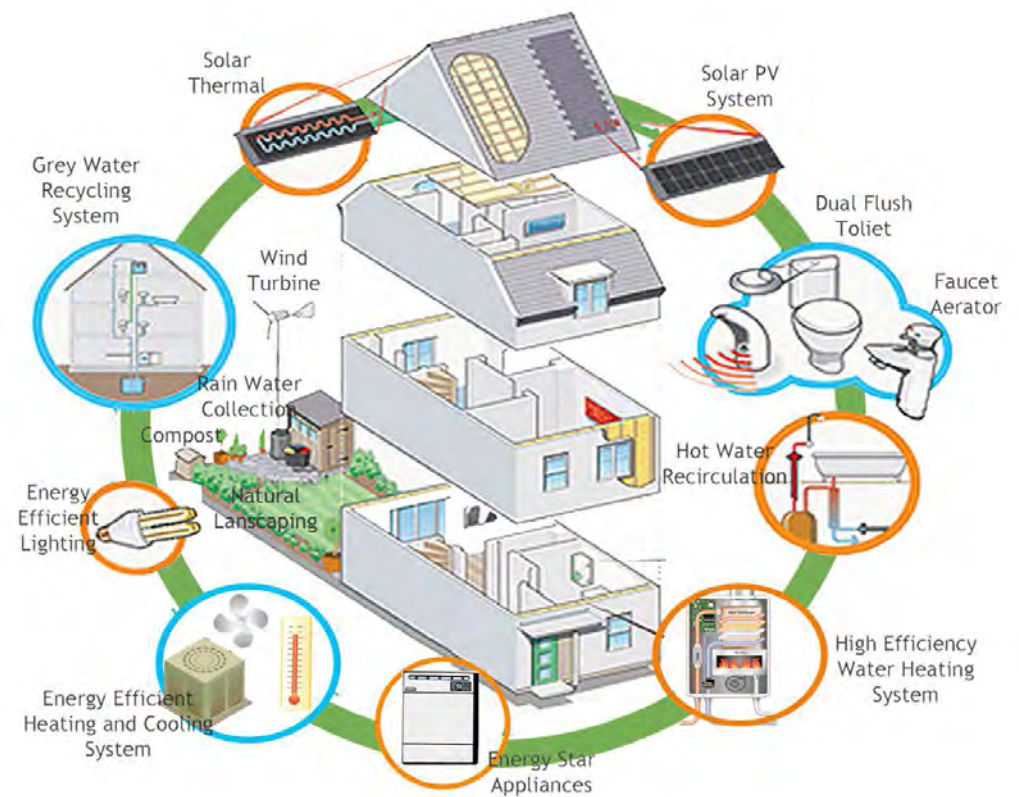


CERTIFIED GREEN BUILDING

The goal for Community is to provide for both a neighborhood that is sustainable but each building provides the chance to contribute. The development at Community provides the opportunity to rise beyond plaques and create a lifestyle and a living educational symbol of what can be done when all parties, public and private work together.

LEED GOALS

Intent: To encourage the design, construction, and retrofit of buildings using green building practices.



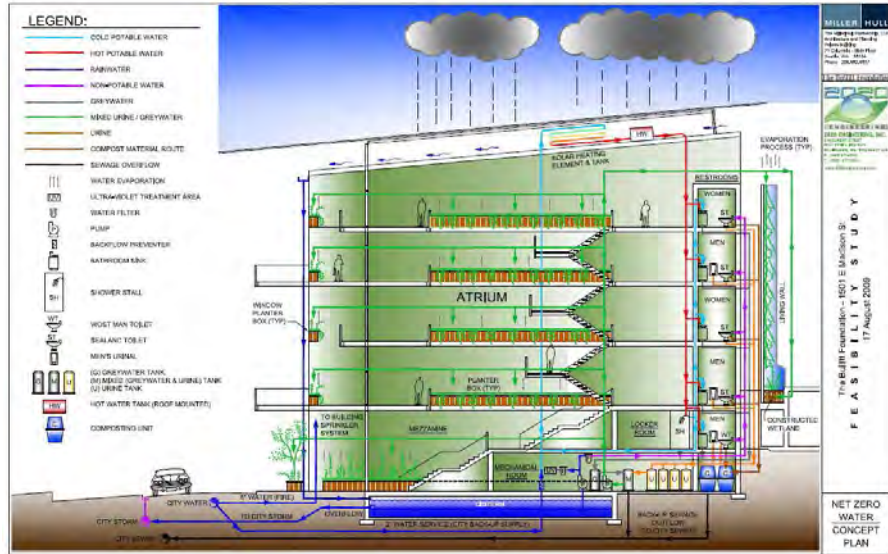
*Community:
Less water and
energy and
reduce
greenhouse gas
emissions.*

MINIMUM BUILDING ENERGY EFFICIENCY

The goal for Community is to create a net zero community where the sum of the parts creates a geometric improvement for the neighborhood. Looking Beyond Just meeting the minimum and to become a showcase in creating smart and sustainable communities. The challenge will be to find the best solutions that creates a synergy for sustainable growth.

LEED GOALS

Intent: To encourage the design and construction of energy efficient buildings that reduce air, water, and land pollution and environmental damage from energy production and consumption.

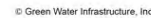


Innovative design opportunities and infrastructure investments can create a net zero impact for water. As cities have aging water based infrastructure that is overwhelmed by new development, it is necessary to develop new guidelines to reduce or eliminate requirements on city systems. The ability to recycle water for a variety of uses, to create a landscape lush in vegetation but not requiring additional water supplies, to look at the challenge not just as individual homes but as an integrated neighborhood.

Intent: To reduce indoor water consumption.



Community: Will create a neighborhood landscape to enhance the neighborhood.



Collecting rainwater and recycling it to support a landscape to inspire the residents. The landscape design has to be innovative and sustaining. It has to be designed to evolve over time, it has to encourage community interaction, education and ownership.

Intent: To reduce outdoor water consumption.



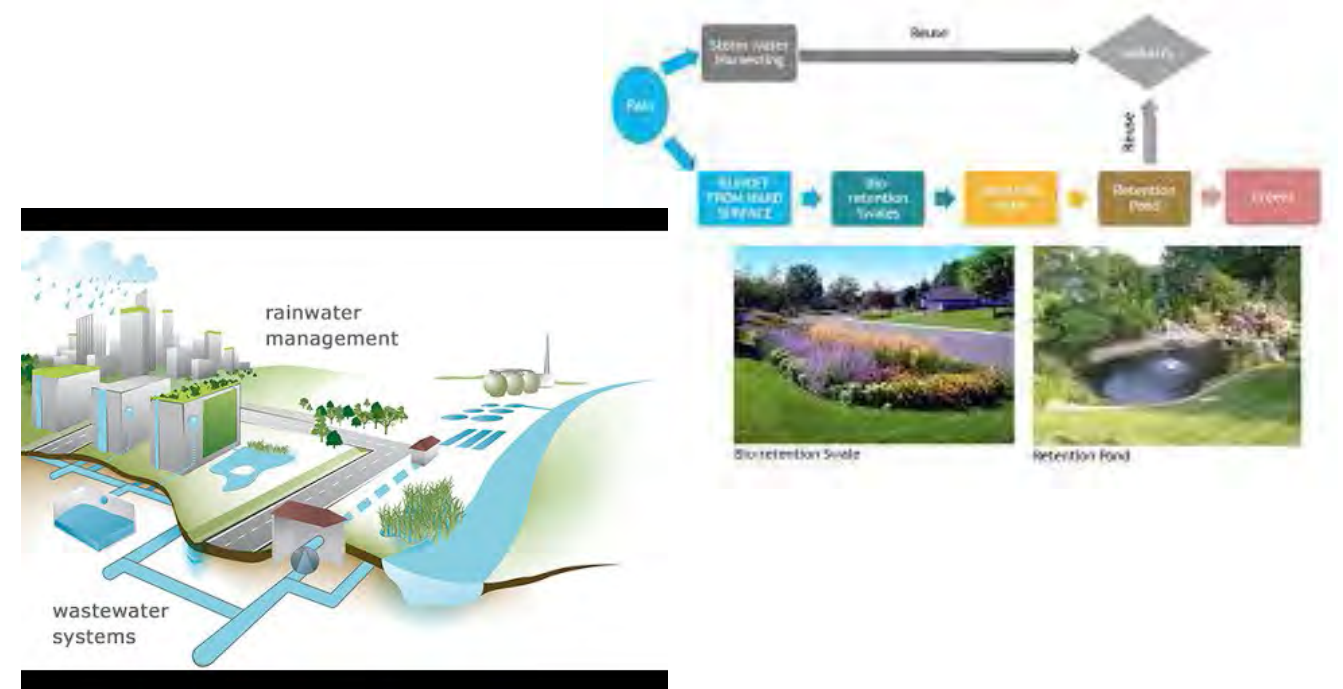
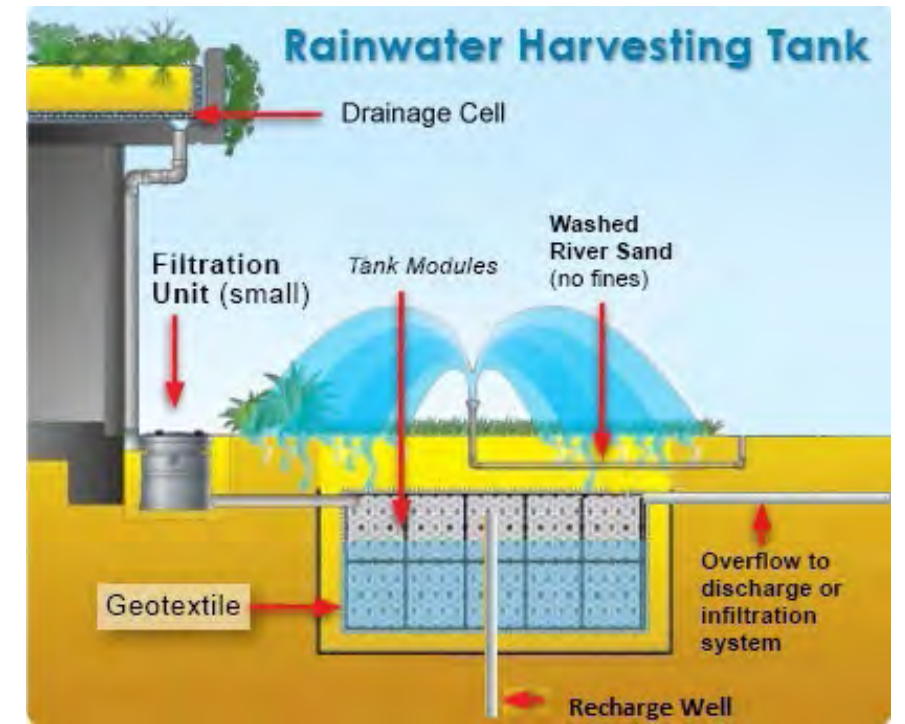
EXISTING BUILDING USE

While many of the buildings within Community have reached the end of their useful life, there are some opportunities to revitalize some existing space in the short term. Understanding that the Community development will happen over a number of years in phases, those are temporary projects that can show immediate progress.

LEED GOALS

Intent: To extend the life cycle of buildings and conserve resources, reduce waste, and reduce environmental harm from materials manufacturing and transport for new buildings.

Community: Will look holistically at the opportunities presented.



STORM WATER MANAGEMENT

The impact of individual projects can have a minimal effect on the overall problem. When a neighborhood is enhanced, the opportunities to make a big impact and reduce the pressure on city infrastructure.

LEED GOALS

Intent: To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.

Community: Will look to leverage existing structures where possible.

HISTORIC RESOURCE PRESERVATION AND ADAPTIVE REUSE

An inventory of buildings will help determine how structures can be repurposed. Many buildings have history from who lived there, what happened and how it has changed. There will be opportunities to integrate all, part or pieces into the rebirth of Community.

LEED GOALS

Intent: To respect local and national landmarks and conserve material and cultural resources by encouraging the preservation and adaptive reuse of historic buildings and cultural landscapes.



Green roofs can be installed on a wide range of buildings, from industrial facilities to private residences



Community: Will look holistically at heat islands.

HEAT ISLAND REDUCTION

The development guidelines will look to apply these concepts to the neighborhood working to develop micro climates within the City of Baltimore.

LEED GOALS

Intent: To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Community: Will go beyond individual solar solutions.



SOLAR ORIENTATION

These images look at the individual application of solar panels. Community will look at how the entire neighborhood can apply these principles to all of the development, embracing new battery storage technologies to minimize utility costs and becoming an incentive to moving to the community.

LEED GOALS

Intent: To encourage energy efficiency by creating optimum conditions for the use of passive and active solar strategies.

BOOSTING ON-SITE USE OF SOLAR

SOLAR ALONE



53% used on-site

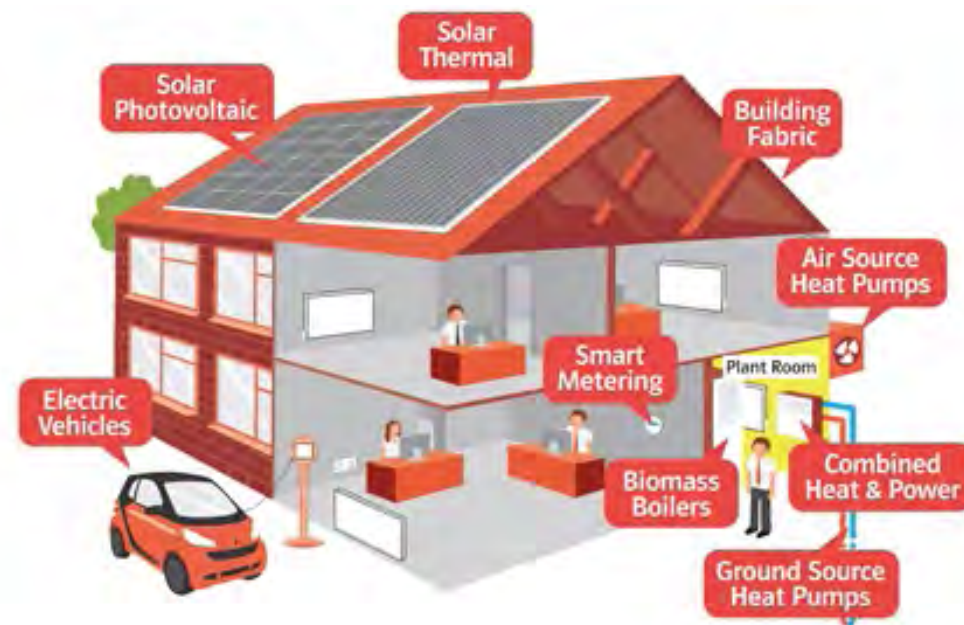
SOLAR+EV+BATTERY +SMART CONTROLS



89% used on-site



Community: Will exploit renewal onsite energy solutions.

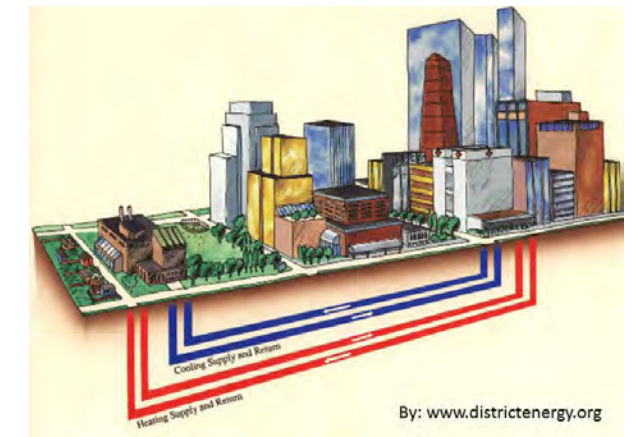
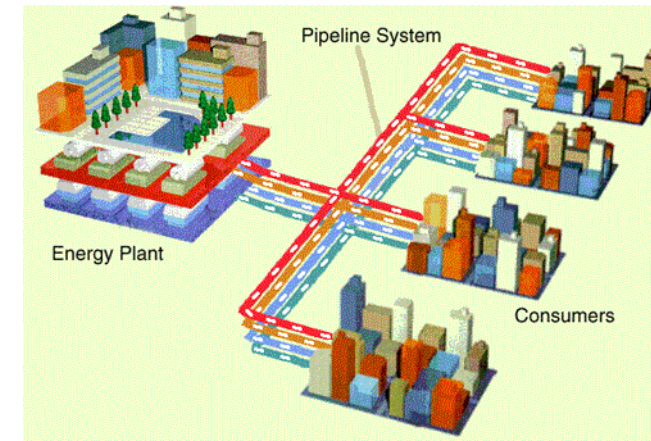


ON-SITE RENEWABLE ENERGY SOURCES

Smart systems will help measure and educate residents on how they can be energy neutral. The advances in technology and the ability to aggregate savings across the neighborhood will look to produce a working laboratory for future sustainable homes and neighborhoods.

LEED GOALS

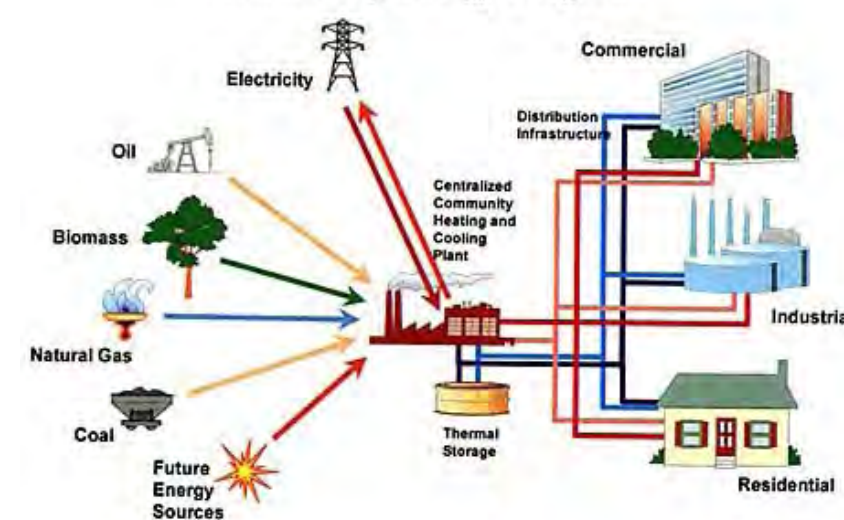
Intent: To reduce the environmental and economic harms associated with fossil fuel energy by increasing self-supply of renewable energy.



By: www.districtenergy.org

Community: As part of the master planning, Community will look at a variety of options.

Community Energy Diagram



DISTRICT HEATING AND COOLING

At this scale, decisions need to be made early on direction. However the design team needs to look at how large ideas might be scaled down as well as up in solving the heating and cooling demands.

LEED GOALS

Intent: To encourage the development of energy efficient neighborhoods by employing district heating and cooling strategies that reduce energy use and energy-related environmental harms.



Community: Will look to integrate waste management into the design and educate the residents.

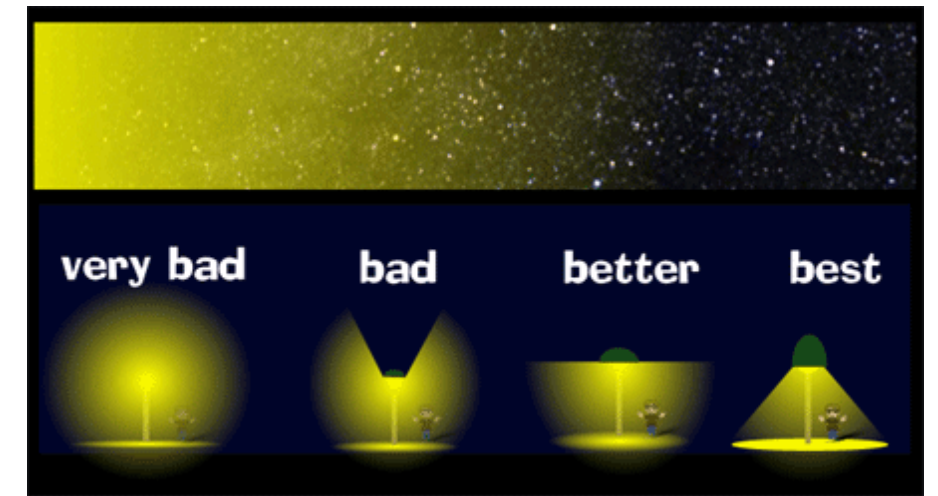
SOLID WASTE MANAGEMENT INFRASTRUCTURE

Society has been a disposable consumer for too long. As part of a sustainable neighborhood, the design will look at helping to promote the efficient use of materials to minimize the volume of waste generated. As a development, businesses will be encouraged not to generate excessive waste. Community will look to produce an environment that is both innovative and exemplary in many areas.

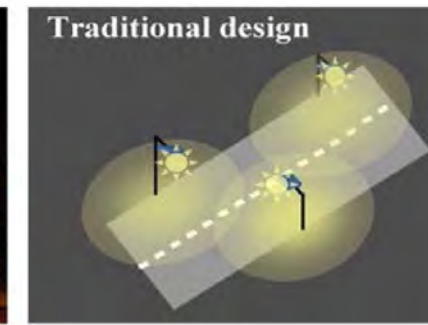
LEED GOALS

Intent: To reduce the volume of waste deposited in landfills and promote the proper disposal of hazardous waste.

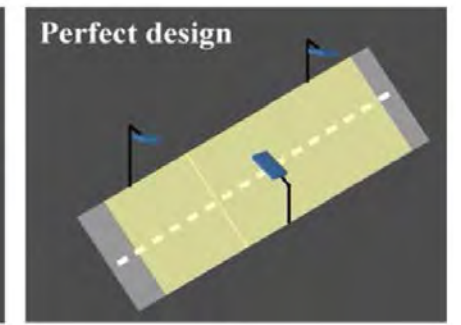
Community: Will develop an innovative lighting solution.



(a)

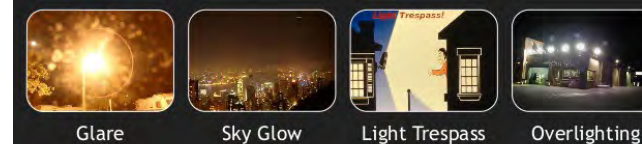


(b)



(c)

Types of light pollution



Cut it off



LIGHT POLLUTION REDUCTION

While city standards need to be met, it does not mean that light pollution is forgotten. Lighting can enhance the neighborhood creating a variety of themes while helping provide a safe well lit neighborhood.

LEED GOALS

Intent: To increase night sky access, improve nighttime visibility, and reduce the consequences of development for wildlife and people.



INNOVATION & DESIGN PROCESS

Exemplary Performance

Exemplary performance credits are awards when the design team has gone above and beyond the LEED standards.

Regional Materials:

39.1% of the materials used in construction are of a regional content.

Water Use Reduction:

WMES uses 64.1% less water than a conventional building



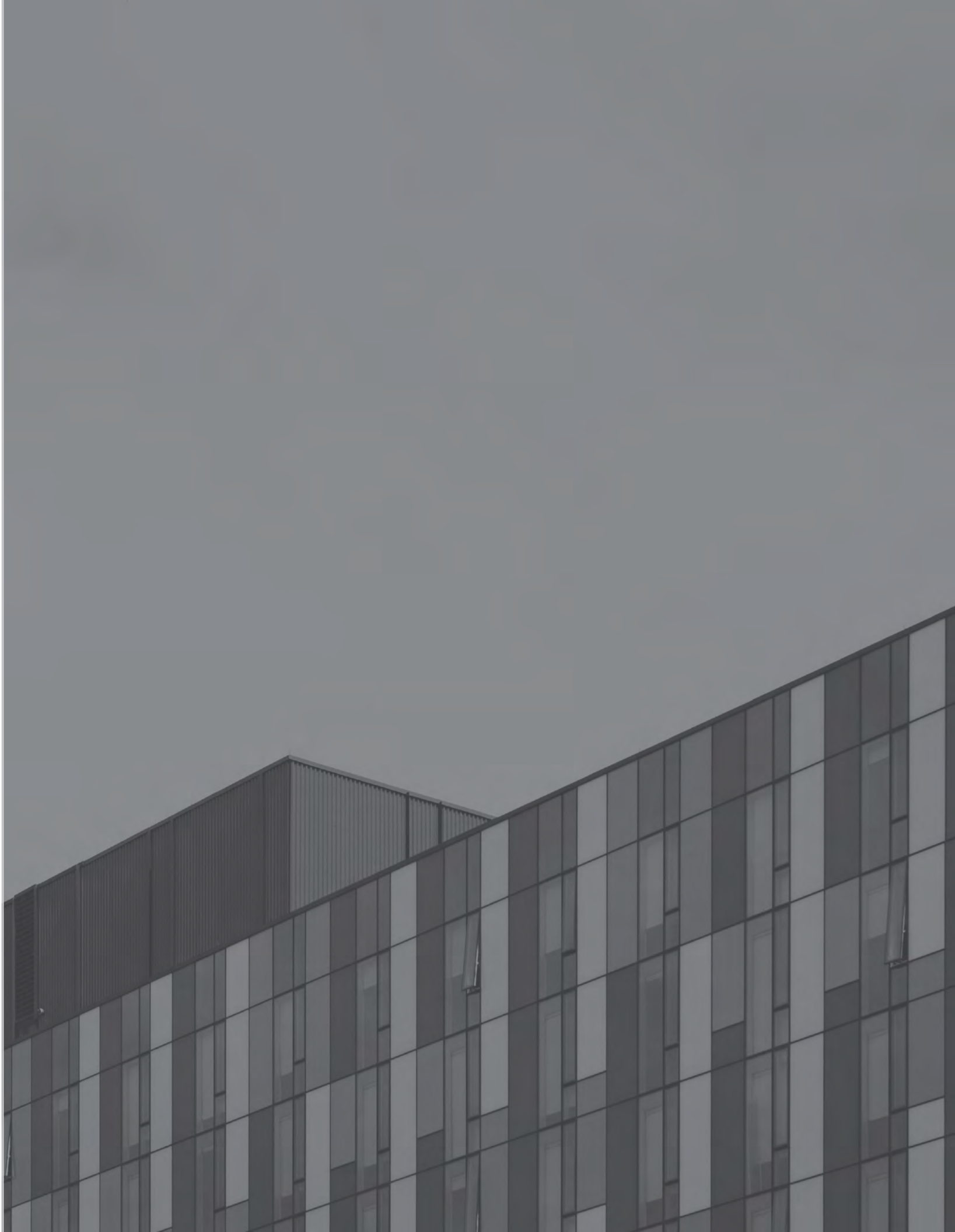
Community: Will look to produce an environment that is both innovative and exemplary in many areas.

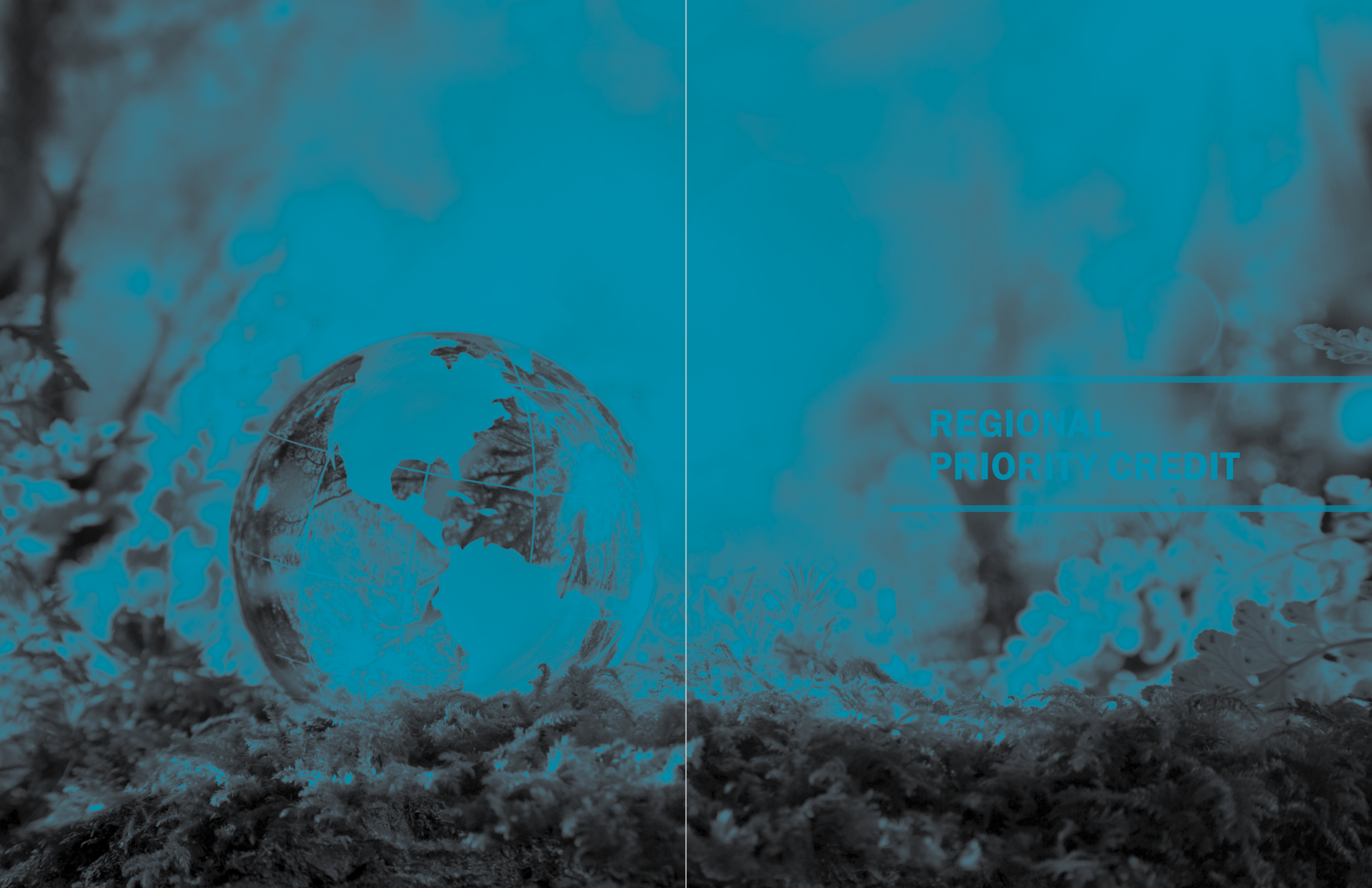
INNOVATION & EXEMPLARY PERFORMANCE

The goal for Community is not to just achieve a specific LEED certification. It is to look at how to change the conversation and look beyond the minimums to what is possible.

LEED GOALS

Intent: To encourage projects to achieve exceptional innovative performance.





REGIONAL PRIORITY CREDIT

RP – REGIONAL PRIORITY

RPc1 - Zipcode Based

Intent

"To provide an incentive for the achievement of credits that address geographically specific environmental, social equity, and public health priorities

Achieve

Earn up to 4 of the 6 credits found on USGBC website based on zip code.



Overview Professional Categories Process Other

where art meets engineering



Community: Will achieve the goals related to social equity and public health.

REGIONAL PRIORITY

The goal for Community is to address the needs of the City of Baltimore and provide a sign post to better ideas.

LEED GOALS

Intent: To provide an incentive for the achievement of credits that address geographically specific environmental, social equity, and public health priorities.