



# King County Metro Transit Division 2004 LEED Assessment

Building Construction Projects



Prepared for

**King County Metro Transit Division**

Prepared by



**Paladino & Company, Inc.**

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### **Appendix A: Project LEED Assessments**

1. Atlantic/Central Base Tire & Millwright Shop
2. Communication and Control Center
3. Power Distribution Headquarters
4. North Lake Union Maintenance Facility
5. Ryerson Base Remodel
6. Atlantic/Central Base Employee Parking Garage
7. Eastgate Park and Ride
8. Redondo Heights Park and Ride
9. Issaquah Highlands Park and Ride
10. Burien Transit Center
11. Redmond Transit Center
12. Atlantic/Central Base North Yard
13. Atlantic/Central Base Street Improvements
14. Convention Place Station TOD

## 1.1 Introduction

### King County's Green Building Initiative

In October of 2001, the King County Executive created the King County Green Building Initiative (Initiative) to minimize the negative environmental impacts of construction and maximize the positive economic benefits. As part of the Initiative, the County encourages all County projects to achieve the highest LEED Green Building System rating possible. For projects where the scope limits the ability to achieve a LEED rating, projects are directed to apply LEED and green design principles wherever possible, but are not required to seek certification from the US Green Building Council.

### LEED Green Building Rating System

LEED is a nationally recognized green building rating system that awards points for achieving various thresholds of sustainability within 5 categories: Sites, Energy, Water, Materials & Resources, and Indoor Environmental Quality. LEED was released in 1998, and has since evolved into a series of products that are aimed at different building types. Currently there are three systems that a project in King County or anywhere in the nation can apply for:

*LEED for New Construction* (LEED NC) – Released in 1998, this system is for high-rise residential and non-residential new construction buildings or major renovations. Most Transit Authority projects will fit into this category. For those projects with scope outside the standard rating system, such as parking garages, this is the system the design team would use to draw information from for green design principles.

*LEED for Commercial Interiors* (LEED CI) – Released in 2004, this is for tenant improvement projects in office, retail, or institutional buildings. There is currently one Transit Division project seeking this certification.

*LEED for Existing Buildings* (LEED EB) – Released in 2004, this is for existing buildings that are not implementing major renovations, but are either validating existing environmental performance or are upgrading their performance. There are no Transit Division projects currently seeking this certification.

Each LEED system offers four rating levels: Certified, Silver, Gold and Platinum.

### King County Annual Assessment Reports

The Initiative requires that all departments conduct an annual assessment of their LEED efforts for their construction and renovation projects. The Transit Division coordinated with the King County Green Team to enlist a Technical Consultant, Paladino & Company, Inc., to perform the assessment and report on division LEED progress in 2004. This is the third year this report has been conducted by Paladino & Company. In addition to providing a LEED status report of Transit Division projects, this report also provides an analysis of the emerging trends, addresses the challenges and opportunities the project manager's are facing, and makes recommendations for facilitating and streamlining Transit Division efforts.



Eastgate Park & Ride: LEED Gold Equivalent



Redondo Park & Ride: LEED Gold Equivalent



Issaquah Highlands Park & Ride: LEED Silver Equivalent

## 1.2 LEED Assessment Report

### Project Assessment Process

The County Transit Division has identified 14 current projects for LEED assessment in 2004.

Similar to the previous years, Paladino & Company conducted the assessment by interviewing the project managers for each of the selected projects. The purpose of these interviews was to obtain information about the current status of each project including green features planned for the project, and collect background information on the decision-making process. The interviews also identified project successes, challenges faced by the team, and any opportunities remaining to achieve LEED goals.

### Project Types and LEED Applicability

The 14 projects reviewed for the 2004 Report fall into four project types: Office/Office-Industrial (5); Parking Facilities (5); Street Improvements (1); and Transit Oriented Development (TOD) (3).

Generally, Office/Office-Industrial parks will seek LEED ratings because there are enough opportunities within the scope of the project to earn sufficient LEED points to meet the rating system's thresholds. These projects are required to obtain a minimum of 26 out of 69 possible points to achieve LEED Certified.

Most parking facility and street improvement projects, as well as many TOD's, however, do not have enough opportunities to earn a minimum amount of LEED points to achieve certification. Under the GBI, these projects are still obligated to follow as many of the sustainable strategies as they can in LEED, and evaluate their success through a process called LEED Equivalency. To determine an 'Equivalent LEED Rating', credits that are outside the scope of the project type are termed 'Not Applicable' and are removed from the number of total points, or the denominator. The Equivalent LEED Rating is then calculated based on how many of the remaining credits are achieved.

The chart to the right shows the percentage of applicable LEED strategies a project must meet in order to achieve a rating under any of the three LEED Systems: LEED NC, LEED CI or LEED EB. Equivalent ratings are based on the same percentage ratings.

### Project List

The following is a list of the projects assessed in 2004. Projects marked with an asterisk (\*) were added to the assessment in 2004.

1. Atlantic/Central Base Tire and Millwright Shop
2. Communication and Control Center
3. Power Distribution Headquarters
4. North Lake Union Maintenance Facility
5. Ryerson Base Remodel\*
6. Atlantic/Central Base Employee Parking Garage
7. Eastgate Park and Ride
8. Redondo Heights Park and Ride
9. Issaquah Highlands Park and Ride
10. Burien Transit Center
11. Atlantic/Central Base North Yard
12. Redmond Transit Center\*
13. Atlantic/Central Base Street Improvements
14. Convention Place Station TOD

Please refer to Appendix A for the LEED Assessment and scorecard for each project.

<b>Platinum</b>	<b>75%</b>
<b>Gold</b>	<b>57%</b>
<b>Silver</b>	<b>48%</b>
<b>Certified</b>	<b>38%</b>

## Transit Division LEED Performance

Based upon the project manager interviews, the King County Metro Transit Division building projects comply with the Initiative. Of the 14 projects reviewed, ten were required by the Initiative to pursue LEED because they were early enough in the planning or design process to be able to incorporate sustainable strategies and pursue LEED points. However, the four projects that were beyond the pre-design phase opted to pursue LEED. Five of the 15 projects are of sufficient scope to apply for LEED NC, and three of those projects are already registered with the USGBC. One project is pursuing LEED CI certification; the remaining eight projects are pursuing a LEED Equivalent Rating. A summary of overall LEED progress for the Transit Division is shown in Table 1.1.

## Project Highlights

1. The Eastgate and Redondo Park and Rides have limited scope but are pushing hard and pursuing a high percentage of applicable green building strategies. Both projects are on target for a LEED Equivalent Rating of Gold.
2. The A/C Base site projects, including the Demolition, Employee Parking Garage and North Yard, have achieved a high percentage of points, LEED Equivalent Silver to Gold, and provide a solid LEED foundation for any building project on the site.
3. Three of the office projects, the Communication and Control Center, the Power Distribution Headquarters and the A/C Base Tire & Millwright Shop, are on target to achieve LEED Silver ratings.
4. The Ryerson Base Remodel could achieve LEED CI Gold.
5. Three Transit projects rehabilitated damaged sites. Using previously developed sites reduces pressure on undeveloped land and maximizes use of existing infrastructure. The Communications and Control Center, Redondo Heights Park & Ride and the Atlantic/Central Base Expansion Demolition will achieve the LEED brownfield credit.
6. All Transit parking facilities are using energy efficient exterior lighting, including metal halide fixtures and photocells. The specifications and fixtures used at the assessed projects can serve as the basis for KC Transit Guideline Green Exterior Lighting Specifications.

## Power Distribution HQ: Targeting LEED Silver



## LEED Culture > LEED Tools

Project managers have gained more experience and attitudes overall were more positive than last year.

As the Transit Division continues to build green, the need for LEED tools, such as green master specifications, tracking tools, and communication between projects becomes increasingly critical.

Table 1.1: Transit Projects LEED Assessment Summary Table

Projects marked with an \* opted to comply with the Initiative even though they were under design in 2001, pre-dating the Initiative.

Project Name	Project Manager	Phase	Size	Building Type	Expected Rating (from low side of range)	Possible Rating (from high side of range)	LEED Rating or Equivalent LEED Rating
Atlantic/Central Base Tire and Millwright Shop	Ken Tarp	100% Construction Documents	9,000 sq ft	Office, millwright shop	Silver	– Silver	LEED-NC™
Communication and Control Center	Don Campbell	100% Construction Documents	14,000 sq ft	Office	Silver	– Gold	LEED-NC™
Power Distribution Headquarters	* Ron Moattar	Construction	26,000 sq ft	Office and workshop	Silver	– Silver	LEED-NC™
North Lake Union Maintenance Facility	Dave Crippen	Planning/Pre-Design	96,000 sq ft	Office, workshop, outdoor support	Not Yet Available		LEED-NC™
Ryerson Base Remodel	Ron Moattar	Pre Design	56,000 sq ft	Tenant Improvement	Silver	– Gold	LEED-CI
Atlantic/Central Base Employee Parking Garage	* Mike Stanaszek	Construction Complete	1000 stalls 5 story garage	Parking Garage	Silver	– Gold	Equivalent LEED™ Rating
Eastgate Park & Ride/ Interim Lot	* Sheldon Teel	Completed in 2004	1700 stalls 5 story garage	Parking garage and lot	Silver	– Gold	Equivalent LEED™ Rating
Redondo Heights Park & Ride	* Sheldon Teel	Construction	700 stalls	Parking lot	Silver	– Gold	Equivalent LEED™ Rating
Issaquah Highlands Park & Ride	Sheldon Teel	Construction ; February 2006 Completion	1,034 stalls 5 story garage	Parking garage	Certified	– Silver	Equivalent LEED™ Rating
Burien Transit Center	Elizabeth Morgan	Schematic Design	400 stalls 4.3 acres	Parking, bus shelters, TOD planned	Certified	– Certified	Equivalent LEED™ Rating
Atlantic/Central Base North Yard	George Mitacek	Design	100 stalls	Bus parking	Silver	– Gold	Equivalent LEED™ Rating
Atlantic/Central Base Street Improvements	Mike Stanaszek	Design		Street Improvement	Silver	– Gold	Equivalent LEED™ Rating
Redmond Transit Center	Sally Turner	Schematic Design		Passenger and bus capacity expansion	Not Certified	– Silver	Equivalent LEED™ Rating
Convention Place Station Transit Oriented Development	Dave Crippen	On Hold	4 acres	TOD	Not Yet Available		LEED-NC™

## 1.3 Transit Division LEED Credit Trends

Paladino compiled the LEED credits for all Transit projects assessed to date. Based on the frequency in which individual credits are achieved, the ease or difficulty of each credit can be determined. For example, if all office projects achieve the same credit, the credit can be deemed 'easy' to achieve. While a data set of 14 projects is not necessarily statistically significant, the picture that emerges based on these projects is informative. The results also correspond, with regional and project-specific variations, with national LEED credit trending based on over a hundred projects nationally.

For the Division, two LEED Credit Trends scorecards, have been created by project type. These two project types were chosen based on the following criteria. First, there is a large enough sample of projects of a particular type to draw conclusions from. Second, the scope of the project types is most applicable to the LEED NC Rating System as currently written.

1. Office and Office-Industrial Projects
2. Parking Facilities Projects

The scorecards are helpful in estimating the most cost effective LEED points for a particular project type and for tracking progress during the design phases.

### Office / Office Industrial Projects

The Metro Transit Division Office and Office-Industrial LEED Credit Trends Scorecard (**Table 1.2**) was created using the scorecard from three projects-the Atlantic / Central Base Tire & Millwright Shop, Communication and Control Center and Power Distribution Headquarters.

Further analysis of the 'Moderate' credits is recommended to determine which are most cost effective in the short term. Life cycle cost analysis (LCCA) is an effective method to determine the feasibility of implementing specific measures. LCCA is used to determine which strategies with higher first costs will likely result in a savings of maintenance and operating costs over the long run.

### Parking Facilities Projects

The Metro Transit Division Parking Facilities LEED Credit Trends Scorecard (**Table 1.3**) was created using the scorecard from the six projects- Atlantic / Central Base Employee Parking Garage, Eastgate Park and Ride, Redondo Heights Park and Ride, Issaquah Highlands Park and Ride, Burien Transit Center and Redmond Transit Center.

The Atlantic / Central Base North Yard and Street Improvements were omitted from this calculation, because so few of the credits applied to this type of parking facility.

For this type of construction project, few of the Energy & Atmosphere and Indoor Environmental Quality credits and prerequisites apply.

### Credits Regularly Achieved!

A number of credits are regularly achieved by Transit projects.

**SS credit 7.1** - Landscape & Exterior Design to Reduce Heat Islands, Non-Roof

Many Transit projects incorporate concrete paving. Concrete is a good option for reflectivity and strength, and at the end of its useful life, can be broken up and reused as structural fill in future development, either on or off-site.

**WE credit 1.1/1.2** -No Irrigation

Landscape materials and temporary drip irrigation systems (during 2-year establishment) are common among Transit projects.

**WE credit 3.1/3.2** - Water Use Reduction

Efficient plumbing fixtures including low-flow and dual flush toilets, waterless urinals and low-flow aerators are achieving 20-50% water use savings.

**ID credit 1** - Education Program

Educational signage, case studies, web sites, and building tours regularly created by the King County Green Building Team help many County projects, including Transit projects, achieve this credit.

In addition, several credits and prerequisites are achieved based on local codes. Refer to the 2003 LEED Transit Assessment for more information.

Table 1.2: King County Transit Division LEED Credit Trends Scorecard for Office and Office-Industrial Projects

KC Metro Transit Division 2004 LEED Assessment Report		LEED NC™ Slam-Dunk Scorecard Office / Office Industrial Projects																																																																																																																																																										
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Certified: 26 to 32 points Silver: 33 to 38 points Gold: 39 to 51 points Platinum: 52 or more points																																																																																																																																																												
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<h3>How to Interpret the LEED Credit Trends Scorecard</h3> <p><b>Credits marked 'Easy':</b> The concept behind the LEED Credit Trends scorecard is that the credits marked 'Easy' with a green shaded box are consistently achieved by KC Metro Transit Division projects with little work or additional cost. These credits or prerequisites should always be pursued by Transit projects, and are likely candidates for inclusion in Transit Division Design Standards or Master Specifications.</p> <p><b>Credits marked 'Moderate':</b> 'Moderate' credits represent those with some variability from project to project based on scope, phase at introduction and environmental and project goals. The bulk of project team LEED effort would therefore be on credits noted as 'Moderate' as the 'Easy' credits should become standardized by the Transit Division.</p> <p><b>Credits marked 'Difficult':</b> Credits listed as difficult indicate that the majority of projects do not qualify, because they are not applicable to the project type or are currently cost prohibitive.</p>																																																																																																																																																												



Table 1.3: King County Transit Division LEED Credit Trends Scorecard for Parking Facility Projects

KC Metro Transit Division 2004 LEED Assessment Report		Parking Facilities																																																																																																																																																										
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## 1.4 Recommendations for LEED Implementation

Many issues and challenges identified within the Transit Division through the assessment process will need to be addressed either within the Transit Division or at the County level to have the greatest impact. Key issues identified include internal education and resource development. Three key tools were identified during the interviews.

1. **Greening Transit RFOs:** Include sustainability and LEED expertise in design team and contractor selection criteria. This language can be built into a master format that is utilized for all projects, whether they are applying for a LEED rating or LEED equivalency. The teams recognized a need for sustainable design expertise. The County will need to consider sustainable design expertise, both internal and external, when it assembles project teams. King County budgets often allow for external expertise as it relates to meeting the Initiative. Offer incentives to Project Managers to fulfill a higher LEED achievement, or to become LEED Accredited Professionals.
2. **Hold Transit Project Manager Coordination Meetings:** Regular Transit Division LEED meetings could provide opportunities for Project Managers to meet with each other to coordinate and compare LEED experiences, tools and progress. Monthly or quarterly coffee + LEED networking could provide project leaders with valuable insight into credit nuances, help streamline the LEED application process and provide value throughout the Division. This strategy is particularly important for projects located at the A/C Base.
3. **Develop Case Studies:** Develop a case study for each completed Transit Division project, similar in layout and content to the A/C Base Expansion Demolition. These case studies could be used to document the achievements and barriers of each project. Furthermore, it could be used as an educational tool for both King County Project Managers and the public. Case study information could either be in handout form or in a database.
4. **Update the Transit Division Master Specifications:** Include green design and LEED criteria, strategies, materials, products, instructions to contractors, and contractor LEED submittals. Note that the Power Distribution Headquarters has an updated construction waste management specification that may be used instead. Transit projects can already provide samples of good LEED project specifications for several sections, including Construction Waste Management, Garage and Exterior Lighting, and Temporary Irrigation Systems.
5. **Set Goals Early with Eco Charrettes:** A strategy session early in the design process is a recommended method to set goals, identify barriers and create tactics to overcome them.

### Other Suggestions from Project Interviews

#### Use King County Standards that Meet LEED

During the course of the interview process, it was revealed that projects are following the local jurisdictional code, regardless of whether the King County requirements are stricter. Transit Division project teams should consider following the King County requirements when they are more stringent than the local code. For example, King County Stormwater Management requirements meet LEED Site credit 6.2 for Stormwater Treatment and are more stringent than City of Seattle requirements. Projects in Seattle that only meet Seattle code will not achieve Site credit 6.2.

#### Project Budgeting Issues

Teams continue to face challenges regarding flexibility to incorporate LEED credits into the project as details become available. Flexible contingency budgets may be one way to help project managers achieve higher LEED ratings. Project managers may also need a method for accepting grant funds that may become available after project budgeting.

## 1.5 Conclusions & Next Steps

All of the assessed projects are on track to achieve LEED Ratings or LEED Equivalent Ratings of Certified or higher. Several projects are even pursuing LEED Silver and Gold. The Transit Division's first LEED CI project could also achieve a LEED Gold rating. Two LEED Equivalent projects have been completed since last year, the A/C Base Employee Parking Garage and the Eastgate Park and Ride facilities.

As project teams become more familiar with the LEED rating system, more credits are identified as addressable within the scope and budget of the project. One office project, the Power Distribution Headquarters was able to advance to a higher LEED level as they learned more about the process – they are now on track to achieve a LEED Silver rating. The Power Distribution HQ may be the Transit Division's first LEED rated project.

### Next Steps

As division Project Managers implement LEED across the building portfolio, the need for accessible tools increases. Multiple projects have developed specifications, spreadsheets, RFQs, contract language and other tools that are not well disseminated throughout the department. The lessons learned and tools developed by these projects need to be codified and made accessible to all Transit Project Managers to facilitate future Transit LEED projects in the most efficient and effective manner possible. This not only results in greater potential for positive environmental impact but also streamlines the project design and implementation process for the County.

### Precious Metal Projects

The **Power Distribution Headquarters**, currently under construction, is on track to become the first Transit Division project to earn a LEED rating from the USGBC. The project is a LEED for New Construction project targeting Silver!

The **Atlantic/Central Base Tire & Millwright Shop** and **Communication and Control Center** are also targeting LEED for New Construction ratings of Silver from the USGBC!

The **Ryerson Base Remodel**, which is in the pre-design phase, could become the division's first LEED for Commercial Interiors project and Gold is a strong possibility!