6.0 Institutional Considerations and Alignment

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6.1 What Is Included?

This section addresses the capabilities and potential alignment of State department of transportation (DOT) institutional units in the performance of greenhouse gas (GHG) reduction tasks. It expands on the potential roles and responsibilities with respect to the DOT functional units listed in Section 4.0, Greenhouse Gas Action Across the Agency.

6.2 Why Consider Institutional Issues and Alignment?

If anything is going to be done to address an overarching issue within a DOT context, some organizational unit must lead and others must deliver, in cooperation with other parts of the agency. Even the simplest pothole patching operation has to rely on someone trained, equipped, and directed to complete the task. Vastly more complex operations, like GHG reduction, require many organizational units to operate in a concerted manner, and each unit must be trained, equipped, and directed to play its role within the constraints of competing priorities and available resources.

6.3 Level of Effort

Determining institutional roles and launching a concerted GHG reduction effort should require at least a modest effort. If established roles and responsibilities are clearly understood and practiced with some modicum of rigor, a simple directive from the Executive to cognizant functional units should set an initiative in motion—provided someone has been charged with the responsibility and granted the authority to see it through. This section describes "the moving parts" that make up the typical DOT and discusses how they might be configured to advance agencywide GHG reduction.

Effort required for ongoing development and coordination will depend upon the objectives to be achieved and the resources available. Ongoing coordination efforts would typically involve periodic (e.g., quarterly) meetings of responsible key staff from across the agency to track and manage progress, but the focus here is on "who does what" about GHG emission reduction. More on how to actually "set things in motion" is presented in Section 19.0, Putting It All Together.

6.4 Who—Roles and Responsibilities

Executive	Admin	Planning	Programming	Environmental
Design	Construction	Maintenance	Operations	Regions/Districts

Coordination of DOT activities falls to the **Executive,** but a wide range of functional areas can contribute to GHG efforts, especially at the higher levels of engagement. Organizational functions vary from agency to agency, but typical DOT organizational interests and functions as they relate to GHG reduction (per Table 4.3) are presented below.

Institutional unit responsibilities and strategies for GHG reduction may be organized into five categories:

- **Preparing and supporting leadership for understanding, goal setting, and action.** Be it the Commissioner's Office advising the Governor or the Environmental Director informing the Chief Engineer, it is every unit's responsibility to inform and support its management on the topics, interests, developments, and relationships within its purview.
- **Providing GHG program leadership and staffing within a DOT.** DOT managers are typically all too familiar with the age-old "who's in charge" and "who does what" questions that attend

almost any wide-ranging new development. Organizational involvement can and should vary by engagement level.

- **Providing mechanisms for internal coordination.** If anything as new and overarching as GHG reduction is to be effectively accomplished across multiple DOT functional units, someone will have to be given both the responsibility and the authority needed to get things done. That said, some units (such as Planning) tend to have the experience and relationships needed to work across organizational boundaries, while others (such as Construction) would be at a disadvantage in coordinating the efforts of diverse and unfamiliar units.
- **Managing partnerships and public outreach.** Dealing with external partners and conducting public outreach requires the unit to speak for the agency as a whole. This requires some diplomatic ability together with a practical working knowledge of agency function and capacity to be accomplished effectively.
- **Leveraging synergies with related programs and initiatives.** As in any effective organization, DOT functional units tend to be good at and take pride in what they do. Accordingly, GHG reductions are more easily accomplished by units who are being asked to do more of what they already do as opposed to units that are being asked to do something different than (and perhaps at cross purposes to) what they have always done.

The following sections outline typical or recommended roles for a range of functional areas with respect to each of the strategy areas described above. Local circumstances will vary with structure, history, culture, and personalities.

6.4.1 Executive

Table 6.1 presents typical roles of the Executive within each of the strategy areas.

Table 6.1 Description of Potential Executive Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding,	For DOTs that are uninvolved with GHG reduction (Engagement Level 1), it would typically be incumbent upon the Executive office to consult with the Governor's Office to understand the larger aspects of State GHG policy and ensure that a "hands off" approach should be continued. As engagement levels

Goal Setting, and Action	increase, so should involvement, as GHG reduction efforts will involve more tradeoffs, stakeholders, expertise, and expense. Other tasks—including inventory, baseline forecast, strategy development and assessment, implementation, and monitoring and evaluation—would also involve increasing executive involvement with understanding, goal setting, and action as they relate to State policy at higher levels of engagement.
Providing GHG Program Leadership and Staffing Within a DOT	As with most complex programs, GHG efforts benefit from executive support and direction. At lower levels of involvement, executive support and leadership are generally less important than at higher levels, where tradeoffs, resource commitments, knowledge, and interests involve the day-to-day work of more and more agency units. To advance agency engagement, an "executive sponsor" is often designated as the "champion" of the effort, with staffing from subunits as necessary and appropriate.
Providing Mechanisms for Internal Coordination	Almost by definition, coordination of a program that cuts across organizational boundaries requires executive involvement—with more involvement required for larger crosscutting efforts. In some cases, designation of an "executive sponsor" or champion to preside over regular interunit meetings to set policy, make plans, and track progress has been successful. In others, regular staff meetings and assignments have proven to be more effective in leveraging the agency's "normal" mechanisms for internal coordination.
Managing Partnerships and Public Outreach	Inform and work with Governor, Governor's Office staff, and State legislators on ongoing and upcoming GHG reduction efforts. Serve as public face to news media of transportation work to reduce GHGs.
Leveraging Synergies with Related Programs and Initiatives	The Executive office would clearly employ synergies with public outreach, budgeting, operations, staffing, and procurement in the development of higher levels of GHG engagement that cut across organizational lines and involve considerable analysis and feedback.

Executive involvement varies with the level of engagement and, as an agency leader, the Executive will be the one to determine the agency's level of engagement. Table 6.2 provides more detail on

executive-level strategies for each of the five categories and indicates which activity in each category roughly corresponds to which level of engagement.

Table 6.2 Summary of Executive Roles in GHG Reduction by Level of Engagement

Executive Strategies	Level of Engagement
Preparing and supporting leadership for understanding, goal setting, and action	
Confirm no action on GHG reduction with senior State officials	1
Engage senior State officials on policy initiative	2
Coordinate with senior State officials on informal efforts	3
Inform and encourage senior State officials on formal efforts and implications	4
Providing GHG program leadership and staffing within a DOT	
Inform DOT executive staff on State policy	1
Engage DOT executive staff on informal efforts	2
Direct DOT executive staff to formalize efforts	3
Manage comprehensive GHG program	4
Providing mechanisms for internal coordination	
Make initial temporary scoping assignments	2
Designate ongoing leadership, set priorities, allocate resources	3
Manage ongoing efforts; approve metrics, targets, and tradeoffs	4
Managing partnerships and public outreach	
Advise partner agencies	2

Engage partner agencies; inform public and nongovernmental organizations (NGOs)	3
Act in concert with partner agencies; engage the public and NGOs	4
Leveraging synergies with related programs and initiatives	
Encourage GHG reductions as part of "normal work"	2
Require GHG reductions as part of "normal work"	3
Manage target GHG reductions as part of "normal work"	4

Potential roles, responsibilities, and attributes of other agency functional units are summarized below.

6.4.2 Central Administration

Table 6.3 discusses typical Administration unit roles within each of the strategy areas.

Table 6.3 Potential Administrative Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	Simple as it may seem, reducing emissions through investment in carbon-friendly fuel sources and technologies in a public agency setting can be difficult to achieve. Helping to prepare and support leadership on what is needed to turn the requisite budgetary and contractual wheels is part of the Central Administration job.
Providing GHG Program Leadership and Staffing Within a DOT	Typically limited.

Providing Mechanisms for Internal Coordination	Typically limited.
Managing Partnerships and Public Outreach	Typically limited.
Leveraging Synergies with Related Programs and Initiatives	Development of energy savings from facility upgrades and modernization typically falls to Central Administration. The resulting energy, financial, and carbon emission benefits can provide additional motivation for needed investment.

6.4.3 Planning

Table 6.4 discusses typical Planning unit roles within each of the strategy areas.

Table 6.4 Potential Planning Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	At lower levels of engagement, with a focus mainly on internal emissions, Planning units would tend to have less involvement with strategy development and assessment, implementation, monitoring, and evaluation. The Planning unit may develop a baseline inventory and forecast of transportation system-wide emissions, in collaboration with the Environmental unit. However, in preparing and supporting leadership for the higher levels of understanding, goal setting, and action involved in modifications to the transportation system, Planning units would typically provide critical input to policy-making by analyzing the costs and practicality of reducing the comparatively huge emissions from the transportation system through project and modal choices involved at Engagement Levels 3 and 4.

Providing GHG Program Leadership and Staffing Within a DOT	Planning units are well equipped to lead or coordinate agency GHG efforts at higher levels of engagement involving development of goals, objectives, strategies, modal choices, and project types by virtue of their experience in developing transportation system-level inventories, forecasts, and strategy evaluation. Given the potential magnitude of GHG reductions at the system level, leadership from Planning could be seen as a realistic option at Engagement Levels 3 and 4.
Providing Mechanisms for Internal Coordination	Leading or coordinating GHG efforts would be in keeping with the policy, strategy, goal setting and implementation responsibilities of Planning units as related to transportation system effects at higher engagement levels.
Managing Partnerships and Public Outreach	Coordinate with metropolitan planning organizations (MPOs) and regional planning agencies on statewide and regional transportation GHG reduction efforts.
Leveraging Synergies with Related Programs and Initiatives	The Planning unit is a critical player that must contribute to the implementation of GHG reduction policies at the higher levels of GHG engagement involving transportation mode, project selection, and operational investments. The Planning unit's role, experience, and expertise in assessing costs, practicality, and results of systems-level investments can help it to bring major synergies to GHG reduction efforts.

6.4.4 Programming

Table 6.5 discusses typical Programming unit roles within each of the strategy areas.

Table 6.5 Potential Programming Roles in GHG Reduction

Strategy	Role
Preparing and Supporting	Provide information on the costs and practicality of reducing emissions within their program areas—particularly at higher levels of involvement.

Leadership for Understanding, Goal Setting, and Action	
Providing GHG Program Leadership and Staffing Within a DOT	The Programming unit could be well suited to lead or coordinate agency GHG efforts in accordance with goals and objectives developed through planning.
Providing Mechanisms for Internal Coordination	The Programming unit could be well suited to lead or coordinate agency GHG efforts, particularly at higher levels of engagement involving the assignment of resources in support of modal and project choices, by virtue of its experience, expertise, and relationships with other functional units.
Managing Partnerships and Public Outreach	Oversee and coordinate funding for GHG reduction programs and projects through MPOs and project funding recipients [active transportation, Congestion Mitigation and Air Quality Improvement (CMAQ) Program, etc.].
Leveraging Synergies with Related Programs and Initiatives	Programming is well placed to leverage the synergies involved in related GHG efforts at higher levels of engagement involving the assignment of resources in support of modal and project choices.

6.4.5 Environmental

Table 6.6 discusses typical Environmental unit roles within each of the strategy areas.

Table 6.6 Potential Environmental Unit Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for	Environmental units could be expected to be the in-house experts and advocates for GHG reduction and thus highly involved in preparing and supporting leadership for understanding, goal setting, and action, especially at

Understanding, Goal Setting, and Action	lower levels of agency engagement. As engagement levels increase and the agency becomes committed to a policy of significant GHG reductions, Environmental unit involvement would tend to become more technical as executive leadership information needs become more technical/operational and involve questions on modal choice and project selection.
Providing GHG Program Leadership and Staffing Within a DOT	While Environmental units have the knowledge, expertise, and relationships with resource agencies to lead GHG efforts, they often lack authority over "mainstream" units and may lack a clear understanding of their inner workings and resources. That said, at early engagement levels involving relatively few changes in agency policy and investment, Environmental units might assume a leadership role in the development of strategies for the reduction of agency emissions. At higher levels, Environmental units may also serve as staff to an “executive sponsor” to good effect.
Providing Mechanisms for Internal Coordination	As with program leadership, Environmental units have the knowledge, expertise, and relationships with resource agencies to lead GHG efforts, but they tend to lack the experience with and the authority over "mainstream" units that they would need for effective management at higher engagement levels. They may, however, understand what needs to be done by the various units and can play a critical contributing role—especially under the auspices of an executive sponsor.
Managing Partnerships and Public Outreach	State air quality or energy agencies often lead statewide GHG reduction efforts. Environmental units typically have established working relationships with these agencies for other issues (e.g., State Implementation Plan development). Environmental units could serve as liaisons with these agencies on technical and policy matters.
Leveraging Synergies with Related Programs and Initiatives	Where Environmental units have responsibility for environmental policy, synergies with GHG policy development would seem obvious and compelling. On a more operational level, synergies would tend to be more limited.

6.4.6 Design

Table 6.7 discusses typical Design unit roles within each of the strategy areas.

Table 6.7 Potential Design Unit Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	The Design unit can play a supporting role in preparing and supporting leadership for understanding, goal setting, and action on GHG policy-making by providing information on the costs and practicality of reducing emissions within its program areas—particularly at higher levels of involvement.
Providing GHG Program Leadership and Staffing Within a DOT	The Design unit would tend to be comparatively disadvantaged in leading or coordinating GHG efforts, although it would play an important role in implementing agency efforts through development of design options.
Providing Mechanisms for Internal Coordination	The Design unit would tend to be at a disadvantage in leading or coordinating GHG efforts, although it could play an important role in implementation.
Managing Partnerships and Public Outreach	The Design unit could interact with NGO and trade groups related to GHG reduction project design and implementation.
Leveraging Synergies with Related Programs and Initiatives	The Design unit can contribute to the wise implementation of policy on low-carbon materials selection (e.g., asphalt, concrete, or steel specifications), as well as detour planning, construction staging, vegetation options, and other design factors affecting GHG emissions.

6.4.7 Construction

Table 6.8 discusses typical Construction unit roles within each of the strategy areas.

Table 6.8 Potential Construction Unit Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	The Construction unit can play a supporting role in preparing and supporting leadership for understanding, goal setting, and action on GHG policy-making by providing information on the costs and practicality of reducing emissions within its program area—particularly at higher levels of involvement.
Providing GHG Program Leadership and Staffing Within a DOT	The Construction unit would tend to be comparatively disadvantaged in leading or coordinating GHG efforts, although it would play an important role in implementing agency efforts through construction activities.
Providing Mechanisms for Internal Coordination	The Construction unit would tend to be disadvantaged in leading or coordinating GHG efforts, although it would play an important role in implementation.
Managing Partnerships and Public Outreach	The Construction unit could interact with NGO and trade groups related to GHG reduction project construction, appropriate equipment use, and use of Environmental Product Declarations.
Leveraging Synergies with Related Programs and Initiatives	The Construction unit can contribute to the wise implementation of policy on deconstruction/demolition material and fuels.

6.4.8 Maintenance

Table 6.9 discusses typical Maintenance unit roles within each of the strategy areas.

Table 6.9 Potential Maintenance Unit Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	The Maintenance unit can play a supporting role in preparing and supporting leadership for understanding, goal setting, and action on GHG policy-making by providing information on the costs and practicality of reducing emissions within its program area—particularly at higher levels of involvement.
Providing GHG Program Leadership and Staffing Within a DOT	Given their typical role, knowledge, expertise, and relationships, Maintenance units would tend to be comparatively disadvantaged in leading or coordinating GHG efforts outside their own area of responsibility. However, at early stages of involvement focused on agency emissions, much of the actual work of inventory, forecasting, strategy development, implementation, and monitoring could fall to Maintenance, where this unit's depth, strength, and experience in managing programs could be used to good effect.
Providing Mechanisms for Internal Coordination	The Maintenance unit would tend to be disadvantaged in leading or coordinating GHG efforts at higher levels of engagement, although it could play a useful role in implementation.
Managing Partnerships and Public Outreach	As with Construction, Maintenance does have a local public outreach role involving detours, materials, and methods during maintenance operations. As efforts to reduce GHG emissions affect these activities, maintenance staff may be involved in explaining them to local officials and the public.
Leveraging Synergies with Related Programs and Initiatives	Maintenance can contribute to the wise implementation of policy on the costs and practicality of modifications to fleets, buildings, fuels, highway lighting, and operations to reduce GHG emissions.

6.4.9 Operations

Table 6.10 discusses typical Operations unit roles within each of the strategy areas.

Table 6.10 Potential Operations Unit Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	The Operations unit can play a supporting role in preparing and supporting leadership for understanding, goal setting, and action on GHG policy-making by providing information on the costs and practicality of reducing emissions within its program area—particularly at higher levels of involvement.
Providing GHG Program Leadership and Staffing Within a DOT	Operations units would tend to be comparatively disadvantaged in leading or coordinating GHG efforts outside their own area of responsibility. However, leadership by this unit could be an option at higher levels of engagement focused on emissions from the transportation system and the potential magnitude of the possible reductions possible through "operational" strategies and synergies.
Providing Mechanisms for Internal Coordination	The Operations unit would tend to be disadvantaged in leading or coordinating GHG efforts, although it would play important roles in implementation.
Managing Partnerships and Public Outreach	The Operations unit could serve as a liaison with local and regional transportation agencies with whom it interacts through transportation management centers and other facilities designed to encourage smoother traffic flow.
Leveraging Synergies with Related Programs and Initiatives	The Operations unit can help leverage synergies in the improvement of traffic flow and reductions in GHG emissions, and it could contribute greatly to the implementation of cost-effective strategies to reduce emissions from the transportation system.

6.4.10 Regions/Districts

Table 6.11 discusses typical Region/District office roles within each of the strategy areas.

Table 6.11 Potential Region/District Office Roles in GHG Reduction

Strategy	Role
Preparing and Supporting Leadership for Understanding, Goal Setting, and Action	Regions/Districts can play a supporting role in preparing and supporting leadership for understanding, goal setting, and action on GHG policy-making by providing information on the costs and practicality of reducing emissions within their counties and municipalities—particularly at higher levels of involvement.
Providing GHG Program Leadership and Staffing Within a DOT	Given their typical role, knowledge, expertise, and relationships, Regions/Districts would tend to be disadvantaged in leading or coordinating GHG efforts outside their own boundaries. They could, however, be very productively engaged in piloting strategies and thus provide agency leadership as other Regions/Districts employ new reduction measures on an agencywide basis.
Providing Mechanisms for Internal Coordination	Regions/Districts would tend to be disadvantaged in leading or coordinating GHG efforts, although they would play important roles in implementation.
Managing Partnerships and Public Outreach	Support, explain, and advocate for DOT GHG reduction strategies and policies affecting Regions/Districts with local officials, NGOs, and the media.
Leveraging Synergies with Related Programs and Initiatives	Regions/Districts can leverage considerable synergies in piloting or implementing GHG efforts within their geographic regions.

Functional units within DOTs exhibit a valuable (and variable) range of potential responsibilities, capabilities, strategies, and roles depending upon local circumstances and engagement level. More detail on each is presented in the separate functional unit sections. Guidance on how to organize

these “moving parts” to affect GHG reductions agencywide is presented in Section 19.0, Putting It All Together.

6.5 Self-Assessment: Institutional Considerations and Alignment

A self-assessment worksheet is provided to assist State DOT staff, especially in the Executive functional area (but also others with responsibility for leading GHG initiatives), in determining where their agency falls on the GHG engagement spectrum for institutional alignment. Self-assessments for other individual functional units may be found in their respective sections and more on program implementation may be found in Section 19.0, Putting It All Together.

Click to download – Self-Assessment: 6.0 Institutional Considerations and Alignment

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