GoTriangle
Planning & Legislative Committee
August 23, 2017 2:30 pm-3:45 pm

I. Call to Order and Adoption of Agenda

ACTION REQUESTED: Adopt agenda.
(1 minute Will Allen III)

II. Approval of Minutes: July 26, 2017

ACTION REQUESTED: Approve minutes.
(1 minute Michelle Dawson)

III. Sustainability Standards for the D-O LRT Project

ACTION REQUESTED: Recommend Board adoption of Third-Party Sustainable Rating Systems.
(15 minutes Danny Rogers)

Excerpts - Third-Party Rating System Overview

IV. Adjournment
(Will Allen III)

GoTriangle Board of Trustees
Planning & Legislative Committee Meeting Minutes
July 26, 2017
Board Room, The Plaza, 4600 Emperor Blvd., Suite 100
Durham, NC

Committee Members Present:
Will Allen III, Committee Chair
Mary-Ann Baldwin
Wendy Jacobs
Vivian Jones
Jennifer Robinson (arr. 2:11 pm)

Other Board Members Present:
Ellen Reckhow

Committee Chair Will Allen III called the meeting to order at 1:58 p.m.

I. Adoption of Agenda

Action: On motion by Jones and second by W. Jacobs the agenda was adopted. The motion was carried unanimously.

II. Approval of Minutes

Action: On motion by W. Jacobs second by Jones the minutes of the June 28, 2017, meeting were approved. The motion was carried unanimously.

III. Proposed Transit-Oriented Development (TOD) Policy Framework

Patrick McDonough presented an assessment of GoTriangle's transit-oriented development (TOD) program based on various attributes. He categorized GoTriangle's program as between hybrid and conventional, with aspirations for an expansive program. He stated that currently three individuals work regularly on TOD, spending between .75 and 1.25 of a full-time equivalent employee over a year. He added that there are others across the agency that also contribute at times. McDonough said a full-time TOD planner would be added in FY18. He added that upon the completion of the TOD grant work, a second TOD position would be added in FY19.

The Committee discussed bringing back the planners group at TJCOG that regularly met to discuss land use issues.

McDonough then presented a revised TOD policy framework.

Action: On motion by W. Jacobs and second by Jones the Committee voted to recommend Board adoption of the TOD Policy Framework. The motion was carried unanimously.

IV. Guidelines for Transit Citizens Advisory Committee

General Manager Mann distributed updated Operating and Protocols Guidelines for Transit Citizen Advisory Committee. He reviewed the guidelines on behalf of General Counsel Blake. Committee members discussed various aspects of the guidelines and how the committee would operate in theory.

Reckhow suggested additional language under "Terms and Removal of Members" to clarify that half of the members are nominated by the three Boards of County Commissioners and half are solicited by GoTriangle.

Reckhow also suggested including language from GoTriangle's Strategic Plan to explain the goal of the committee.

The Committee discussed an annual report from the group and whether a specific timeframe should be given.

Action: Chair Allen called for a brief recess at 2:49 p.m. The meeting was reconvened at 3:00 p.m.

General Manager Mann stated discussions about this committee have taken place with citizens in Wake County, and their feedback has been considered. He said no such conversations have been held in Durham and Orange counties and he requested an opportunity to do so prior to approval of the guidelines.

Robinson suggested that staff collect samples of annual reports from area municipalities and counties in response to the discussion about an annual report.

Baldwin asked that this item come back to the Committee, with the expectation it would go to the Board in October.

W. Jacobs stated that in Durham County, advisory boards are given very specific and defined roles and duties, more so than the list included under "Committee's Roles and Responsibilities." General Manager Mann stated that he would work on identifying potential areas. W. Jacobs also suggested including a statement that staff would provide an update or report at each meeting of the advisory committee to make sure they are informed and to solicit their feedback on a specific topic.

V. Adjournment

Action: Chair Allen adjourned the meeting at 3:07 p.m.

_____
Will Allen III, Committee Chair

Attest:

_____
Michelle C. Dawson, CMC
Clerk to the Board of Trustees

GO Triangle

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Planning & Legislative Committee

FROM: Capital Development D-O LRT Project

DATE: August 9, 2017

SUBJECT: **Sustainability Standards for the D-O LRT Project**

Strategic Objective or Initiative Supported

This item supports strategic objective 1.3, "Incorporate innovations to improve mobility and environmental stewardship."

Action Requested

Staff requests that the Committee recommend that the Board adopt Third-Party Sustainable Rating Systems for the D-O LRT Project.

Background and Purpose

In the Record of Decision (ROD) for the Durham-Orange (D-O) Light Rail Transit (LRT) Project, GoTriangle committed to study opportunities for green building design and low-impact development during the Engineering (Final Design) Phase of the D-O LRT Project. To achieve that commitment, the following Sustainability Goals for the D-O LRT Project were identified by GoTriangle staff:

a. Provide guidelines for sustainable design consistent with the individual Project requirements.
b. Ensure economic stewardship of taxpayer dollars.
c. Manage life-cycle costs.
d. Provide third-party certification to demonstrate accountability.
e. Support GoTriangle's Wellness Program for employee retention.
f. Be responsive to community concerns and mitigation commitments.
g. Demonstrate the agency's commitment to environmental quality.
h. Recognize GoTriangle as an environmental leader through the D-O LRT Project.

Third-party Rating Systems benefit agencies, project partners and other key stakeholders as well as the community. They help to focus attention on the project's goals, and purpose and need and provide the project design team with a frame work for design solutions and decision-making. The benefits of using a third-party sustainability rating system include the following:

a. Encourages the use of integrated design practices which enhance project design team collaboration and improve the design and implementation process.
b. Provides economic benefits by potentially reducing utility costs and accessing design strategies that prove to be cost-effective over the life cycle of the facility.
c. Increases accountability by maintaining sustainable requirements throughout design, construction, operation and maintenance, when such requirements might be overlooked, due to lack of awareness or other constraints, concerns or priorities.
d. Improves quality of life and occupant well-being by advocating for design practices that create a more comfortable and healthy interior environment.
e. Offers increased opportunities to improve operations and maintenance programming and commissioning.
f. Offers recognition for the agency's commitment to sustainability

There are a variety of third-party Sustainability rating systems that may be used to support the goals identified for the D-O LRT Project. Some rating systems are best suited for buildings and others are more appropriate for infrastructure investments.

Based on the evaluation of rating systems which are applicable to the D-O LRT Project elements and consistent with its Sustainability Goals, the use of LEED BD+C (Leadership in Energy and Environmental Design for Building Design and Construction) is recommended for the Rail Operations and Maintenance Facility (ROMF) and Envision Version 2 is recommended for the alignment, stations, park and ride facilities and other project elements. As the D-O LRT Project transitions from construction to operations and maintenance additional rating systems may be considered.

LEED BD+C, Version 4 (LEED)
This is the most recognizable sustainable certification available for buildings; it is applied to planning, design and construction. LEED includes 12 prerequisites which must be met and 50 credits across 9 categories. There are four levels of recognition based on accruing a specific number of points: LEED Certification, LEED Silver, LEED Gold and LEED Platinum. GoTriangle staff has identified LEED Silver as the most appropriate for the ROMF.

The US Green Building Council (USGBC) through which the LEED certification program is operated requires registration and certification review fees which may vary based on the type of certification review, the square footage of the building and other factors. Subject to further evaluation, the registration and certification fees are estimated to cost approximately $6,900 - $8,100. This cost includes USGBC fees only and does not include the cost of the project design or construction team effort needed to facilitate the LEED process or prepare the documentation needed to submit for review.

Envision Version 2 (Envision)
This third-party rating system provides sustainability metrics for a broad range and scale of infrastructure investments and a framework for assessing sustainability indicators over the course of a project's life cycle. It is currently being applied to the planning and design of projects and

sites; by 2019 it will be extended to cover construction, operation and maintenance. Envision includes 60 credits divided into 5 categories. There are four levels of recognition: Bronze, Silver, Gold and Platinum. Once the D-O LRT Project has officially registered to go through the Envision verification process, project design team will compile the documentation to support the Level of Achievement for each type of credit.

Unlike LEED, the scope of Envision, which is administered by the Institute for Sustainable Infrastructure (ISI), would extend beyond planning, design and construction to operations and maintenance of the entire D-O LRT Service. The registration fee is $1,000 and based on the size of the Project the verification fee is anticipated to be in the range of $80,000. This estimated cost only includes the ISI fees and does not include the cost of the project design or construction team effort needed to facilitate the Envision process or prepare the documentation needed to submit for review.

Additional details regarding LEED, Envision and other third-party sustainability rating systems including their applicability to the D-O LRT Project and consistency with the Project's Sustainability Goals are attached.

Financial Impact

The combined cost of both LEED and Envision is currently estimated to be approximately $88,000 to $100,000 which would be funded as part of the D-O LRT Project and would be included within the current budget.

Attachments

- Excerpts from the Sustainability Technical Memorandum, D-O LRT Project

Staff Contact(s)

- Danny Rogers, 919-485-7579, drogers@gotriangle.org
- Juanita Shearer-Swink, 919-485-7412, jshearerswink@gotriangle.org

Sustainability Technical Memorandum

Third-Party Rating System Overview

Draft V. 4.0

Durham-Orange Light Rail Transit Project

GO Triangle

HDR

August 2017

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Table 1: Version History

Version	Date	Description
0	03/24/17	Initial draft outline document to GoTriangle to demonstrate framework and outline.
1.0	04/06/17	First Draft to GoTriangle
1.1	05/02/17	Final Revised Draft as per comments received on 04/18/17
2.0	6/21/2017	Revised Draft based on new memo outline reviewed with client on 6/2/17
3.0	06/21/17	Second Draft to GoTriangle
4.0	08/07/2017	Third Draft to GoTriangle

Table 2: List of Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	Best Management Practice
CNU	Congress of the New Urbanism
D-O	Durham-Orange
D-O LRT	Durham-Orange Light Rail Transit
FEIS	Final Environmental Impact Study
GBCI	Green Business Certification Inc.
GBI	Green Building Institute
ILFI	International Living Future Institute
ISI	Institute for Sustainable Infrastructure
IWBI	International Well Building Institute
LEED	Leadership in Energy and Environmental Design
LEED ND	LEED Neighborhood Development
ROD	Record of Decision
ROMF	Rail Operations and Maintenance Facility
USGBC	United States Green Building Council

1. Summary

1.1 Purpose of the Document

In the Record of Decision (ROD) for the D-O LRT Project, GoTriangle committed to study opportunities to incorporate green building design and low-impact development design (i.e., ROD Commitment WR01) during the Engineering phase of the D-O LRT Project. This document identifies the benefits of applying industry rating systems to the overall Project and specific Project elements, including but not limited to the light rail alignment, light rail stations, park and ride garage and lots, and the Rail Operations and Maintenance Facility (ROMF).

This document has been developed and organized to provide the following:

- An overview of the agency's sustainability goals;
- A summary of the benefits of third-party sustainable rating systems;
- A summary of relevant third-party sustainable rating systems for infrastructure;
- Examples of existing passenger rail Projects using or have used third-party sustainability rating systems;
- Specific recommendations that are applicable to the D-O LRT Project; and
- Identify key next steps to advance the sustainability aspects of this program.

1.2 GoTriangle's Sustainability Goals

GoTriangle identified the following sustainable design and construction goals for the D-O LRT Project:

- Provide guidelines for sustainable design consistent with the individual Project requirements.
- Ensure economic stewardship of taxpayer dollars.
- Manage life-cycle costs.
- Provide a third-party certification to demonstrate accountability.
- Support GoTriangle's wellness program for employee retention.
- Be responsive to community concerns and mitigation commitments.
- Demonstrate agency commitment to environmental quality.
- Recognize GoTriangle as an environmental leader through the D-O LRT Project application.

1.3 Benefits of Third-Party Sustainable Rating Systems

Sustainable Rating Systems benefit Project owners, stakeholders and the community. These systems offer valuable tools for Project assessment, planning and design, even for those who do not wish to formally certify their Projects. Rating system tools focus attention on Project goals and means and methods, while providing a framework for Project teams to define "sustainability" and link their Project's solutions to the context of sustainability.

Benefits to using sustainability rating systems include:

- Encourages the use of integrated design practices, which enhances Project team collaboration and improves the design process.
- Provides economic benefits by potentially reducing utility costs and assessing design strategies that prove to be cost-effective over the life of the facility.
- Increases accountability by maintaining sustainable design requirements throughout design and construction, when they might otherwise be pushed aside due to other Project constraints, concerns or priorities.
- Improves quality of life and occupant well-being by advocating for design and construction practices that create a more comfortable and healthy interior.
- Offers increased opportunities to improve operations and maintenance programming and commissioning.
- Offers recognition for the Agency's commitment to sustainability.

1.4 Applicable Third-Party Sustainability Rating System Opportunities

There is a variety of third-party Sustainability Rating Systems that may be used to support the Project's goals and provide accountability in ensuring that the Project's sustainability strategies and targets are implemented as intended. Most of the sustainable rating systems aim to improve a Project's societal benefits, reduce its environmental impacts, increase its resilience in the event of unforeseen events and maximize its ongoing sustainable performance. These rating systems typically apply to a specific Project type or sustainability focus, whether it is a new building Project, an existing building, a local infrastructure improvement, or a large regional infrastructure expansion. It is important to review the sustainable rating systems options that are applicable and available in order to determine the one that is most appropriate to support the Project.

Although rating systems are specific to a given Project type and provide a formal certification independent from other rating systems, they often work well together and advocate for design strategies that apply across different Project types and scales. For this reason, the Project design team is assessing sustainable rating systems that apply specifically to the ROMF and rating systems that apply specifically to the overall D-O LRT Project. This will ensure that sustainability goals and concerns are addressed across all aspects of the Project.

1.4.1 Sustainable Building Rating Systems

The following Sustainable Building Rating Systems apply to the ROMF only. These rating systems are not intended for infrastructure Projects and are specifically tailored to the design, construction and/or operations of the occupied building facilities.

- LEED for Building Design and Construction (BD+C), Version 4
- Energy Star Certification
- Green Globes for New Construction (NC), Version 1.45
- The Living Building Challenge, Version 3.1

- WELL Building Standard, Version 1
- FitWel, Beta Version
- Parksmart, Version 1.0

1.4.2 Sustainable Infrastructure Rating Systems

The following Sustainable Infrastructure Rating Systems apply to the entire D-O LRT Project. These rating systems focus on large scale development and/or infrastructure investments and include credits that support overall community engagement, improve community benefits and reduce the Project's environmental impacts.

- Envision®
- LEED for Neighborhood Development (ND), Version 4
- Greenroads
- Greenrails, Pilot
- INVEST, Version 1.2
- Sustainable Sites, Version 2.0

1.5 Recommendations

Based on GoTriangle's sustainable design goals, the Project program and scope, and the attributes of the various applicable third-party sustainable rating systems, the Project design team is recommending the use of LEED BD+C Version 4 for the ROMF and the use of Envision for the D-O LRT Alignment, Stations and Park & Ride facilities, as noted in Section 6 of this document.

1.6 Next Steps

The following "next steps" are necessary to confirm whether LEED and/or Envision will be pursued for the D-O LRT Project:

- GoTriangle presents the recommendation that LEED be used for the ROMF and that Envision be used for the D-O LRT Project to the GoTriangle Board of Trustees
- The GoTriangle Board of Trustees reviews the Third-Party Sustainable Rating System recommendations and grants approval
- The Project team holds a LEED and Envision Credit Workshop in September 2017 to review sustainable design opportunities, assess individual rating system credit requirements, and establish the Project's certification targets
- The Project team assesses the findings and consensus from the Workshop and begins to coordinate and implement the appropriate sustainable design strategies that will be used to meet GoTriangle's goals and the third-party rating system certification targets.

2. Agency Goals for Sustainable Design

The following are the sustainable design goals that GoTriangle has identified for the D-O LRT Project. These sustainable design goals shall be used to guide aspects of the design and construction of the Project.

- Provide guidelines for sustainable design consistent with the individual Project requirements.
- Ensure economic stewardship of taxpayer dollars.
- Manage life-cycle costs.
- Provide a third-party certification to demonstrate accountability.
- Support GoTriangle's wellness program for employee retention.
- Be responsive to community concerns and mitigation commitments.
- Demonstrate agency commitment to environmental quality.
- Recognize GoTriangle as an environmental leader.

These goals align with GoTriangle's mission, which is to "improve our region's quality of life by connecting people and places with safe, reliable and easy to use travel choices." By demonstrating environmental leadership and utilizing a third-party sustainable rating system to guide the Project's development, GoTriangle has the means to clearly show that it is addressing community concerns and contributing to steps that help improve the quality of life for the users of the Project.

3. Benefits of Third-Party Sustainable Rating Systems

A third-party sustainable rating system provides an established, industry-accepted set of standards that Project teams may use to guide a sustainable design process and assess the Project's sustainability achievements. Beyond providing a framework for sustainable design, these rating systems provide a number of benefits for Projects that utilize them.

3.1 Promotes an integrated design process

Sustainable rating systems provide guidelines and establish targets that require the Project team to utilize an integrated design process. This improves collaboration and necessitates the early analysis of interrelationships among program elements and facility systems. Although most Project teams engage all design disciplines during the early design phases, too often there are scope considerations that limit the level of engagement that makes integrated design successful. By pursuing a third-party certification, the team is required to provide a minimum level of effort in the integrated design framework, which can optimize the proposed design solutions and allow the best strategies to fit within the Project budget when the design is the most flexible.

3.2 Improves economic performance and reduces Project life-cycle costs

Sustainable rating systems encourage the use of energy modeling and data analysis to predict the future performance of a Project. These analyses increase soft Project costs due to increased design team effort and labor, however, they allow the design team to optimize the design and select systems that reduce energy and water use and costs. As part of these analyses, rating systems typically recommend the use

of life cycle cost analysis, which allow Project teams to determine the design strategies that offer the best economic investment over the life of the building. The cost-benefit of life cycle effective design choices can offset the initial investment identified during the design phases.

3.3 Increases accountability

Sustainable rating systems help Project teams establish sustainability goals and determine the design strategies that will be used to meet an intended sustainable certification target. These systems typically require a formal review or in-person assessment of the Project's documentation to verify that the Project actually meets the requirements outlined in the standard. This ensures that Project teams, to the best of their knowledge, comply with the sustainable certification standards and the Project's sustainability goals. Without a requirement for the formal third-party certification and review, a Project team may elect to approve design changes that do not align with sustainability targets or goals if difficulties or cost concerns arise, simply because no one is reviewing the Project for compliance.

3.4 Improves occupant well-being and reduces adverse health impacts

Sustainable rating systems advocate for planning, design, and construction measures that support occupant well-being and human health. Although the depth at which different rating systems address human well-being differs, the majority of them include requirements that improve the indoor environment. The measures include increased access to natural light and views, increased outdoor air ventilation rates, increased occupant control over lighting and thermal comfort systems, construction of indoor air quality management activities, the use of products that are free of harmful chemicals, improved acoustics and building design that promotes physical activity. Certain rating systems also address building operations and management to provide sustainable cleaning programs, healthy food options, active furnishings or wellness policies. Projects that are designed using sustainable rating systems result in healthier, more productive places that improve occupant satisfaction, result in improved productivity and reduce absenteeism. Evidence-based design studies have documented that healthy buildings and environments are beneficial to employees and users (American Journal of Public Health; September 2010, Vol. 100, No. 9). A comprehensive (and most often cited) study noting the impacts of indoor air quality on productivity, and findings referencing the value of high-quality, and well-designed workplace environments can be found at the link below.

http://naturalleader.com/thecogfxstudy/study-1/cognitive-function-tests-scores-doubled/

Rating systems also often address community well-being through increased community engagement at the beginning of Projects, through improved site design elements, and in the case of large scale master planning and infrastructure Projects, sustainable urban design and smart growth practices.

3.5 Improves Operations and Maintenance

Third Party sustainability certifications include requirements and opportunities for Projects to address the operations and maintenance of their facilities through increased commissioning, training, monitoring and verification programs. This helps to ensure maintenance staff knows how to operate the facility correctly and efficiently, and in the event of unforeseen issues, that they can address the problems quickly. This improves the ongoing efficiency of the facility and helps to limit unnecessary cost increases resulting from incorrect operation.

3.6 Offers recognition for GoTriangle's commitment to sustainability

A Project that earns a third-party sustainable certification demonstrates the owner's commitment to sustainability. It reflects the agencies' goals, and as a visible public Project, shows that the communities' concerns are being addressed. It sets an example for future transit development within the area and can serve as a case study for future Projects, locally and across the country, potentially leading to improved sustainability practices for similar agencies and Project types. There are also opportunities for increased exposure beyond the local community through awards, media, press releases and public relations communications.

4. Applicable Third-Party Sustainable Rating Systems

GoTriangle stated that the Project shall consider third-party sustainable certification to demonstrate the agency's commitment to sustainability and to ensure that the agency's sustainability goals are being met. There are a number of sustainable rating systems available for the Project to use, each of which has a slightly different focus and addresses sustainable design through their structure, credit content, and review process. Rating systems offer varying levels of value for GoTriangle and some vary greatly. It is necessary to understand each system's focus and the applicability relative to the Project needs and scope in order to recommend the best system to meet the Go-Triangle sustainability goals.

The following section provides an overview of the most notable and commonly used sustainable rating systems for horizontal and vertical infrastructure in North America today. There are many other programs that are used throughout the world, but these are the most recognized in the transit industry and applicable for the D-O LRT Project. Appendix A includes a detailed table comparing each of the third party rating systems assessed as part of this study. Appendix B includes a study of the benefits and limitations of each rating system. These Appendices complement, expand upon and supplement the analysis provided in Section 4 of this document.

4.1 Sustainable Programs for Buildings and Structures

4.1.1 LEED

The LEED Rating System is the predominant and most-recognizable sustainable certification available for building Projects. It is a rigorous set of clearly defined standards that encourages Projects to improve building performance and occupant well-being across a number of categories and credits. LEED Version 4 is the current rating system available and it is applicable to almost any building Project, with standards tailored to different Project types, including new construction, core and shell, healthcare, schools, and existing buildings. The building design and construction industry is very familiar with LEED guidelines and processes, limiting additional hard and soft Project costs. LEED is recognizable and the public will likely know what it stands for and understand that GoTriangle values sustainable development by becoming LEED certified. The ROMF would pursue the LEED for Building Design and Construction (BD+C), Version 4 Rating System.

Organization

- ***Structure***

LEED consists of 12 prerequisites and 50 credits across 9 categories. In order to achieve LEED certification, each Project must meet all of the prerequisites and the minimum number of points

required for its targeted certification level. Certification is based on a total of 110 points, with 40 points achieving LEED certification, 50 points achieving LEED Silver, 60 points achieving LEED Gold and 80+ points achieving LEED Platinum.

- ***Credit Content***

LEED prerequisites and credits address sustainability criteria in 9 categories: Integrative Process, Location and Transportation (LT), Sustainable Sites (SS), Water Efficiency (WE), Energy and Atmosphere (EA), Materials and Resources (MR), Indoor Environmental Quality (EQ), Innovation (ID), and Regional Priority (RP).

- ***Review Process***

Each LEED Project must be registered with the USGBC's LEED Online website. Once registered, each Project must document compliance with all prerequisites and all credits being pursued. Documentation is typically submitted in two phases, one in design and one in construction, where the GBCI assigns reviewers to assess the documentation and confirm which prerequisites and credits have been complied with. Once any review comments have been addressed, the documentation is resubmitted to the GBCI and a final review is issued, awarding final certification. Project teams may appeal GBCI rulings for an additional fee.

- ***Award Levels***

There are four levels of recognition: Certified (40-49 points), Silver (50-59 points), Gold (60-79 points), and Platinum (80+ points). Final applicable scores are dependent on program types and vary by Project.

4.1.2 ENERGY STAR

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) that recognizes buildings and facilities that perform in the top 25 percent nationwide. This program is a certification applied to commercial and factory buildings and focuses on energy and water use only. It is inexpensive and easy to understand, however, it has not been applied to a maintenance facility and it is unlikely that the ROMF would be eligible for certification.

Organization

- ***Structure***

ENERGY STAR certification requires that Projects meet energy performance levels that fall in the top 25 percent of similar buildings nationwide.

- ***Credit Content***

Credit content does not apply for this program.

- ***Review Process***

Building managers benchmark their facility against similar Projects nationwide and then submit verified energy performance data to the US EPA using the online ENERGY STAR Portfolio Manager Tool.

- ***Award Levels***

There is one level of recognition: ENERGY STAR.

4.1.3 Green Globes

Green Globes is an online assessment protocol and rating system for most new construction, interior renovation and existing building Projects. It was adopted by the GBI as an alternative to LEED, and is structured as a self-assessment program that is verified by an assigned third-party assessor. The rating system is more flexible than LEED with respect to the documentation process and allows individual credits deemed not applicable to be eliminated; however, it is less known and is viewed as being a less rigorous standard. The program is relatively expensive with regards to registration and review fees, and since it is not widely implemented and is not as clearly defined as other rating systems, it can increase soft costs beyond what Green Globes suggests.

Organization

- ***Structure***

Green Globes consists of 113 credits across 7 categories. In order to achieve Green Globes certification, each Project must pursue all credit points that are deemed applicable to the Project. Certification is based on an initial total of 1000 points, adjusted per Project, with those meeting 35 percent achieving 1 Green Globe, 55 percent achieving 2 Green Globes, 70 percent achieving 3 Green Globes, and >85 percent achieving 4 Green Globes.

- ***Credit Content***

Green Globes prerequisites and credits address sustainability criteria in 7 categories: Project Management, Site, Energy, Water, Materials and Resources, Emissions, and Indoor Environment.

- ***Review Process***

Project teams register the Project with the GBI to gain access to the online submission and review platform. The team submits an online, Phase 1 Assessment Questionnaire with accompanying documentation that is the basis for the Green Globes certification being pursued. An assigned Third Party Assessor reviews the documentation and provides an initial ruling. Once the building is complete, the Project team submits an updated Phase II Assessment Questionnaire that is reviewed by the Assessor during a final building walk-through. Final certification is awarded following the Phase II Assessment.

- ***Award Levels***

There are four levels of recognition: 1 Green Globe, 2 Green Globes, 3 Green Globes, and 4 Green Globes. Final applicable scores are dependent on program types and vary by Project.

4.1.4 Living Building Challenge

The Living Building Challenge epitomizes sustainability and reflects the highest standards in green building design and performance. It reflects a philosophy that the places we work and live need to be truly sustainable and have a positive effect on our environments. This program is considered the most rigid and inflexible rating system available, with all imperatives (credits) required for every single Project. Certification is based on actual performance, measured after one full year of occupancy, and requires that Projects attain net-positive energy, net-zero water, and eliminate red-list chemicals from Projects. Projects unable to meet all of the imperatives may elect to pursue Petal Certification or Net Zero Energy Certification. Although this would be an extremely difficult and likely cost prohibitive rating

system for the ROMF to implement, it would demonstrate a true commitment to sustainability that would be recognized globally in case studies.

Organization

- ***Structure***

The Living Building Challenge consists of 20 imperatives across 7 petals. In order to achieve full Living Building Certification, each Project must meet every single imperative within the rating system. Projects may also elect to pursue Petal Certification by meeting all of the imperatives across a minimum of 3 petals, one of which must be energy, water or materials. The program also offers Net Zero Energy Certification for Projects that meet certain imperatives and generate 100 percent of a building's energy needs on a net annual basis using on-site renewable energy.

- ***Credit Content***

The Living Building Challenge organizes imperatives in 7 petals: Place, Water, Energy, Health and Happiness, Materials, Equity, and Beauty.

- ***Review Process***

Project teams submit documentation to the ILFI for review by a third party auditor. Projects may pursue two review options, a final review or a split review with separate preliminary and final audits. The final audit must take place following 12 months of continuous occupancy.

- ***Award Levels***

There are three levels of recognition: Net Zero Energy Certified, Petal Certified, and Living Building Certified. Final applicable scores are dependent on program types and vary by Project.

4.1.5 WELL Building Standard

The WELL Building Standard is a performance-based standard for measuring, certifying and monitoring building features that impact human health and well-being. WELL is considered a rigorous, research driven sustainability standard that advocates for solutions that improve a facility's ability to support occupant health and well-being. This standard aligns very closely with one of GoTriangle's goals to support the agency's wellness program. It is less comprehensive than other whole-building rating systems and does not fully address site design, energy or water use in depth.

Organization

- ***Structure***

The WELL Building Standard includes 100 credits across 7 categories. In order to achieve Silver certification, Projects must meet all applicable preconditions (prerequisites), in order to achieve Gold Certification, Projects must meet all applicable preconditions and at least 40 percent of the optimization credits, and in order to achieve Platinum Certification, Projects must meet all applicable preconditions and at least 80 percent of the optimization credits.

- ***Credit Content***

The WELL Building Standard organizes credits in 7 categories: Air, Water, Nourishment, Light, Fitness, Comfort, and Mind.