

# Cobb County Department of Transportation

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# PEACH Roads

## Project Design Certification Program Manual

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*Cobb County...Expect the Best!*

Certification Program for Cobb County DOT Designs Meeting Criteria for Sustainable Transportation Infrastructure using Cost Effective Environmentally Friendly Practices that Preserve Community Heritage

**November 2010**

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### **Background**

Cobb County Department of Transportation (CCDOT) is committed to improving the quality of our transportation infrastructure in cost effective ways that minimize impacts to the environment, including the depletion of irreplaceable resources. To recognize transportation project designs that incorporate a high level of environmental sustainability, CCDOT is implementing PEACH Roads (**Preserving Environment And Community Heritage**), a project rating program. The concept of “Green” certification is not new, as the building industry has used the [Leadership in Energy and Environmental Design \(LEED™\) rating system](#) since the mid 1990s to certify over 850 buildings worldwide. For transportation project design, no such program has been nationally implemented, although numerous U.S. organizations, including AASHTO, are working to create a transportation counterpart to LEED. However, New York State Department of Transportation (NYSDOT) implemented a statewide program in 2008 called GreenLITES (Green Leadership in Transportation Environmental Sustainability). PEACH Roads, while relying upon numerous sources, has primarily been developed from the GreenLITES model since the NYSDOT program is the only working program currently being utilized by a public transportation agency.

### **Pilot Project and Georgia Department of Transportation (GDOT) Involvement**

Georgia Department of Transportation shares in this commitment to cost effective sustainability and has consequently agreed to partner with Cobb County in the development of PEACH Roads as a pilot program for Cobb DOT. This pilot program is to be in effect for a period of two years, starting January 1, 2011. In addition, GDOT has expressed a desire to adopt PEACH Roads for State DOT use should the pilot program prove successful.

### **What is PEACH Roads?**

“Sustainability” is commonly understood to describe any human use of resources which does not exhaust those resources. As we improve safety and mobility in Cobb County, transportation sustainability at CCDOT is a design philosophy that ensures we:

- Protect and enhance the environment
- Promote the effective and efficient use of limited public funds
- Conserve energy and natural resources
- Preserve community quality of life
- Encourage more public involvement in the various transportation processes
- Integrate smart growth and sound land-use practices
- Promote the use of recycled materials
- Encourage quality economic growth
- Formulate new and innovative approaches to transportation challenges (including utilization of new technology)
- Seek to identify and utilize materials with longer-life and requiring less maintenance
- Enhance historic, scenic and aesthetic characteristics
- Provide more sidewalks and other forms of alternate transportation
- Foster long-term, big picture thinking regarding the future of transportation

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These concepts are not new to the Department, which has been following many of these practices in one form or another for a number of years. CCDOT developed the PEACH Roads certification program to better integrate these principles by:

- 1) Recognizing and increasing the awareness of the sustainable methods and practices we already incorporate into our project designs.
- 2) Expanding the use of these and other innovative alternatives which will contribute to improving transportation sustainability.

It is also important to understand that sustainability is about balancing what is beneficial to people, while considering what is economically sound, and environmentally compatible. This may or may not necessarily increase project costs. Where project costs are increased, it may be warranted when all external costs are considered.

PEACH Roads is a **self-certification program** that distinguishes transportation projects based on the extent to which they incorporate sustainable design choices. This is primarily an internal management program for CCDOT to measure our performance, recognize good practices, and identify and improve where needed. However, it will also provide the Department with a way to demonstrate to the public how we are advancing sustainable practices. CCDOT project designs will be evaluated for sustainable practices, and an appropriate certification level, based on the total credits received, will be assigned to each project. The rating system recognizes varying certification levels, with the highest level going to designs that clearly advance the state of sustainable transportation solutions.

CCDOT will begin PEACH Roads certification by evaluating projects to be let for construction after January 1, 2011. This certification program builds on other environmental initiatives already begun by the Department and is the next step in a long-term commitment to evaluating and refining practices to encourage sustainable choices in project design. The rating system described in this document is for Design and Construction. The program is also intended to be a model for other Department sustainability initiatives, providing a benchmark to follow for incorporating greater levels of sustainability into our work.

## **Certification Categories and Objectives**

PEACH Roads certification categories are:

- 1) Sustainable Sites
- 2) Water Quality
- 3) Materials and Resources
- 4) Energy and Atmosphere
- 5) Innovation/Unlisted

Project design details are compared to objectives and credit descriptions in each PEACH Roads category. Points are awarded and the project is scored according to its impact and contribution to advancing “the state of practice” in furthering sustainability. It is recognized that some sustainable design choices may be cost-prohibitive. Sustainable options considered must be carefully weighed with other competing project priorities using existing Department practices for alternative selection and Department performance goals. This way, an appropriate balance is achieved with available resources.

The following is a brief description of each category and a listing of the objectives that will be addressed by the project design in order to obtain credits toward PEACH Roads certification. Appendix A contains a more complete and detailed description of the certification categories and associated credits. Note there is some overlap and synergy among these categories. Specific credits in the Appendix are placed only once, in the category that best describes their predominant benefit.

### ***Sustainable Sites (S)***

This category focuses on the “setting” of Department projects. It also includes measures which can protect and enhance the community heritage, provide cleaner air and water, and improve quality of life. This is consistent with Department policy to select the best available alternative based on program/project goals and objectives, public involvement, and overall sustainability. Subcategories are:

- ❖ Alignment Selection
- ❖ Context Sensitive Solutions
- ❖ Land Use/Community Planning
- ❖ Protect, Enhance, or Restore Wildlife Habitat
- ❖ Protect, Plant, or Mitigate for Removal of Trees and Plant Communities

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### ***Water Quality (W)***

CCDOT seeks to protect the State's water bodies by improving water quality and reducing stormwater runoff. This can be achieved by treating stormwater runoff using various Best Management Practices (BMPs) and including designs that properly treat stormwater quality and quantity. Subcategories are:

- ❖ Stormwater management (volume and quality).
- ❖ Reduce runoff and associated pollutants by treating stormwater runoff through BMPs .

### ***Materials and Resources (M)***

This category is consistent with CCDOT specifications that encourage reducing waste by reusing and recycling materials in beneficial ways. Local materials would be used to the greatest extent possible to minimize haul distances. Subcategories are:

- ❖ Reuse of Materials
- ❖ Recycled Content
- ❖ Locally Provided Material
- ❖ Bioengineering Techniques
- ❖ Hazardous Material Minimization

### ***Energy and Atmosphere (E)***

This category is consistent with the Department's understanding of quality of life impacts and our goals for energy conservation and efficiency. It also supports projects developed with air quality improvements, encourages car pooling, mass transit, and non-motorized transportation. Subcategories are:

- ❖ Improve Traffic Flow
- ❖ Reduce Electrical Consumption
- ❖ Reduce Petroleum Consumption
- ❖ Improve Bicycle and Pedestrian Facilities
- ❖ Noise Abatement
- ❖ Stray Light Reduction

### ***Innovation/Unlisted (I)***

This category is intended to give credit to designs that significantly build upon PEACH Roads categories and objectives or incorporate significant innovations in transportation environmental sustainability that have not been previously utilized on CCDOT projects.

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### Certification Levels

Depending on the cumulative score acquired by incorporating sustainable choices into the project design, one of the following PEACH Roads certification levels may be assigned:



**Certified:** This certification highlights a project design that has incorporated a number of sustainable choices.



**Silver:** Silver certification highlights a project design that has incorporated a number of sustainable choices with several of these choices having a high level of impact, or having advanced the state of practice.



**Gold:** Gold certification highlights a project design that has incorporated a substantial number of sustainable choices with many of these choices having a high level of impact, or having advanced the state of practice.



**Evergreen:** Evergreen certification highlights a project design that has incorporated the highest number of sustainable choices with many of these choices having an extremely high level of impact. Additionally, these projects may advance the state of practice or are innovative in the way environmental sustainability is approached on the project.

Appendix B contains a detailed checklist or “Scorecard” for calculating design project scores.

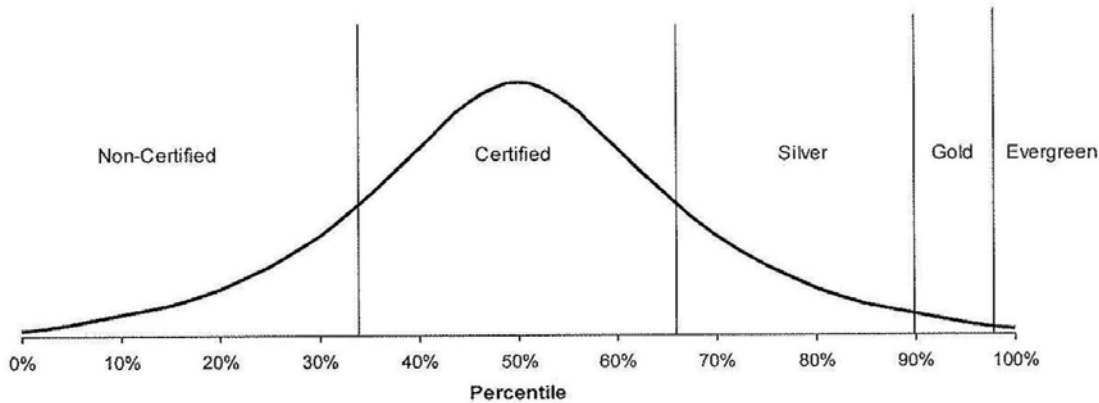
### **Scoring Methodology**

Depending on the level of sustainable choice inclusion, project designs may fall within one of these four certification levels. These levels are determined by the total number of points the project receives compared to the total points available for each certification level. In order to set a baseline, statistical thresholds were established for each certification level (by standard deviation from the mean). Certification levels were determined by dividing all project scores into thirds representing low, middle, and high levels of environmental sustainability. The lower third of all projects did not receive certification, the middle third are *Certified*, and the upper third were further subdivided into *Silver*, *Gold*, and *Evergreen*, with progressively increasing requirements for attainment to each successive level. (see table *Proposed Initial PEACH Roads Awards Distribution*). The intent is, after the PEACH Roads program goes into full implementation using these established point thresholds, the bell curve shape representing the project distributions will start to skew to the right. This means more and more projects will score into higher and higher categories as projects are developed with more and more sustainable choices.

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### Proposed Initial PEACH Roads Awards Distribution



Name	Point Range	Percentile Range	Approximate Std Dev Range	% of Dept Projects
Non-certified	0 – 14	< 33%	< $-0.5\sigma$	33%
Certified	15 – 29	33 – 67%	$-0.5\sigma$ – $0.5\sigma$	34%
Silver	30 – 44	67 – 90%	$0.5\sigma$ – $1.5\sigma$	23%
Gold	45 – 59	90 – 98%	$1.5\sigma$ – $2.5\sigma$	8%
Evergreen	60 & up	> 98%	> $2.5\sigma$	2%

### Implementation

#### *Applicability*

All Department projects designed to be let for construction after January 1, 2011 are to be evaluated utilizing the PEACH Roads program.

#### *Project Rating*

Early within the project's development, the Design project team members will evaluate how the project may implement the practice of sustainability. Project budget, along with impacts to the community and long-term maintenance costs, will be key factors in determining appropriate sustainable solutions. At Design Approval, an informal preliminary evaluation using PEACH Roads scorecard will be carried out by the project team to determine progress toward achieving PEACH Road Certification.

Project Managers will review final plans using the PEACH Roads matrix scorecard and this Manual in order to establish points for their projects. Results, along with supporting documentation, are to be forwarded to the Pre-Construction Engineer for QA/QC review. The

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Pre-Construction Engineer reviews projects for PEACH Roads compliance. Projects that successfully pass this review are submitted to the PEACH Roads Program Manager for possible certification. Projects not passing QA/QC review are returned to Project Managers for further evaluation and re-submittal.

The PEACH Roads Program Manager reviews the scorecard and supporting documentation in order to establish certification (if applicable) based upon total credits achieved. Afterwards, the Program Manager informs the Project Manager, Pre-Construction Engineer, Construction Engineer, Deputy Director, and Director of project certification status. When applicable, the Pre-Construction Engineer will ensure that appropriate PEACH Roads certification signs are included in the final project plans.

### ***Right-of-Way Acquisition and Construction***

The Development Services Manager/PEACH Roads Program Manager will ensure that right-of-way acquisition for certified projects does not compromise elements of the plans vital for maintaining certification. During construction, the Department Construction Engineer will ensure that certified projects are built according to plans and that PEACH Roads program signs are installed upon completion of all certified projects.

### ***Quarterly Reports and Press Releases***

The PEACH Roads Program Manager prepares and distributes a quarterly PEACH Roads report and press release. The quarterly report is to be distributed within the Department and will be provided to the County Manager, Board of Commissioners and the GDOT Program Manager counterpart. Press releases will be coordinated with the County Communications Department.

### ***Bi-Annual Review and Coordination with Area Engineering Schools***

The PEACH Roads Program Manager will schedule bi-annual program reviews with appropriate CCDOT and GDOT staff, and representatives from area engineering schools. These bi-annual reviews will primarily focus on programs achievements and areas in need of improvement. Revisions to this Manual are to be adopted at these reviews as needed. However, bi-annual reviews will also focus on methods to facilitate inclusion of appropriate area engineering students into facets of the PEACH Roads program where applicable.

### ***Annual Report and Awards Ceremony***

The Program Manager will prepare an annual report for distribution to all involved parties, with the Department Director hosting an annual awards ceremony, in conjunction within GDOT, in order to recognize those projects that have achieved program certification.

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### ***Pilot Program Review (two years after implementation)***

Starting January 2013, the entire PEACH Roads program is to be reviewed and a report prepared by the Program Manager for submittal to the Cobb County Board of Commissioners and GDOT. This report will be used by the Board of Commissioners to determine the effectiveness and possible continuation of the program at the County level. GDOT will review to determine if PEACH Roads is desirable for statewide utilization.

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**APPENDIX A**

**Detailed Certification Category and Credit Descriptions**

**Sustainable Sites (S)**

This category is intended to give credit for designs that improve sustainability by reducing impacts to the environment due to effective roadway alignment selection, the integration of smart growth practices, and sound land use practices.

***S-1: Alignment Selection***

“Alignment” in this subcategory considers the horizontal and vertical roadway alignment center line and the general location of all cross-sectional features in the project foot print (e.g., shoulder, ditch, slopes, and right-of-way). The objective is to reduce impacts due to roadway project alignment selection, for both new projects and for alignment adjustments, such as shoulder and ditch realignments. In evaluating this category, consideration will be given to what was possible given the particular project’s scale and context; choices made during alignment selection both on the macro and micro level, can have a substantial effect on wetlands, forest preservation, historic resources, avoidance of impacts to open spaces, and other environmental issues. To evaluate if points may be claimed, compare the feasible alternatives in the Draft Design Report to what is ultimately selected.

- Two points will be awarded to project designs that include alignment selection decisions above and beyond typical considerations. Specifically:
  - a) Avoidance of previously undeveloped lands (open spaces or “greenfields”).
  - b) Selecting an alignment that establishes a minimum 100-foot buffer zone between the edge of pavement and a natural watercourse or significantly sized natural wetland to serve the purpose of stormwater filtration.
  - c) Alignments which minimize overall construction “footprint”. Examples: use of retaining walls, selecting design option with minimal footprint.
- One point will be awarded to project designs that incorporate other alignment selection decisions that support the goals of this objective and which minimize overall construction footprint and reduce the creation of new areas requiring mowing. Specifically:
  - d) Design vertical alignments which minimize total earthwork. (Applicable only for projects modifying vertical alignments.)
  - e) Adjust alignment to avoid or minimize impacts to social/environmental resources (avoidance of parklands, wetlands, historic sites, farmlands, residential and commercial buildings, etc.).
  - f) Alignments that optimize benefits among competing constraints. (The goal is not always the minimum-length alignment, but the one with the best benefit overall.)
  - g) Micro-adjustments that do not compromise safety or operation but make the difference in providing sufficient clear area for tree planting.
  - h) Clear zones seeded with seed mixtures that help to reduce maintenance needs and increase carbon sequestration.
  - i) Provide a depressed roadway alignment.
  - j) Use of launched soil nails as a more cost-effective option to stabilize a slope rather than, for example, closing a road to construct a retaining wall that may negatively affect traffic flow and neighboring properties.

### ***S-2: Context Sensitive Solutions***

The objective is to design a project that is in harmony with the community, and preserves the environmental, scenic, aesthetic, historic, and project site natural resource values.

- Two points will be awarded for project designs that consider the project context above and beyond typical considerations. Included measures should be more about overall geometry, proportion, and functionality rather than the inclusion of add-on aesthetic embellishments. Specifically:
  - a) Adjust or incorporate roadway features to respond to the unique character or sense of place (both natural and built) of the area (“Unique character” means whatever identifiable elements make a place distinctive, memorable, important to the community, etc. – landmarks, views, historic bridges & buildings, parkways, characteristic use of materials, a notable stand of trees, etc.).
  - b) Incorporate local or natural materials for substantial visual elements (e.g., bridge fascia, retaining walls).
  - c) Visual enhancements (screening objectionable views, strategic placement of vegetation, enhancing scenic views, burying utilities, etc.).
- One point will be awarded for project designs that include other context sensitive solutions and parkway branding elements. Specifically:
  - d) Period street furniture/lighting/appurtenances.
  - e) Inclusion of visually-contrasting (colored and/or textured) pedestrian crosswalk treatments.
  - f) *Item removed, purposely left blank.*
  - g) Incorporates aesthetic features into bridge design.
  - h) Site materials selection and detailing that reduces the overall urban “heat island” effect.
  - i) Permanently protect viewsheds through environmental or conservation easements.
  - j) Color anodizing of aluminum elements (ITS cabinets, non-decorative light poles, etc.)
  - k) Decorative bridge fencing (in lieu of standard chain link).
  - l) Use of concrete form liners (for bridge approach barriers, parapet walls, retaining walls, noise walls, bridge piers & abutments, etc.)
  - m) Imprinting and/or tinting concrete/asphalt mow strips and/or gores.

### ***S-3: Land Use/Community Planning***

The objective is to balance community and transportation needs through increased public participation throughout project development.

- Two points will be awarded for development of projects that include public, private or unique stakeholder involvement beyond NEPA and other required outreach. Specifically:
  - a) Use of more engaging public participation techniques (e.g., charettes, task forces).
  - b) Enhanced outreach efforts (e.g., newsletters, project-specific Web page, etc.)
  - c) Projects better enabling use of public transit (e.g. bus shelters, Park-and-Ride).

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- d) Projects that apply “[Walkable Communities](#)” and/or “[Complete Streets](#)” concepts.
  - e) Projects that increase transportation efficiencies for moving freight through features such as dedicated rail or intermodal facilities or the use of unit trains to remove trucks from highways and conserve fuel.
  - f) Project-specific formal agreement with public or private entities enabling environmental betterment, technological advancement, or financial assistance or relief to the department.
  - g) Project is consistent with local and regional plans beyond those generated by ARC; (e.g., waterfront revitalization plans, greenway plans, the Scenic Byway program, and other statewide non-transportation plans with regional components) and/or local Smart Growth-based master/comprehensive plans.
- One point will be awarded for development of projects that include more traditional land use and community planning outreach. Specifically:
    - h) Project reports and community outreach materials available online other than the standard project-specific Web page.
    - i) *Item deleted, keep as place holder.*
  - Available points for each are noted in brackets.
    - j) Establishment of a new recreational access facility (trailhead parking, car-top boat launch, information/map kiosk, etc.) [2].
    - k) Establishment of a new recreational facility such as a pocket park, roadside overlook, roadside picnic rest area, etc. [2]
    - l) Enhancement of an existing recreational facility or enhancement of an existing recreational facilities’ access. [1]

### ***S-4: Protect, Enhance or Restore Wildlife Habitat***

The objective is to design projects that protect, enhance, or restore the natural habitat for fish and/or wildlife.

- Three points will be awarded for project designs that include major efforts to protect, enhance, or restore wildlife habitat. Specifically:
  - a) Mitigation of habitat fragmentation through use of significant techniques such as consolidated stream, wetland or ecological mitigation areas, or creation of dedicated “eco viaducts.” (Raised roadways that serve to avoid impacts to ecologically important areas such as rare plant communities, diminishing habitats and wildlife movement corridors.)

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- Two points will be awarded for project designs that protect, enhance or restore wildlife habitat in a way that extends beyond required measures. Specifically:
  - a) Providing for enhancements to existing wildlife habitat (e.g. bird and bat houses, nesting boxes and turtle nesting areas).
  - b) Partial mitigation of habitat fragmentation through techniques (United States Army Corp of Engineers (USACE) regional conditions) such as over-sizing culverts to accommodate aquatic and non-aquatic species passage.
  - c) Use of natural-bottomed culverts.
  - d) Wildlife crossings that are structures that allow for the safe passage of wildlife across highways without their crossing directly on the roadway. Examples include wildlife overpass/underpass and amphibian tunnels.
  - e) Wetland restoration, enhancement, or establishment that is above and beyond what is required to obtain a wetland-related permit.
- One point will be awarded for project designs that protect, enhance or restore wildlife habitat. Specifically:
  - f) Minimize use of lands that are part of a significant contiguous wildlife habitat.
  - g) Use of wildlife mortality reduction measures such as right-of-way fence, deer signs, etc.
  - h) *Item deleted, keep as place holder*
  - i) *Item deleted, keep as place holder*
  - j) Stream restoration/enhancement.
  - k) Installation of mowing markers to protect natural areas and wetlands.
  - l) Inclusion of scheduling and logistic requirements to avoid disrupting wildlife nesting or breeding activities.
  - m) Permanently protects the new or expanded habitat through an environmental or conservation easement.

### ***S-5: Protect, Plant or Mitigate for Removal of Trees and Plant Communities***

The objective is to improve carbon sequestration and enhance the visual and natural environment by protecting, planting, or replacing trees and plant communities on CCDOT projects. The emphasis is on achieving the optimum balance of species and preserving self-sustaining functioning landscapes, while meeting safety requirements and operational capabilities. Evaluation in this category will take into account variations in the range of opportunities and possible tools inherent to the particular project's context. For instance, in some constrained urban areas, it may only be possible to plant street trees. Other settings might allow preservation, extension, or new establishment of a more complete and self-sustaining community of overstory, understory, shrub, and forest floor. (See the [International Society of Arboriculture Mitigation Recommendations](#) on Tree Ordinance Guidelines for a good discussion of preservation/mitigation.) Evaluation will consider the degree to which the inherent potential of the site is creatively realized.

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- Two points will be awarded for project designs that include measures to protect non-hazardous trees and native plant communities and plant/replace vegetation in a way that extends well beyond typical practices. Specifically:
  - a) Avoidance/protection of significant contiguous stands of established, desirable trees and/or vegetation communities, especially those which show signs of self-regeneration.
  - b) Designs which demonstrate, through a combination of preservation and new planting, an anticipated ultimate (new trees at projected maturity) net increase in tree canopy cover within the project limits.
  - c) Re-establishment or expansion of native vegetation into reclaimed work areas or abandoned roadway alignments. (e.g. native seed mixes, “re-forestation” approach with multiple seedlings rather than traditional large nursery stock, etc.)
  - d) Use of trees, large shrubs or other suitable vegetation.
- One point will be awarded for project designs that protect, enhance or restore trees and natural plant communities. Specifically:
  - e) Use of native species for seed mixes and other plantings.
  - f) Avoidance/protection of individual significant trees and localized areas of established desirable vegetation.
  - g) Designs which demonstrate, through a combination of preservation and new planting, no ultimate (new trees at projected maturity) net loss of tree canopy within the project limits (minimum one-to-one replacement of trees lost) or, if overall available planting area has been reduced, mitigation with trees to the extent possible (either on or off-site) for trees lost.
  - h) Planting trees, shrubs and/or plant material in lieu of traditional turf grass.
  - i) Removal of undesirable plant species, in particular removal/burial of invasive species, to preserve desirable overall species diversity.
  - j) Preserving, replacing, or enhancing vegetation associated with historic properties or districts, or which maintain the character of unique areas.

### **Water Quality (W)**

#### ***W-1: Stormwater Management (Volume and Quality)***

The objectives are to reduce thermal impacts and to reduce the quantities of pollutants in typical highway runoff that are discharged into adjacent water resources. These pollutants include sediment, oil and grease, chemicals such as deicing salts and pesticides, litter and trash, and metals.

- Two points will be awarded for project designs that include measures to mitigate stormwater pollution above and beyond NPDES:
  - a) Improve water quality and/or nearby habitat through the use of stormwater retrofitting, stormwater crediting strategies, stream restoration, additional wetlands protection, and inclusion of permanent stormwater management practices.
  - b) Detecting and eliminating any non-stormwater discharges from unpermitted

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- sanitary or other residential, commercial or industrial sources that enter the right-of-way or flows that ultimately discharge to the right-of-way.
  - c) Demonstrate, through the use of models, a reduction of pollutant loadings to adjacent water resources by the use of Best Management Practices (BMPs).
  - d) Reduction in overall impervious area (post-project impervious surface area to be less than existing).
- One point will be awarded for project designs that meet Georgia Department of Natural Resources requirements, and include standard stormwater pollution mitigation practices. Specifically:
    - e) *Item deleted, keep as place holder.*
    - f) Requirements for staged construction so that less than five acres of bare soil are exposed at any given time and site runoff is controlled.
    - g) Detecting and documenting non-stormwater discharges from unpermitted sanitary or other residential, commercial or industrial sources that enter the right-of-way or flows that ultimately discharge to the right-of-way but which cannot be eliminated for reasons beyond our control.

### **W-2: Best Management Practices (BMPs)**

The objective is to reduce runoff and associated pollutants to adjacent water resources by allowing infiltration of surface water, filtration of pollutants, or other methods to treat stormwater runoff.

- Two points will be awarded for incorporating best practices known to reduce pollutant loadings above and beyond requirements. Specifically:
  - a) Design features that make use of highly permeable soils to remove surface pollutants from runoff through infiltration trenches or basins, bioretention cells or rain gardens, grass buffers and stormwater wetlands that treat water quality and water quantity requirements in accordance with Georgia Stormwater Management Manual.
  - b) Use of other structural BMPs including wet or dry swales, sand filters, filter bag, stormwater treatment systems (e.g., oil/grit separators and hydrodynamic devices), underground detention systems or catch basin inserts.
  - c) Inclusion of “permeable pavement” such as grid pavers where practical.
- One point will be awarded for project designs that include standard practices to utilize permeable areas. Specifically:
  - d) Minimize the project's overall impervious surface area increase.
  - e) Include grass channels, where appropriate.
- Available points are noted in brackets.
  - f) Designate a qualified environmental construction monitor to provide construction oversight in sensitive environmental areas. [2].

**Materials and Resources (M)**

***M-1: Reuse of Materials***

The objective is to reduce haul distances and consumption of natural resources through effective reuse of on-site and local materials.

- Two points will be awarded for project designs that reuse project materials above and beyond typical practices. Specifically:
  - a) Specify that 75% or more of topsoil removed for grading is reused on site.
  - b) Design the project so that “cut-and-fills” are balanced to within 10 percent.
  - c) Reuse of excess fill (“spoil”) within the project corridor to minimize project site material in and material out.
  - d) Specify rubblizing or crack and seating of Portland Cement Concrete pavement.
  - e) Reuse of previous pavement as subbase during full-depth reconstruction projects.
  - f) Arranging for the reuse of excess excavated material, asphalt pavement millings, or demolished concrete by another municipality or state agency.
  - g) Specify the processing of demolished concrete to reclaim scrap metals and to create a usable aggregate material.
  - h) Salvaging removed trees for lumber or similar uses other than standard wood-chipping.
- Two points will be awarded for project designs in environmentally sensitive areas that reuse project materials above and beyond typical practices. Specifically:
  - i) Use surplus excavated material on nearby state highways for slope flattening to eliminate guide rail or as fill in areas designated as acceptable for spoil disposal.
  - j) Use surplus excavated material, demolished concrete, or millings at nearby abandoned quarries to help fulfill an approved EPD reclamation plan.
- One point will be awarded for project designs that incorporate lower levels of material reuse, where practical. Specifically:
  - k) Specify that 50% or more of topsoil removed for grading is reused on site.
  - l) Design the project so that cut and fills are balanced to within 25 percent.
  - m) Reuse (i.e., remove and reset versus remove and replace) of granite curbing.
  - n) Reuse of elements of the previous structure (stone veneer, decorative railing, etc.).
  - o) Designing an on-site location for chipped wood waste disposal from clearing and grubbing operations.
  - p) Specifying the recycling of chipped untreated wood waste for use as mulch and/or ground cover. (Pressure-treated or preservative-treated, and painted or coated wood cannot be used as mulch and must be disposed properly.)
  - q) Project documents make scrap metals available for reuse or recycling.
  - r) Identify approved, environmentally acceptable and permitted sites in the contract documents for the disposal of surplus excavated material.
  - s) Obtain and implement a project specific EPD Beneficial Use Determination for the innovative re-use of otherwise waste material from a location within Georgia.
  - t) Specify the salvage and/or moving of houses rather than demolition for disposal in landfills.

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- Available points are noted in brackets.
  - u) Reuse of major structural elements such as bridge piers, bridge structure, etc., if warranted and appropriate and does not compromise the feature life cycle. [2]

### ***M-2: Recycled Content***

The objective is to find effective uses for recycled materials.

- Two points will be awarded for project designs that:
  - a) Use tire shreds in embankments.
  - b) Use recycled plastic extruded lumber or recycled tire rubber (e.g., noise barriers).
  - c) Specify hot-in-place or cold-in-place recycling of hot mix asphalt pavements.
  - d) Specify the use of recycled glass in pavements and embankments as drainage material or filter media where adequate local sources can be obtained.
  - e) Specify asphalt pavement mixes containing Recycled Asphalt Pavement (RAP).
  - f) Specify Portland cement pavement mixes containing Recycled Concrete Aggregate (RCA).
  - g) Use crumb rubber or recycled plastic for noise barrier material.
  - h) Use of Porous Pavement Systems in light duty use situations. Examples: sidewalks, truck turnarounds, rest stops, parking lots, police turnarounds.

### ***M-3: Locally Provided Material***

The objective is to reduce the transportation of materials not available on site by using locally provided materials.

- Two points will be awarded for project designs that:
  - a) Specify locally available natural light weight fill. Contact Geotechnical Engineer to help in locating these materials.
  - b) Specify local seed stock and plants.

### ***M-4: Bioengineering Techniques***

The objective is to increase the use of soil bioengineering to reduce the amount of heavy stone fill mined and transported to the site, reduce the amount of runoff and erosion from the site, and to increase the amount of carbon sequestration. Specifically:

- Two points will be awarded for:
  - a) Project designs that utilize soil bioengineering treatments (the reliance on plant material for slope protection, rebuilding, stabilization, and erosion control) along water bodies/wetlands.
  - b) Project designs that utilize soil biotechnical engineering treatments (combination of plant materials and structural elements to achieve slope protection, rebuilding, stabilization, and erosion control) along water bodies/wetlands. Examples are: vegetated crib wall, vegetated gabion, and vegetated mats.

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- c) Projects that use targeted biological control methods to reduce invasive species.
- One point will be awarded for:
  - d) Project designs that utilize soil biotechnical engineering treatments (combination of plant materials and structural elements to achieve slope protection, rebuilding, stabilization, and erosion control) NOT along water bodies/wetlands. Examples are: vegetated crib wall, vegetated gabions, vegetated Geosynthetic Reinforced Earth Systems (GRES), vegetated geocells, and vegetated mats.
  - e) Project designs that utilize soil bioengineering treatments or soil biotechnical engineering treatments in upland areas.

### ***M-5: Hazardous Material Minimization***

The primary objective is to reduce the degree of hazards present in the materials specified for the project. A secondary objective is to identify, remove, and properly dispose of hazardous materials identified on the project site. The design also minimizes worker exposure to toxic chemicals.

- Two points will be awarded for project designs that consider the lifetime minimization of hazardous material use, emissions, and releases through abrasion or leaching over the long term construction, maintenance and rehabilitation needs of the facility. Specifically:
  - a) Project design substantially minimizes the need to use hazardous materials (e.g. steel or concrete railroad ties instead of treated wood), or increases the interval before re-construction must be performed using hazardous or toxic materials, or improves durability of components that contain hazardous substances.
- Two points will be awarded for project designs that include practices that reduce environmental impacts from materials typically used in transportation construction. Specifically:
  - b) Project design specifies less hazardous materials or avoids generating contaminated wastes by:
    - Reducing the volatile organic compounds (VOCs) or hazardous air pollutants (HAPs) emitted during project construction (e.g., use of non-solvent traffic or bridge paints, lower VOC / nonhazardous air pollutant bridge deck sealers).
    - Eliminating or reducing toxic metals or other toxic components.

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- Two points will be awarded for identifying, removing, and disposing of materials that can cause widespread groundwater pollution:
  - c) Removing and disposing of contaminated soils beyond what is necessary for project construction.
  - d) *Item deleted, keep as place holder*

### **Energy and Atmosphere (E)**

#### ***E-1: Improve Air Quality by Improving Traffic Flow***

The objective is to reduce air emissions by improving traffic flow.

- Three points will be awarded for project designs that substantially improve traffic flow. Specifically:
  - a) Special use lane (HOV/Reversible/Bus Express).
  - b) Innovative interchange design and/or elimination of freeway bottleneck (diverging diamond, single-point urban, etc.).
  - c) Specify new roundabout(s).
  - d) Implementation of a robust Traffic Management/Traveler Information System operation (TMC, CCTV, VMS, freeway detection, ramp metering, road weather information system and/or weigh-in motion devices, travel time signs, etc.).
- Two points will be awarded for project designs that improve traffic flow above and beyond typical measures. Specifically:
  - e) Installation of a closed-loop coordinated signal system.
  - f) Installation of a transit expresses system(s) (queue jumper, pre-emptive signals, etc.).
  - g) Expansion of a Traffic Management/Traveler Information System operation. Example: increase system coverage significantly (installation of new CCTV, VMS, freeway detection, ramp metering, road weather information system and/or weigh-in motion devices, travel time signs, etc.).
  - h) Implementation of a corridor-wide access management plan.
- One point will be awarded for project designs that improve traffic flow using standard practices and/or improve traffic flow during project construction. Specifically:
  - i) Limiting/consolidating access points along highway.
  - j) Improving a coordinated signal system and other signal timing and detection systems.
  - k) Adding bus turnouts.
  - l) Installing higher capacity controllers (model 2070s) with features to improve flow and reduce delay at intersections.
  - m) Infill of and/or preparation for Traffic Management/Traveler Information System operation (installation of VMS, CCTV, etc.) within existing system coverage to increase or improve density of devices, installation of conduit in anticipation of future Traffic Management/Traveler Information System need, etc.

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- n) Inclusion of an integrated traffic/incident management/traveler information systems or strategies to manage traffic during construction (queue or speed warning, VMS with real-time construction information, tow/HELP vehicles on site/standby, CCTV monitoring of construction zone, etc.).
- o) Installation of isolated systems to provide for spot warning (queue warning, truck rollover, low bridge, no trucks allowed, etc.).

### ***E-2: Reduce Electrical Consumption***

The objective is to reduce the project's electrical consumption.

- Two points will be awarded for project designs that reduce electrical consumption above and beyond typical measures. Specifically:
  - a) Solar/battery powered street lighting or warning signs.
  - b) Replace overhead sign lighting with higher type retro-reflective sign panels.
  - c) Use of LED street lighting.
  - d) Solar bus stops.
- One point will be awarded for project designs that include more traditional practices to reduce electrical consumption. Specifically:
  - e) Use of LED warning signs/flashing beacons.
  - f) Retrofit existing street/sign lighting with high efficiency types.

### ***E-3: Reduce Petroleum Consumption***

The objective is to design projects that reduce the consumption of petroleum for transportation.

- Three points will be awarded to project designs that substantially reduce petroleum consumption. Specifically:
  - a) Provide new Park & Ride lots.
  - b) Provide new intermodal connections.
- Two points will be awarded for project designs that reduce the consumption of petroleum above and beyond typical measures. Specifically:
  - c) Increase bicycle amenities at Park & Rides and transit stations (bike lockers/shelters, Web-based reservations system for lockers, providing showers or partnering with health clubs for these services).
  - d) *Item deleted, keep as place holder.*
- One point will be awarded for project designs that include more traditional practices to reduce petroleum consumption. Specifically:
  - e) Operational improvements of an existing Park & Ride lot.
  - f) Improve an existing intermodal connection. (Example: add Bus Rapid Transit (BRT) station, kiosks, etc.).
  - g) Reduce mowing areas outside of the clear zone, reestablishing natural ground cover and/or seeding with low maintenance seed species. Example: Incorporate

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Conservation Alternative Mowing Practices ([CAMPS](#)) techniques/guidance into design plans.

- h) Use of warm mix asphalt.
- i) Documented analysis proving the project design reduces either the Department's or the local community's carbon footprint. (Send analysis to the PEACH Roads Program Manager for eligibility determination.)
- j) Documented analysis proving the Work Zone Traffic Control scheme chosen is the alternative that overall requires the least amount of petroleum. (Send analysis to the PEACH Roads Program Manager for eligibility determination.)
- k) Improved shading through vegetation at Park & Ride lots to cut down on heat island effect and the use of automotive air conditioning by waiting motorists.

### ***E-4: Improve Bicycle and Pedestrian Facilities***

The objective is to establish or improve bicycle and pedestrian facilities that are likely to be used primarily for transportation or that are otherwise likely to result in a modal shift from motorized means. (Can include recreational uses where that use might otherwise reduce motorized means.)

- Three points will be awarded for project designs that establish significant bicycle and pedestrian facilities. Specifically:
  - a) New grade-separated (bridge or underpass) bike/pedestrian crossing structure. (Not for replacements or rehabs.)
- Two points will be awarded for project designs that create or improve bicycle and pedestrian facilities and connectivity above and beyond typical measures. Specifically:
  - b) Separate bike lane at intersection.
  - c) New separated bike path or shoulder widening to provide for on-road bike lane.
  - d) Create new or extend existing sidewalks.
  - e) New pedestrian signals.
  - f) Align the roadway, other highway features and structures within the ROW as to enable the development of separated multi-use paths or other bicycle/pedestrian facilities in the future.
  - g) Work with local communities to create parallel bike routes where state roads are not suitable for less experienced cyclists.
- One point will be awarded for project designs that include more traditional measures to improve bicycle and pedestrian facilities. Specifically:
  - h) Sidewalk or bikeway rehabilitation, widening, realignment or repair.
  - i) Upgrading pedestrian signals, inclusion of pedestrian buttons and/or adding audible signal, countdown timers.
  - j) Installation of bikeway signs, "Share the Road" signs, and/or Sharrow (shared lane) pavement markings.
  - k) Shoulder restoration for bicycling.
  - l) Inclusion of five-rail bridge rail system for bicyclists.
  - m) Installation of permanent bicycle racks.
  - n) New crosswalks.

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- o) New curb bulb-outs.
- p) New raised medians/pedestrian refuge islands.
- q) New speed hump/speed table/raised intersection.
- r) New curbing (where none previously existed), to better define the edge of a roadway and to provide vertical separation of pedestrian facilities; does not include flush, mountable or bridge curbing.
- s) New or relocated highway barrier or repeating vertical elements (trees, lampposts, bollards, rural mailboxes, etc.) between roadway and walk/bikeway to better separate/delineate motorized and non-motorized travel ways.
- t) Installation of bicycle detectors (quadrupoles) at signalized intersections.
- u) “All Stop” phase programmed into a traffic signal and/or button actuated “No Turn On Red” LED sign.
- v) Permanent digital “Your Speed is XX” radar speed reader signs.
- w) Overhead flashing beacon, lighted “Crosswalk” sign, half-signal or pedestrian hybrid “hawk” signal at pedestrian crossing.
- x) Advanced warning of crosswalk with signs and yield pavement markings (white triangles).
- y) In-street plastic pylon “State Law — Yield to Pedestrians within Crosswalk” signs and/or [Pedestrian Self-Serve Crosswalk Flags](#).
- z) Use of durable cast iron detectible warning units embedded in concrete (rather than surface applied polyurethane, stamped concrete, concrete brick, etc.).
- aa) Add/replace crosswalks with high visibility, reduced wear, staggered ladder bar crosswalks (a modified Type L which avoids wheel paths, and is sometimes referred to as a 'piano key' type crosswalk).

### ***E-5: Noise Abatement***

The objective is to reduce noise impacts in developed areas through effective noise abatement.

- Two points will be awarded for project designs that include measures to reduce noise levels. Specifically:
  - a) Construction of a new noise barrier.
  - b) Incorporate traffic system management techniques to reduce prior noise levels (e.g. use of truck routes, progressive traffic signals, lowering speeds).
  - c) Provide a buffer zone for adjacent receptors.
  - d) Provide sound insulation to public schools.
- One point will be awarded for project designs that include more traditional noise abatement practices. Specifically:
  - e) Diamond grinding of existing Portland Cement Concrete (PCC) pavement.
  - f) Rehabilitation of an existing noise wall.
  - g) Berms designed to reduce noise.

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- One point will be awarded for project designs that improve community acceptance of highway noise. Specifically:
  - h) Provide planting to improve perceived noise impacts.

### ***E-6: Stray Light Reduction***

The objective is to reduce stray light.

- Two points will be awarded for project designs that reduce stray light above and beyond typical measures. Specifically:
  - a) Retrofit existing light heads with full cut-offs
  - b) *Item deleted, keep as place holder.*
- One point will be awarded for project designs that include more traditional stray light reduction practices. Specifically:
  - c) Use cut-offs on new light heads.

### **Innovation/Unlisted (I)**

The objective is to give credit to designs that significantly build upon PEACH Roads categories and objectives or that incorporate significant innovations in transportation environmental sustainability that have not been previously utilized on CCDOT projects.

#### ***I- 1: Innovation***

- Up to Four points will be awarded for each:
  - a) Item or method that incorporates new and/or innovative ways to provide a more environmentally, economically and/or sustainable transportation system. Points awarded in this category are subject to review by the PEACH Roads Review Team.

#### ***I-2: Unlisted***

- Up to two points will be awarded for each:
  - a) Item or method which might contribute to a more sustainable transportation system but not specifically listed in this document. Points awarded in this category are subject to review by the PEACH Roads Review Team.

**APPENDIX B**

**PEACH Roads Scorecard**