I-95 CORRIDOR COALITION
YEAR 12
SCOPE OF WORK FORM

Project Title: **Mid-Atlantic Rail Operations (MAROps) Study Phase II**

Project Code: **3-12-5C**

Coalition Funding Amount:

Program Track: **5 (Intermodal Movement of People and Goods)**

Program Year: **12**

SECTION A – BACKGROUND

The Mid-Atlantic Rail Operations (MAROps) Phase I study was an initiative of the I-95 Corridor Coalition, the five Mid-Atlantic states (Delaware, Maryland, New Jersey, Pennsylvania, and Virginia) and three railroads (Amtrak, CSX, and NS) to investigate the regional rail transportation as a system and begin to address system-wide issues across boundaries- jurisdictional (between states and cities); interest (between public agencies and the private sector); and financial (between the highway and rail systems). The study, which recognized the need to manage system capacity, build system-oriented institutional relationships, and develop system-responsive funding strategies, had three primary outcomes:

- **System-wide improvement program**. To minimize regional rail chokepoints and improve overall capacity and service, the MAROps stakeholders (the I-95 Corridor Coalition, the five states and the three participating railroads) developed a consensus program of 71 of capital, operating, and ITS improvements to be implemented over a 20-year timeframe;

- **Initial estimation of benefits**. The MAROps stakeholders also estimated the potential benefits to the MAROps region of the MAROps program of improvements. The combined benefits (to both public and private sectors) were estimated at $12.8 billion, suggesting a positive benefit-cost ratio for the program; and
- **Exploration of regional approaches to implement the MAROps program**. Finally, the MAROps stakeholders explored options (e.g., multi-state infrastructure bank, etc.) for funding and implementing the program.

The MAROps Phase I study clearly demonstrated how states and railroads could work collaboratively toward addressing regional transportation issues. In addition, the study laid the groundwork for determining how to estimate public and private benefits of a regional rail program and how to finance and implement regional rail improvements. This MAROps Phase II study provides the opportunity for the MAROps stakeholders to build on the results of the Phase I work, sustaining interest in the rail improvement program and encouraging other states and railroads in the Coalition region to examine and address regional rail needs.

Objective

The objective of MAROps Phase II is to conduct a more detailed analysis and explanation of the benefits of the MAROps program by:

- **Detailing the benefits of the MAROps program**, moving from the multi-state regional level analyzed in Phase I to show benefits accruing to individual states, rail/highway corridors (e.g., I-95, I-81, etc.), industry sectors, and perhaps major metropolitan areas; and
- **Developing and demonstrating transferable methods** of assessing the public benefits of public-private partnerships in financing rail improvements that can be utilized in other areas.

Approach

In order to properly meet the objectives of this project, two key elements of the MAROps Phase I work must be updated and refined to account for changes in the economy, changes in the rail operating environment, and changes in the political climate as it relates to rail transportation in the region. To help ensure that the benefits assessment conducted as part of this effort is current and accurate, we will:

- **Update information about freight flows and the rail and highway networks**. The MAROps Phase I work was based on 2000 commodity flow data. Since that time, the national and regional economies have weathered a recession and recovery; increasing diesel fuel costs have made long-haul intermodal rail transportation more attractive to shippers and motor carriers; Virginia has published several studies on freight and rail transportation along the I-81 corridor; NS has initiated the Heartland Corridor program,

CSXT has announced a National Gateway Program, and Maryland is working with FRA to study alternatives to the Howard Street Tunnel through Baltimore. It is important to understand how these trends have affected freight flows and the condition and performance of the rail and highway networks in the region. The MAROps program may need to be updated to reflect the effects of these trends since they have a direct bearing on costs and benefits.

- **Investigate institutional mechanisms (e.g., a multistate infrastructure bank, a regional authority, or similar mechanisms) for funding and implementing the MAROps program**. A white paper exploring ways in which the states and railroads could assign roles and responsibilities for implementing a regional rail improvement program was developed during MAROps Phase I. The ideas developed in the white paper must be updated and extended to account for possible Congressional and state action on Amtrak, opportunities that have be created by reauthorization of the surface transportation legislation (SAFETEA-LU), and the interest of other Coalition states in participating in the MAROps program or developing similar regional programs.

SECTION B – TASKS AND DELIVERABLES

Task 1 Title: **Update MAROps Region Commodity Flows (Demand)**

Task 1 Description:

The objective of this task is to update information about rail and truck freight flows in the region to account for changes in the economy, changes in the rail operating environment, and changes in the political climate as it relates to rail transportation in the region. As part of this task, we will obtain TRANSEARCH analyses that describes rail and truck freight movements into, out of, and within the Mid-Atlantic region, focusing on those commodity types that have the greatest potential to divert from truck to rail. We will also work with MAROps steering committee members to obtain data describing intercity passenger and commuter flows within the region.

Task 1 Work Steps:

- Obtain data describing the flow of freight and passengers within the Mid-Atlantic region;
- Convert flows to appropriate rail freight vehicle, rail passenger vehicle, or truck equivalents;

- Prepare tables and maps describing volume, origin, and destination of current and future freight and passenger flows; and
- Report findings and conclusions.

Task 1 Deliverables:

Technical memorandum summarizing the objective, methodology, key findings, and conclusions of the task. We will provide both hard and electronic copies of the memorandum to MAROps steering committee members and I-95 Corridor Coalition staff.

Task 2 Title: **Update Condition and Performance of MAROps Rail and Highway Networks (Supply)**

Task 2 Description:

The objective of this task is to update information on the condition and performance of the MAROps rail and highway networks to account for infrastructure or capacity changes that have occurred or are being planned since the completion of the MAROps Phase I work. Neither the consultants nor the MAROps steering committee are aware of any rail simulation models that are both appropriate and readily available for analysis of the Mid-Atlantic corridor, and the budget and schedule for this project do not allow the development of a new, detailed operational model. Therefore, the analysis of the condition and performance of the MAROps rail network will be based on the best professional judgment of the consultants working with advice from the railroads and state rail experts.

Task 2 Work Steps:

- Collect and review plans, studies, and other documents describing projects, strategies, or initiatives that would affect the condition or performance of the MAROps highway or rail networks;
- Identify current and planned changes to the condition and performance of the MAROps region highway and rail networks and describe how those changes would affect freight and passenger rail service in the region; and
- Report findings and conclusions.

Task 2 Deliverables:

Technical memorandum summarizing the objective, methodology, key findings, and conclusions of the task. We will provide both hard and electronic copies of the memorandum to MAROps steering committee members and I-95 Corridor Coalition staff.

Task 3 Title: **Update MAROps Program**

Task 3 Description:

The objective of this task is to update the MAROps improvement program to reflect the effects of changes in demand (as described in Task 1) and supply (as described in Task 2). As is the case in previous tasks, formal models will not be developed for this task. Rather, the analysis will be based on the best professional judgment of the consultants working with advice from the railroads and state rail experts.

Task 3 Work Steps:

- Assess the effects of changes in supply and demand on the existing MAROps program of improvements;
- Update the MAROps program to reflect changes in supply and demand, as necessary;
- Update MAROps program costs, as necessary, to reflect changes in the number and types of improvement projects, changes in the cost of materials, or other effects;
- Describe how individual projects included as part of the MAROps program have been incorporated into the transportation planning, programming, and development processes of the Mid-Atlantic states;
- Create maps that describe changes to the MAROps program; and
- Report findings and conclusions.

Task 3 Deliverables:

The deliverable for this task is a technical memorandum describing the updated MAROps program and highlighting changes to the program. Maps and other graphics will be provided. We will provide both hard and electronic copies of the memorandum to MAROps steering committee members and I-95 Corridor Coalition staff.

Task 4 Title: **Estimate MAROps Program Benefits**

Task 4 Description:

The objective of this task is to estimate the benefits of the updated MAROps program and how those benefits accrue to individual states, specific rail and highway freight corridors, industry sectors, and major metropolitan areas in the Mid-Atlantic region. This task will build upon the initial estimation of MAROps benefits conducted in Phase I of the MAROps study.

As part of the MAROps Phase I initial benefits assessment, the MAROps steering committee developed an estimate of the tonnage of freight that could be shifted from truck to rail if the MAROps program of improvements were made to the region's rail system. As part of this task, we will work with the MAROps steering committee to develop an assessment of benefits to each

of the key actors (states, railroads, industries, ports, communities, etc.) using broad performance measures. The measures and overall methodology will be developed in coordination with the steering committee and will address, at a minimum:

- Reduced travel times and costs for trucks and autos on the highway system due to a shift in goods movement activity from truck to rail;
- Reduced future highway investment needs based on lower truck volumes in the I-95 Corridor; and
- Reduced transportation shipping costs for those industries that can either retain freight rail deliveries or switch from truck to rail to capture lower per ton mile shipping costs.

Several tools will be used to support the estimation of benefits. The Highway Economic Requirements System (HERS) model will be used to calculate the benefits and costs to highway agencies ("highway needs"), truck and automobile drivers ("highway users"), and businesses ("shippers"). Estimates of the changes in freight tonnage moved by truck and intercity city passenger ridership in key travel corridors will be used as input to the HERS model. HERS is a simulation model that estimates the benefits and costs of highway investments on the Federal-aid highway system, currently the 958,000 miles of roadways that serve most of the nation's freight traffic. HERS was developed by Cambridge Systematics for the FHWA and is used by the U.S. DOT as the basis for its reports to the U.S. Congress on highway investment needs.

HERS utilizes the Highway Performance Monitoring System (HPMS) data sets prepared by the states. The HPMS data include current and forecast information on highway conditions, capacity, and vehicle-miles-of-travel. For this study, we will focus in on the major freight highways serving the MAROps region and paralleling the rail corridors. HERS was used to estimate the benefits of the MAROps program as part of the MAROps Phase I effort. In this study, we will utilize the HERS/State version of the national model, allowing us to conduct a more detailed analysis of highway costs and benefits by road classification and corridor. Highway costs and benefits associated with the MAROps program will be estimated for both the MAROps region and, as data allow, for regions external to the five-state Mid-Atlantic area.

For each scenario—the "base case" scenario and "MAROps improvements" scenario—we will convert truck tonnage to truck vehicle-miles-of-travel (VMT) and assign the truck VMT to the appropriate highway corridors. For intercity passenger ridership, we will convert increases in rail passenger ridership into the appropriate decreases in passenger car trips. HERS will then evaluate several types of highway improvements for each highway segment, including pavement rehabilitation, roadway widening, and reconstruction) to determine the most cost-effective investments to accommodate the truck and auto traffic in each scenario (e.g., more investment to accommodate more trucks if the rail improvements are not made, and less investment to accommodate fewer trucks if the rail improvements are made). This information will used to generate estimates of highway needs spending (e.g., costs to state DOT and other transportation agencies to maintain the highway system) and highway user costs (e.g., costs in fuel consumption, travel time, etc.).

In a separate calculation, the tonnage and VMT estimates will be used to approximate shipper benefits (e.g., savings accruing to shippers who can divert freight from higher-cost truck service to lower-cost rail service). The results of each scenario will be compared, and the difference—in

terms of highway needs spending, highway user costs, and shipper costs—will represent the benefits associated with the MAROps program.

In addition, we will apply a regional economic simulation model to estimate the economic impacts of the improvements by industry (e.g., impact on jobs, business revenue, personal income). In the MAROps Phase I work, impacts were identified for 14 major industry groups and for the five-state MAROps region as a whole. For this study we will set up the model to identify impacts for 54 industry groups and estimate the impacts for each state within the MAROps region, selected Bureau of Economic Analysis (BEA) regions, and groups of states outside the region. We anticipate using an economic impact model jointly developed by the Economic Development Research Group and Regional Dynamics called TREDIS/ReDyn to estimate economic impacts, where TREDIS stands for Transportation Economic Development Impact System.

Task 4 Work Steps:

- Estimate service and market impacts of updated MAROps rail improvement program;
- Estimate highway system costs and benefits using HERS model;
- Estimate reduced shipping costs due to a shift from truck to rail shipments;
- Estimate economic impacts to industry sectors, MAROps states, and selected BEA regions using the TREDIS model;
- Calculate benefit-cost ratio of the MAROps program, using estimated program benefits developed in this task and the updated program costs developed in Task 3; and
- Report findings and conclusions.

Task 4 Deliverables:

Technical memorandum summarizing the objective, methodology, key findings, and conclusions of the task. We will provide both hard and electronic copies of the memorandum to MAROps steering committee members and I-95 Corridor Coalition staff.

Task 5 Title: **Develop Transferable Institutional Mechanisms for Implementing Regional Rail Programs**

Task 5 Description:

The objective of this task is to investigate and develop transferable institutional mechanisms for funding and implementing regional rail programs and describing how rail planning activities can be more effectively incorporated into the traditional transportation planning and programming processes of states and MPOs. There have been several efforts describing how freight and freight rail related issues can be integrated into the statewide and metropolitan transportation planning process. Examples include NCHRP Project 8-47, which developed a guidebook on freight planning for small and medium-sized MPOs; NCHRP Project 8-53, which is identifying best practices in integrating freight into the planning and priority programming processes of states and MPOs; National Highway Institute (NHI) course 139001, which provides states and

MPOs with the tools and resources to better incorporate freight into the planning process; and various white papers developed by FHWA and others. In addition, a white paper exploring ways in which the states and railroads could assign roles and responsibilities for implementing a regional rail improvement program was developed as part of the MAROps Phase I effort. As part of this task, the ideas developed in these existing resources will be reviewed, updated, and extended to account for pending Congressional and state action on Amtrak, opportunities that have be created by reauthorization of the surface transportation legislation (SAFETEA-LU), and the interest of other Coalition states in participating in the MAROps program or developing similar regional programs. The institutional mechanisms and guidance developed as part of this task will be transferable in nature, i.e. they can be adapted and utilized by other regions interested in implementing a regional rail improvement program and will not be designed specifically for the MAROps region or the MAROps program of improvements.

Task 5 Work Steps:

- Review existing funding and financing programs available in SAFETEA-LU and pending Congressional legislation affecting Amtrak and other rail-related actions;
- Review existing freight planning and financing resources developed as part of MAROps Phase I and other efforts;
- Update concepts these resources to account for new or modified funding and financing programs available in SAFETEA-LU and potential impacts of pending Congressional legislation;
- Summarize potential transferable institutional mechanisms for implementing regional rail improvement programs; and
- Report findings and conclusions.

Task 5 Deliverables:

Technical memorandum summarizing how rail planning activities can be more effectively integrated within statewide and metropolitan planning processes and describing transferable institutional methods for implementing regional rail improvement programs that may result from these activities. We will provide both hard and electronic copies of the memorandum to MAROps steering committee members and I-95 Corridor Coalition staff.

Task 6 Title: **Prepare Draft and Final Reports**

Task 6 Description:

The objective of this task is to prepare and present draft and final reports summarizing the objectives, approach, findings, and conclusions of the study.

Task 6 Work Steps:

- Prepare draft final report and distribute for review and comment;
- Present a summary of the key findings, conclusions, and recommendations to the Coalition and the MAROps steering committee; and
- Prepare the final report, incorporating changes recommended by the MAROps steering committee and Coalition staff.

Task 6 Deliverables:

Final report and presentation materials. We will provide both hard and electronic copies of the final report and presentation materials to MAROps steering committee members and I-95 Corridor Coalition staff.

Task 7 Title: **Provide Support to MAROps Steering Committee**

Task 7 Description:

The objective of this task is to support the activities of the MAROps II steering committee by scheduling and attending steering committee meetings, preparing meeting materials and summary information, and developing and providing outreach briefings to other interested parties throughout the course of the project.

Task 7 Work Steps:

- Schedule and attend MAROps steering committee meetings as appropriate;
- Conduct outreach activities associated with MAROps II study, as appropriate; and
- Provide other support activities to the MAROps steering committee as directed by Coalition staff.

Task 7 Deliverables:

Briefing materials, meeting summaries, and other documentation as appropriate.

SECTION C – MAROps II PROJECT MANAGEMENT/COORDINATION OF ACTIVITIES

Each MAROps state DOT (Maryland, Virginia, Delaware, Pennsylvania, and New Jersey) has designated a primary representative/agency liaison to the MAROps project Steering Committee. These representatives will serve as the primary point of contact for the project, provide input into the scope of work, review project deliverables and serve as the interface to their agency. In addition, the agency representative will insure coordination of this project work (if not directly responsible for such function at their agency) with their agency planning office; insure that

the results or recommendations of this project are incorporated into other statewide planning activities, as appropriate; and will provide and/or insure coordination with all appropriate and Metropolitan Planning Organizations in their respective state/jurisdiction. Where appropriate, the agency representative shall work to identify an appropriate MPO or state planning agency to attend pertinent meetings and/or receive relevant materials. The Steering Committee DOT agency representative and I-95 Corridor Coalition staff and support personnel (as may be directed) shall share relevant materials, research, findings, and other information related to this project with such parties. The outputs of these findings will be forwarded so as to be considered and included as deemed appropriate in statewide planning, freight planning or MPO planning processes. Coalition and support staff shall provide assistance as warranted to Steering Committee personnel to assist in providing relevant information to MPOs as identified by the state agency representatives. All state DOT Planning Offices and MPOs in the MAROPs region shall by direct mail receive copies of any major findings and/or final reports/documents related to this project.

Project Scope of Work Approval

The Project Management Team for all projects consists of a Project Coordinator/Manager, Coalition Staff, Program Track Lead(s), and consultant(s). Projects are performed either through the competitively procured consultant contract or through Coalition Member Agencies. Scopes are developed in the following manner:

Projects performed by Coalition Consultants: The assigned Coalition Consultant under the supervision of Coalition Staff will prepare the scope of work for the project. Coalition Staff will ensure coordination with both the Project Coordinator/Manager and Program Track Lead(s). The levels of scope approval include: the Project Coordinator/Manager, Consultant Staff in consultation with Program Track Lead(s), and Consultant Team Program Manager.

Projects performed through Member Agencies: The Project Coordinator/Manager will prepare the scope in consultation with the Member Agency and Coalition Staff. Coalition Staff will coordinate with Program Track Lead(s). The levels of scope approval include: the Project Coordinator/Manager and Coalition Staff in consultation with Program Track Lead(s).

The Coalition Staff approval is the final step in the approval process for all projects and signifies that all required Project Staff have approved of the scope of work.

The Project Manager/Coordinator, Coalition Staff, and Consultant Program Track Lead will retain copies of the executed version of this form as part of the official project records.

<u>Project Manager Submittal</u>

I have prepared the attached scope of work that is hereby submitted for approval of the Consulting Team Program Track Lead (consulting team projects)/Member Agency Point of Contact (member agency sponsored projects) and Coalition Staff Contact.

Signature

_____

Date

_____

Consulting Team Program Track Lead Approval (For Consulting Team projects only)

I have reviewed and approved the attached scope of work and hereby submit it for the approval of the Consulting Team Program Manager.

Signature

_____

Date

_____

Consulting Team Program Manager Approval (For Consulting Team projects only)

I have reviewed and approved the attached scope of work and hereby submit it for the approval of the Coalition Staff Contact.

Signature

_____

Date

_____

Sponsoring Agency Point of Contact Approval (For Member Agency hosted projects only)

I have reviewed and approved the attached scope of work and hereby submit it for the approval of the Coalition Staff Contact.

Signature ***Rick Johnson, Deputy Director, Freight Logistics, Maryland DOT***

Date *6/18/08*

Coalition Staff Contact Final Approval

I have reviewed and approved the attached scope of work.

Signature

Date 6/19/08