

2-A-1

## Project Need Form (PNF)



**Massachusetts Highway Department – District \_\_\_\_**  
**Project Need Form (PNF)**

This form is intended to provide preliminary information about the proposed project. It is not expected that all information that is asked for is available or known but applicants are encouraged to complete the form as fully as possible.

**From:** \_\_\_\_\_ **Title:** \_\_\_\_\_

**Municipality/Organization:** \_\_\_\_\_

**Phone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_

**Date:** \_\_\_\_\_ **Email:** \_\_\_\_\_

**Project Reference No. (to be filled out by MassHighway):** \_\_\_\_\_

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**PART I – LOCATION IDENTIFICATION AND DESCRIPTION OF NEED**

**Municipality:** \_\_\_\_\_

**Route and/or Street(s):** \_\_\_\_\_

**Bridge ID Number (if applicable):** \_\_\_\_\_

**Who owns the roadway/facility?** \_\_\_\_\_

**Estimated project limits by mile marker and station from MassHighway’s roadway database or other distinguishing landmarks such as cross street(s). Include a locus map of the project and photos illustrating project need:**

**Start:** \_\_\_\_\_

**End:** \_\_\_\_\_

**Total Mileage:** \_\_\_\_\_

**Please provide a brief description of the project need:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Estimated Construction Cost:** \_\_\_\_\_

**Does the project have Federal Funding?**  Yes  No

If yes, legislation: \_\_\_\_\_ Amount: \$ \_\_\_\_\_

Is the project authorized in a state transportation bond bill?  Yes  No

If yes, bill: \_\_\_\_\_ Amount: \$ \_\_\_\_\_

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## PART II – PROJECT BACKGROUND

**In what type of area is the project located?** *Project limits may include more than one type of area. For a definition of areas, please refer to Chapter 3 of the Guidebook.*

- |                                               |                                                       |
|-----------------------------------------------|-------------------------------------------------------|
| <input type="checkbox"/> Rural Natural        | <input type="checkbox"/> Suburban High Density        |
| <input type="checkbox"/> Rural Village        | <input type="checkbox"/> Suburban Village/Town Center |
| <input type="checkbox"/> Rural Developed      | <input type="checkbox"/> Urban Residential or CBD     |
| <input type="checkbox"/> Suburban Low Density |                                                       |

**How does the roadway/facility function in the community?**

- High-speed, primary corridor with limited access
- Moderate speed, major corridor between towns/regions
- Low to moderate speed corridor between towns/regions
- Moderate speed, major street connecting residential areas to a town center or major connector
- Low to moderate speed street connecting residential areas with other streets
- Primarily or exclusively a residential street

**What is the federal functional classification of the road?**

- |                                                   |                                                   |
|---------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> Interstate               | <input type="checkbox"/> Rural Principal Arterial |
| <input type="checkbox"/> Urban Principal Arterial | <input type="checkbox"/> Rural Minor Arterial     |
| <input type="checkbox"/> Urban Minor Arterial     | <input type="checkbox"/> Rural Major Collector    |
| <input type="checkbox"/> Urban Collector          | <input type="checkbox"/> Rural Minor Collector    |

Is the proposed project on the National Highway System?  Yes  No

**Does the project have any Intelligent Transportation System Components?**

Yes  No If yes, describe: \_\_\_\_\_

Is the project a footprint road project?  Yes  No

Is the project a footprint bridge project?  Yes  No

Provide whatever information is available to characterize the current, general use of the facility (attach traffic counts).

CHARACTERISTIC	USE/DATA	DATA SOURCE	NOT AVAILABLE/ Comments
Number of Lanes			
Lane Width			
Shoulder Width			
Sidewalk Availability/Width			
Bicycle Facility Availability/Width			
Existing Right of Way			
Current Average Annual Daily Traffic (AADT)			
Current Peak Hour Vehicular Volume			
Current Peak Hour Bicycle Traffic			
Current Peak Hour Pedestrian Traffic			
Percent Truck Traffic			
Current Transit Operations/Facilities			
Traffic Control (signal, flash, signs, etc.)			
Roadway Lighting			
Pavement Condition and Markings			
Posted Speed Limit			
85 <sup>th</sup> Percentile Speed			

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### PART III – TRANSPORTATION NEEDS ASSESSMENT

**Choose a project type – Roadway, Sidewalk or Multiuse Path; Bridge or Other.** Answer the questions that apply to the proposed project. Depending on the nature of the project, not all questions need to be answered. For all projects, answer **For All Projects**.

#### Roadway, Sidewalk, Multiuse Path

- Preventive Maintenance
- Rehabilitation/Resurfacing
- Reconstruction
- Widening
- New Facility
- Intersection, Roundabout or Traffic Signal Improvements
- New Interchange or Interchange Reconfiguration
- Safety

**What is the condition of the facility, e.g. extent of cracking, deterioration, rideability/walkability, surface condition, structural adequacy, etc.? Include a pavement management system (PMS) condition rating from a MassHighway approved PMS, as appropriate, and attach photo documentation with this submittal showing typical facility surface or site conditions.**

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**What year was the last repair made to the facility (at minimum a preventative maintenance treatment)?**

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**What repair was made to the facility? (Use repair typed above and describe)**

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**What is the crash history or other safety concerns of the facility? (For safety projects, consult MassHighway's Traffic Division for more detailed analysis requirements).**

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**Are there mobility issues for motorists, bicyclists or pedestrians? (As an alternate to this question, attach Transportation Evaluation Criteria Form.)**

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**Are there congestion issues? Provide level of service analysis results if necessary. (As an alternate to this question, attach Transportation Evaluation Criteria Form.)**

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**What other conditions exist that warrant this project? (As an alternate to this question, attach Transportation Evaluation Criteria Form.)**

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Evaluate the impact of the project on the following resources/environmental conditions. If major impact”, “ minor impact”, or “will improve” are selected, describe below. (As an alternate to this question, attach Transportation Evaluation Criteria Form.)

RESOURCE/ CONDITION	MAJOR IMPACT	MINOR IMPACT	NO IMPACT	WILL IMPROVE	UNKNOWN
Cultural Resources					
Wetlands					
Hazardous Materials					
Air Quality					
Noise					
Other					

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**Bridge**

- Maintenance
- Rehabilitation
- Replacement
- New or Widening

What is the bridge rating and date of inspection?

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- Structurally Deficient?
- Functionally Obsolete?
- Posted?
- Unknown?

What is the condition of the bridge elements?

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What is the condition of other infrastructure elements?

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**What is the schedule of preventative maintenance?**

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**If a new bridge or a bridge that does not meet current eligibility requirements, describe why the project is proposed.**

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**Other**

- New or Expanded TDM/Park and Ride Lot**
- New or Expanded Traffic Management System**
- Traffic Calming, Streetscape, Lighting, or Transit Improvements**
- Intelligent Transportation Systems**
- Other**

**Describe the conditions that warrant the project.**

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**For All Projects**

**Describe Right of Way Issues**

- Probably adequate**
- Probably will require takings**
- Probably will require easements and/or rights of entry**
- Unknown**

**Describe known project area concerns or constraints.**

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**Describe the project's effect on multimodal accommodation.**

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**PART IV – PUBLIC PROCESS**

**Please describe the public process associated with the project to date.**

**None to Date**

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**What is the expected level of community interest in the project?**

**High**

**Medium**

**Low**

**Unknown**

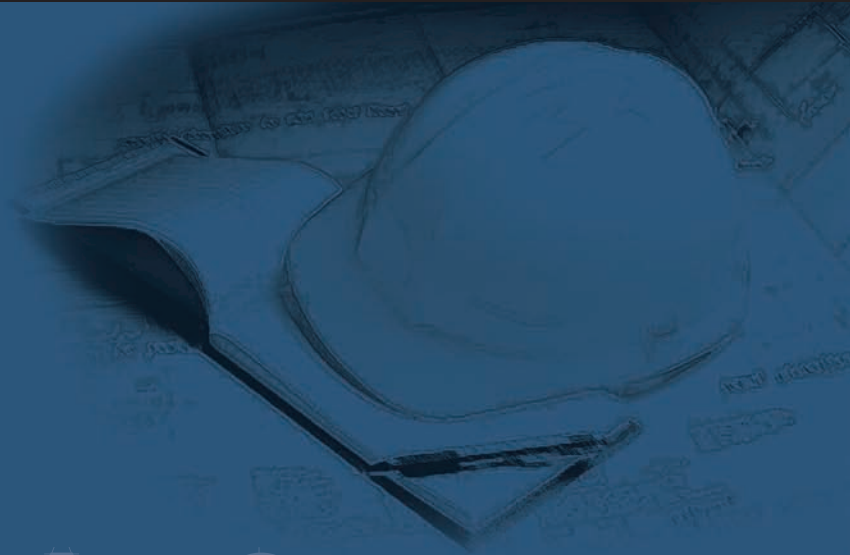
**Describe issues of concern raised by the public during the public process to date.**

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2-A-2

## Transportation Evaluation Criteria



## Transportation Evaluation Criteria

Beginning in 2004, MPOs began using formal, written evaluation criteria ("Transportation Evaluation Criteria") to assess projects for inclusion in the TIP. These criteria are first applied to projects during their earliest stages to provide a broadly based overview and rating of many, often competing, elements to assist in eventual project assessment and prioritization by the regional MPO. These criteria are useful in the preparation of a Project Need Form (submitted as an attachment, if available) and required as part of the Project Initiation Form submission.

### Criteria for Highway System Preservation Projects

**Highway System Preservation Projects** include roadway maintenance, resurfacing, and reconstruction (should be within the existing road footprint); bridge maintenance, rehabilitation, and replacement; and other infrastructure preservation. For these types of projects, both condition and usage criteria apply as described below:

#### *Condition*

- Pavement condition (in consideration of pavement management principles)
- Pavement structural adequacy (as available)
- Bridge condition
- Condition of other bridge infrastructure elements
- Degree and severity of deterioration of other infrastructure
- Compliance with minimum access standards

#### *Usage*

- Traffic volumes and truck usage
- Pedestrian and bicycle usage and/or connectivity (as it is sometimes difficult to provide good pedestrian and bicycle data, connectivity to other trails, downtown areas, neighborhoods, schools, etc., should also be considered)
- Effect on connectivity for the closure or restriction of bridges
- Effect on safety and congestion

#### *Cost Effectiveness (as applicable)*

- Cost per daily traffic (average daily traffic or ADT) and/or pedestrian/bicycle user, as available
- Cost per lane mile
- Cost per ADT/lane mile

## Criteria for System Improvement/Expansion Projects

***Highway System Improvement/Expansion Projects*** include new or improved roadways and intersections, bridges, bicycle, and pedestrian facilities, and park & ride/transportation demand management facilities. For these types of projects four criteria categories are applied, including: condition and service quality, mobility, safety and security, and other effects, described below.

### ***Condition and Service Quality***

- Condition of improvement for facility (roadways and intersections, bridges, bicycle/pedestrian facilities and park & ride/transportation demand management facilities)

### ***Mobility***

- Magnitude and duration of congestion
- Travel time and connectivity/access
- Number of new pedestrians, bicycles, or transit riders that will use the facility (if available) or other measure of project's potential to encourage non-automobile oriented travel (influenced by the project's proximity to activity centers and destinations-- downtowns, neighborhoods, schools, parks, etc., as well as by its connectivity to other existing or planned bicycle and pedestrian routes).

### ***Safety and Security***

- Crash rate compared to state average (if crash rate is not available, a general assessment of anticipated safety impacts can be substituted)
- Transportation security and evacuation routes
- Bicycle and pedestrian safety
- Bicycle comfort index (as described in Chapter 3)

### ***Community Effects and Environmental Justice***

- Residential
- Environmental justice for low income and minority neighborhoods
- Public support

### ***Land Use and Economic Development***

- Business
- Sustainable development
- Consistency with local and regional plans

### *Environmental and Air Quality/Climate Effects*

- Air and water quality
- Historical and cultural resources
- Wildlife habitat and endangered species

### *Cost Effectiveness*

- Cost per ADT and/or pedestrian/bicycle user, as available
- Cost per lane mile
- Cost per ADT/lane mile

Appropriate criteria for the project type are used to gauge the transportation needs and, through the planning process, to assess the transportation benefits, costs, and impacts of proposed projects. There may be several criteria that apply and many that do not, depending upon the type of project under consideration. The proponent is encouraged to tailor the criteria to the project.

The purpose of the criteria is to support the objective, transparent review of projects across the Commonwealth for eventual prioritization, programming, and construction. The evaluation criteria also provide useful guidance to assist in the problem definition.

The criteria developed for *Highway System Preservation Projects* and *Highway System Improvement or Expansion Projects* are used to support the preparation of the Project Need Form and (if required) the Project Planning Report, as discussed in Sections 2.1 and 2.2 of this chapter. It is helpful to attach the Transportation Evaluation Criteria form to the PNF for review, to the extent that it is available. Every region has adopted their own version of the Transportation Evaluation Criteria. The project proponent should consult with his/her regional planning agency to ascertain the TEC criteria and form in use for that region.

## **Project Compatibility With Other Policies and Programs**

The transportation effects of projects are not the only consideration in evaluating projects. The project should also be integrated with local land use policies and goals so that, in total, the desired community objectives are achieved. Other important considerations, including the Commonwealth's sustainable development principles, and local partnerships, should also be used to evaluate projects. If the project has any Intelligent Transportation Systems (ITS) elements, it should also be confirmed at an early stage that the project scope and design is consistent with the regional ITS architecture. (Periodic checks

regarding continued conformance with the regional ITS architecture should be incorporated into each stage of the design process.)

*Section 23 CFR Parts 655 and 940, FHWA Final Rule (and FTA Policy) – Intelligent Transportation System Architecture and Standards* — implements section 5206(e) of TEA-21 and requires that projects funded with highway transit trust fund moneys (highway and transit) conform to the national ITS architecture and applicable standards. The rulemaking directs local implementation through the development of regional ITS architecture tailored to meet local needs. Four regional ITS architectures have been developed and adopted for Massachusetts. If the Project Needs Form notes an ITS component in the proposed project, then the designer/proponent, in consultation with the MassHighway District Projects Section staff and regional planning agency staff, is responsible for monitoring and periodic review during the design process to ensure consistency between project ITS elements and the regional ITS architecture. More information is available at <http://www.eot.state.mas.us/regionalitsarchitecture/>.

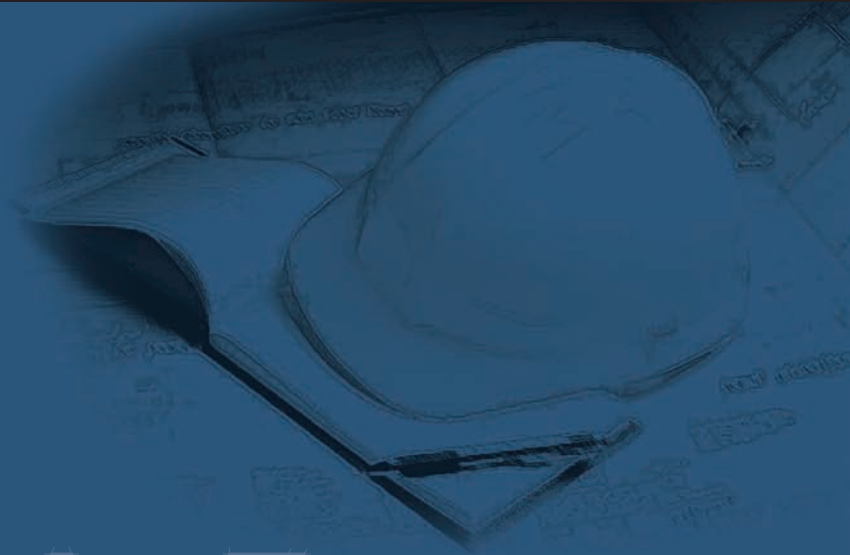
***Sustainable Development*** promotes development that integrates the energy, environmental, housing, and transportation agencies' policies, programs and regulations to care for the built and natural environment. Toward this mission, the U.S. Department of Transportation and the Office of Commonwealth Development encourage the coordination and cooperation of all agencies, the investment of public funds wisely in smart growth and equitable development, and give priority to investments that will deliver living wage jobs, transit access, housing, open space, and community-serving enterprises. Several of the sustainable development principles are summarized in Exhibit 2A-2-1 and provide useful guidance for proponents of transportation projects.

## Exhibit 2-A-2-1 Commonwealth's Transportation-related Sustainability Principles

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- **Redevelop First.** Support the revitalization of community centers and neighborhoods. Encourage reuse and rehabilitation of existing infrastructure rather than the construction of new infrastructure in undeveloped areas.
  - **Concentrate Development.** Support low impact development that is compact, conserves land, integrates uses, and fosters a sense of place. Create walkable districts by mixing commercial, civic, cultural, educational and recreational activities with open space and housing for diverse communities.
  - **Conserve Natural Resources.** Construct and promote buildings and infrastructure that use land, energy, water and materials efficiently.
  - **Restore and Enhance the Environment.** Protect and restore environmentally sensitive lands, natural resources, wildlife habitats, and cultural and historic landscapes. Preserve critical habitat and biodiversity.
  - **Provide Transportation Choice.** Increase access to transportation options, in all communities, including land- and water-based public transit, bicycling, and walking. Invest strategically in transportation infrastructure to encourage smart growth.
  - **Increase Job Opportunities.** Attract businesses with good jobs to locations near housing, infrastructure, water, and transportation options. Expand access to educational and entrepreneurial opportunities. Support the growth of new and existing local businesses.
  - **Plan Regionally.** Support the development and implementation of local and regional plans that have broad public support and are consistent with these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit.
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2-A-3

## Detailed Alternatives Analysis



## Detailed Alternatives Analysis

A more complex set of project needs may warrant a more detailed planning and conceptual engineering review of alternatives, their impacts and benefits, and implementation issues as part of the Project Planning Report. This is particularly true when it is unclear what actions are "feasible" to address the identified needs. In this case, the proponent should develop base information, document resources, and complete transportation planning analysis and conceptual engineering of the alternatives in more depth to verify "project feasibility" and the preferred action.

This level of alternatives analysis is appropriate for all new facilities and for improvement or expansion projects where the feasibility of achieving the desired enhancements with acceptable impacts and reasonable investment is unclear at the outset. The key objectives of this effort are to assess alternatives to determine their engineering feasibility, environmental impacts and permitability, economic viability, and public acceptance.

MassHighway District staff and the local required planning staff can advise project proponents when a detailed Alternatives Study is likely to be warranted.

### Project Mapping

Expectations for determining the feasibility of a project alternative (especially one that has physical impacts) requires the development and use of reliable base mapping.

Important factors in determining whether adequate mapping is available for this phase of project development are:

- The age of the mapping and whether project area features have changed dramatically;
- The availability of vertical elevations and details;
- The scale and coverage of mapping as it relates to the scale of the alternatives being considered; and,
- How constrained the project area is (the more constrained, the more accurate the mapping needs to be).

At this stage of project development, the proponent needs to determine whether existing project area mapping will suffice for the alternatives analysis or whether new mapping is needed. If new mapping is required, it should be obtained at a scale and in a format that can be made compatible with the requirements for carrying the alternative into design (see Chapter 18, for information on base mapping requirements for MassHighway design projects). GIS and/or ortho photography, depending on the level of detail available, may be appropriate for this effort.

### **Environmental Resource Considerations and Documentation**

This detailed alternatives analysis should, if possible, determine the degree to which an alternative is considered preferable from an environmental or social perspective. Typically, these studies are done relatively early in the process of implementing a project or strategy. Therefore, when estimating the areas of wetland disturbed or number of residences impacted by a facility it would be appropriate to provide a range or otherwise indicate the extent of the uncertainty in such estimates. However, with respect to some environmental considerations, there are specific federal and state laws which can have a great deal of influence in planning for potential facilities. Early coordination with MassHighway's Environmental Division is encouraged to gain an understanding of the actual project issues.

Generally, it would serve the project proponent well to ensure that the alternatives analysis identifies, maps, analyzes, and documents the environmental and social resources in the project area to an acceptable degree of detail so that all potential "red flags" are identified with regard to the alternative's environmental impacts, the public's acceptance of these impacts, and ultimately, the permitability of the project. The project proponent should consider incorporating some or all of the early environmental coordination tasks defined by MassHighway, and described in Section 2.4.2 of this Guidebook, into the scope of this analysis.

Ideally, work completed under the planning study to identify and assess project alternatives is done in a manner that is consistent with requirements for environmental documentation under the National Environmental Policy Act (NEPA) and the Massachusetts Environmental Policy Act (MEPA) as described in Section 2.4.2 of this chapter. An important product of the planning process directly usable in an environmental document is a clear statement of the need for a

new/improved facility. Analysis of alternatives described in this section should also be developed in a manner that is directly usable in the environmental review process.

### **Development of Alternatives/Conceptual Engineering**

Alternatives analysis should, at least initially, consider a wide range of alternatives. Such alternatives, which would be selected from those advocated by interested groups or recommended by local or State government could include various transportation facility types for all modes of transportation (pedestrian, bicyclist, driver, or transit operator) and range of management strategies that may potentially serve an important purpose and address a need for transportation of people and goods.

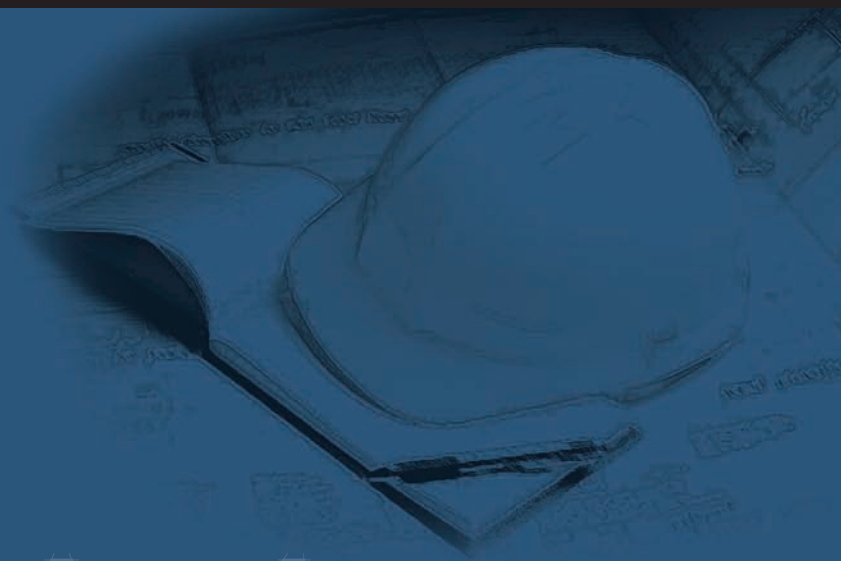
The alternatives under consideration should be documented and screened as previously discussed. As the options are screened and refined through the analysis process, the level of detail for the remaining alternatives is enhanced to sharpen the project proponent and the public's understanding of the alternative's implementation issues and feasibility.

For physical options, it is assumed that the concept plans will be superimposed on base mapping (as described above) at a sufficiently detailed scale (100 scale for unconstrained areas, 40 or 50 scale for constrained locations). A general checklist, provided as guidance, on what may be beneficial to show on the base mapping includes:

- The location, widths, and names of all existing or platted streets or other public ways within or adjacent to the project location area;
- The location of all sidewalks, crosswalks, bus stops and amenities within or adjacent to the project location area;
- Existing accessible route(s), including curb-cut ramps, associated crosswalks, and audible crossing signals;
- The location of all bicycle facilities and amenities within or adjacent to the project location area;
- All buildings;
- All property lines and property use/ownership;
- Existing utilities;

- Trees and stonewalls;
- All natural watercourses, wetlands, ponds, lakes, etc.
- Private driveways or curb cuts;
- All standard and accessible parking spaces and loading spaces; and
- All pavement markings, signs, and traffic control.

Through this alternatives development process, public outreach should, to the extent practicable, be collaborative and be designed to avoid focusing attention on new facilities or strategies that are not likely to be implemented. Rather, it should focus on those screened alternatives that appear to be reasonably implementable projects and educate project participants about why prior alternatives were determined to be infeasible within the context of the study.



2-A-4

## Project Initiation Form (PIF)



***THE COMMONWEALTH OF MASSACHUSETTS***

***MASSACHUSETTS HIGHWAY DEPARTMENT***

***PROJECT INITIATION FORM (PIF)***

**To:** \_\_\_\_\_

**From:** \_\_\_\_\_

**Contact Information:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Project Reference No:** \_\_\_\_\_

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**PART I – LOCATION IDENTIFICATION AND PROJECT NEED RESTATEMENT**

**A. Municipality:** \_\_\_\_\_

**B. Route and/or Street(s):** \_\_\_\_\_

**C. Bridge ID Number  
(if applicable):** \_\_\_\_\_

**D. Is this a state administered highway?** Yes  No

**E. Location description or estimated project limits by mile marker and station:**  
\_\_\_\_\_

**F. Provide a brief restatement of the project need:**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**PART II – PROJECT TYPE AND DESCRIPTION**

**G.  Transportation System Preservation**

Examples include maintenance, resurfacing, and reconstruction of roadways, sidewalks and multiuse paths. Examples also include maintenance, rehabilitation and replacement of bridges.

- |                                                                            |                                            |                                                         |
|----------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> <b>a. Roadways, Sidewalks, and Multiuse Paths</b> | <input type="checkbox"/> <b>b. Bridges</b> | <input type="checkbox"/> <b>c. Other (Define below)</b> |
| <input type="checkbox"/> Maintenance                                       | <input type="checkbox"/> Maintenance       |                                                         |
| <input type="checkbox"/> Resurfacing                                       | <input type="checkbox"/> Rehabilitation    |                                                         |
| <input type="checkbox"/> Reconstruction                                    | <input type="checkbox"/> Replacement       |                                                         |

**Transportation System Improvement or Expansion**

Examples include construction of new facilities; widening of roadways, intersections, sidewalks, or multiuse paths; roadside modifications, and other system enhancements.

- New Roadway, Sidewalk or Multiuse Path
- Widened Roadway, Sidewalk or Multiuse Path
- Intersection, Roundabout, Traffic Signal Improvements
- New Interchange or Interchange Reconfiguration
- Median, Roadside Safety, or Signage Improvements
- Traffic Calming, Streetscape, Lighting, or Transit Enhancements
- New or Widened Bridge
- New or Expanded TDM/Park & Ride Lot
- New or Expanded Traffic Management System (TMS)
- Other \_\_\_\_\_

**Provide a brief description of the project:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Is this a footprint road or bridge project?**       **Yes**       **No**

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**What is the current level of community support?**

- High                       Medium                       Low

**Please identify the nature and extent of any known opposition to the project?:**

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**Q. Environmental Coordination Activities**

Yes     No

**If Yes, please indicate board/agency coordinated with:**

**Wetlands/ Waterways**

- Local Conservation Commissions
- Local Water Districts
- MA DEP
- US Army Corps of Engineers
- US Coast Guard
- US EPA
- MA CZM Office
- Others (please list)

\_\_\_\_\_  
\_\_\_\_\_

**Endangered Species/Habitat**

- Local Conservation Commissions
- MA DEP
- MA Division of Fisheries and Wildlife
- US EPA
- Others (please list)

\_\_\_\_\_  
\_\_\_\_\_

**Hazardous Materials**

- Local Health Boards
- Local Fire Department
- MA DEP
- US EPA
- Others (please list)

\_\_\_\_\_

**Cultural Resources**

- Local Historic Commissions
- MA Historic Commission
- Tribal Historic Preservation Officer
- Others (please list)

\_\_\_\_\_  
\_\_\_\_\_

**Section 4f Resources**

- MA DCR
- Local Parks Department
- Local Planning Department
- Local Historic Commission
- MA Division of Fisheries and Wildlife
- EOEA Division of Conservation Services
- National Park or Forest Service
- Others (please list)

\_\_\_\_\_  
\_\_\_\_\_

**NEPA/MEPA**

- EOEA MEPA Office
- US EPA
- Lead Federal Agency (FHWA)
- Others (please list)

\_\_\_\_\_

**Anticipated MEPA Documentation Required**

- ENF
- EIR
- None

**Anticipated NEPA Documentation Required**

- CE
- EA
- EIS
- None



**PART V – PRELIMINARY PROJECT CATEGORY AND FUNDING PROGRAM**

**R. Anticipated Project Type (based on MassHighway specific categories):**

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**S. Anticipated Funding Program:**

- National Highway System (NHS)
- Surface Transportation Program (STP)
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Bridge Replacement and Rehabilitation Program
- Interstate Maintenance
- Non-Federal Aid
- State Aid Roadways
- High Priority Project (HPP)
- Others/Non Transportation Improvement Program (please identify)

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**PART VI – PROPOSED PROJECT MANAGEMENT PLAN**

Please describe how you expect this project to proceed. Who will be responsible for Design? Permitting? Right-of-Way? Construction Management? Etc.

**T. Design (Also, Specify Lead Person/Department/Division)**

City/Town       MassHighway       Other \_\_\_\_\_

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**U. Permitting (Also, Specify Lead Person/Department/Division)**

City/Town       MassHighway       Other \_\_\_\_\_

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**V. Right-of-Way (Also, Specify Lead Person/Department/Division)**

City/Town       MassHighway       Other \_\_\_\_\_

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**W. Construction (Also, Specify Lead Person/Department/Division)**

City/Town       MassHighway       Other \_\_\_\_\_

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**PART VII– PRC PROJECT REVIEW (To be completed by PRC Staff)**

Comments/observations on project need, type and description:

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Comments/observations on planning and public process:

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Comments on Project Category and Funding Program Applicability:

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Comments on Proposed Management Plan:

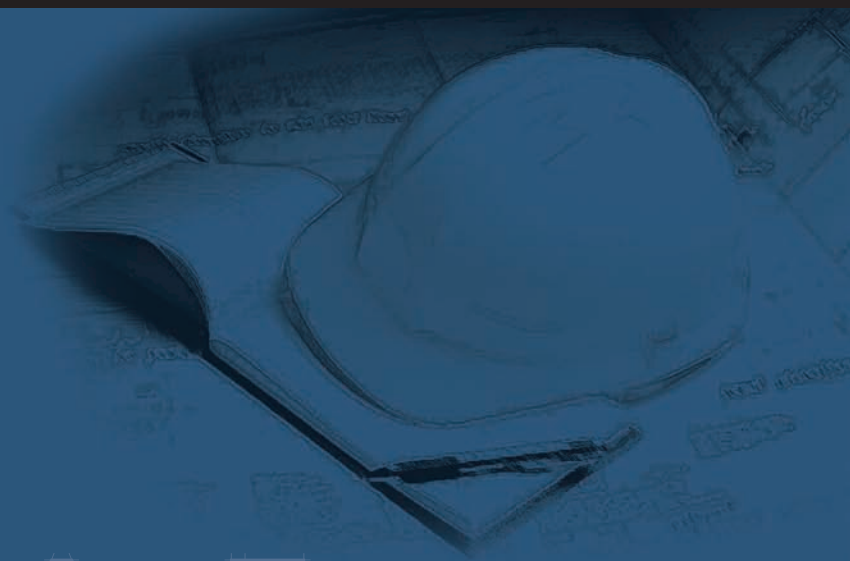
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- |                                                 |                                    |                                      |
|-------------------------------------------------|------------------------------------|--------------------------------------|
| <b>Project Review</b>                           | <input type="checkbox"/> Favorable | <input type="checkbox"/> Unfavorable |
| <b>Assign PROJIS Number</b>                     | <input type="checkbox"/> Yes       | <input type="checkbox"/> No          |
| <b>Provide Design and Environmental Funding</b> | <input type="checkbox"/> Yes       | <input type="checkbox"/> No          |
| <b>Recommend Programming Review by MPO</b>      | <input type="checkbox"/> Yes       | <input type="checkbox"/> No          |
| <b>PROJIS Number (if applicable):</b> _____     |                                    |                                      |





2-A-5

## Role of the MPO



## Role of the MPO

The regional Metropolitan Planning Organizations (MPOs) are important transportation decision-making entities in Massachusetts that have the responsibility for allocating federal funding to transportation projects. Massachusetts has thirteen planning regions, ten of which qualify as MPOs according to federal rules:

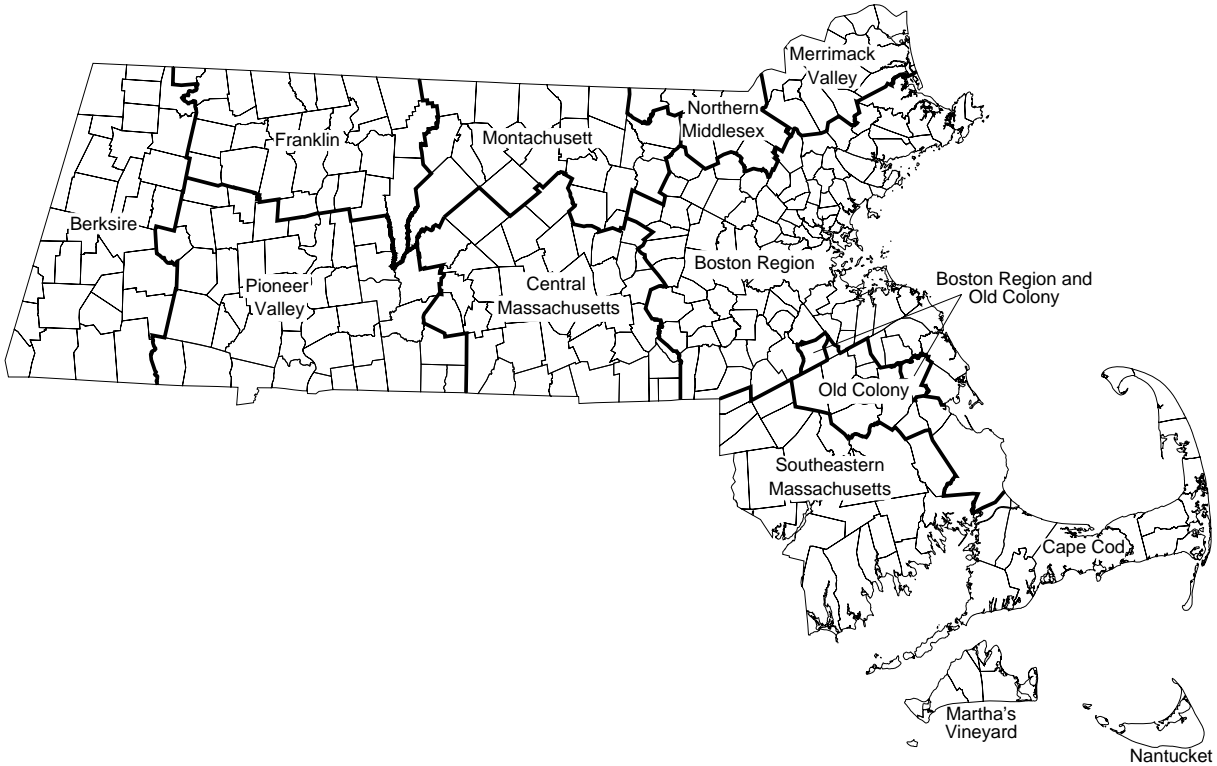
- Berkshire Region MPO
- Boston Region MPO
- Cape Cod MPO
- Central Massachusetts MPO
- Merrimack Valley MPO
- Montachusett Region MPO
- Northern Middlesex MPO
- Old Colony MPO
- Pioneer Valley MPO
- Southeastern Massachusetts MPO
- Franklin Region
- Martha's Vineyard
- Nantucket

The other three planning regions – Franklin Region, Martha's Vineyard, and Nantucket – do not meet federal population requirements for establishment of MPOs. However, in these regions, the Regional Planning Agency, along with the Regional Transit Authority, EOT, and MassHighway, cooperatively perform all the functions of an MPO. A map of the Massachusetts planning regions is shown in Exhibit 2-A-5-1.

The MPOs include local elected officials, major transportation operators, and appropriate state officials in transportation decision-making. The Secretary of Transportation chairs each MPO with membership varying from four to fourteen members, typically including MassHighway, the Regional Planning Agency, and the Regional Transit Authority.

Local elected officials are generally selected bi-annually using an agreed upon election process. From a transportation perspective, perhaps the most important function of the MPOs is the development of Regional Transportation Plans and Regional Transportation Improvement Programs (TIPs).

**Exhibit 2-A-5-1  
Massachusetts Metropolitan Planning Regions**



Federal planning regulations require MPOs to prepare long-range regional transportation plans every four years. These plans summarize regional transportation goals and objectives, describe the regional transportation system and existing conditions, evaluate alternative courses of action, and recommend short- and long-term strategies and actions.

Regional plans are required to be fiscally constrained, meaning that the value of projects contained in the plan cannot exceed reasonable estimates of available funding, and must be in conformance with the State Implementation Plan for air quality.

Every year, each MPO prepares a five-year Transportation Improvement Program that allocates state and federal transportation funds, both highway and transit, for the region. The TIP must be consistent with the long-range regional transportation plan, be fiscally constrained by year, and include an annual element of projects to be completed in the first year of the TIP. For example, if a region is

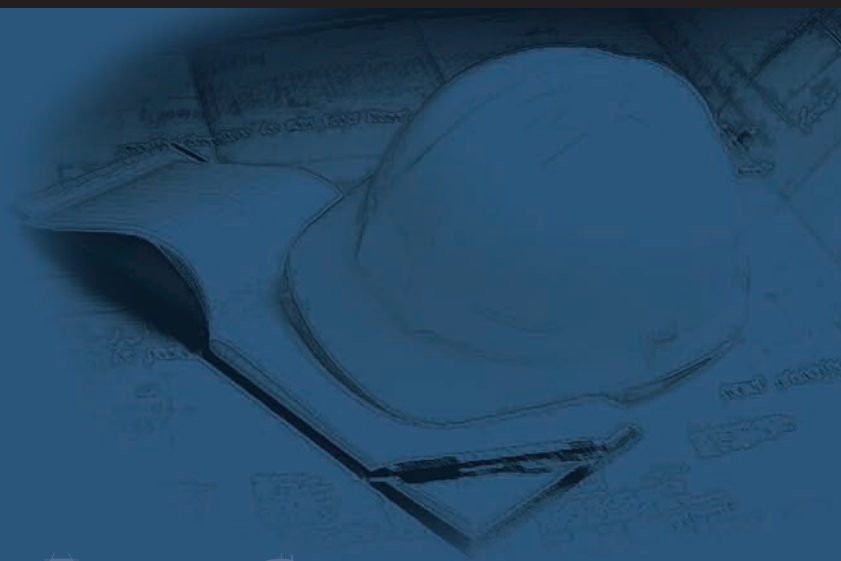
expected to have \$10 million in state and federal funding available, the MPO will prepare a TIP that contains \$10 million in transportation projects.

Beginning in 2004, MPOs began using formal, written evaluation criteria to assess projects for inclusion in the TIP. These criteria are first applied to projects during their earliest stages to provide a broadly based overview and rating of many, often competing, elements to assist in eventual project assessment and prioritization by the regional MPO. More detail on the Transportation Evaluation Criteria are presented in Appendix 2-A-2.

Transportation agencies such as MassHighway, the MBTA, or the Regional Transit Authorities cannot use federal funds for a project unless it is included in the TIP of the respective MPO. The State Transportation Improvement Program (STIP) is, by definition, an amalgamation of the thirteen regional TIPs.

Understanding the MPO's role in project planning and programming is extremely valuable to proponents seeking funding assistance for their projects. Coordination with the MPO or the regional planning agency is worthwhile early in the project development process.





2-A-6

## Common Environmental Laws and Regulations, Thresholds, and Timelines



## Common Environmental Laws and Regulations, Thresholds, and Timelines

A brief description of the common Federal and State Laws and Requirements, their regulatory thresholds, and environmental clearance timelines are provided in this Appendix. Please also refer to the 259, Designs Submission Checklist for Early Environmental Coordination items in Appendix 2-A-7.

### *Federal Laws and Requirements*

- **Section 4(f) of 1966 U.S. D.O.T. Act** — FHWA (or other Department of Transportation agency, as applicable) approval is needed for any Federal-aid highway project using land from a publicly-owned park, recreation area, historic property or wildlife and waterfowl refuge. A historic property may be a bridge, building, structure, site, district, or object. Either an individual or programmatic Section 4(f) evaluation document must be prepared. There must also be coordination with the public official having jurisdiction over the Section 4(f) property.
- **Section 404 of 1972 Clean Water Act (33USC1344)** — A permit is required from the U.S. Army Corps of Engineers (USACE) for highway projects involving discharge of dredged or fill material into waters of the United States. Jurisdiction under this law extends to all wetlands and waters of the United States. There are three classes of permits issued: Programmatic General Permit (PGP) Category I and Category II, and Individual Permit/Class III.

A PGP II and an individual permit involves consultation by the U.S. Army Corps of Engineers with the other Federal Resource agencies including U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service. Other federal approvals such as a water quality certification and a coastal zone consistency statement (if applicable) is needed before the USACE will issue the Section 404 permit.

Any design for a NEW river or stream crossing must conform with the General Standards contained in the *Massachusetts River and Stream Crossing Standards: Technical Guidelines* (as stipulated in the Massachusetts Programmatic General Permit, dated January 20, 2005) in order to qualify for a Category 1 (Non-Reporting) authorization. Otherwise, MassHighway or the project management will consult with the U.S. Army Corps of Engineers

(ACOE) under the Category 2 or Individual Permit review process if an open bottom arch or bridge span is impractical.

- **Section 401 of 1972 Clean Water Act** — A water quality certification is required from the Massachusetts Department of Environmental Protection (DEP) for any federal permit (e.g., Section 404 permit, Coast Guard Bridge Permit) to conduct an activity which may result in a discharge into waters of the United States. Additional details about the water quality certification process should be discussed with the MassHighway Environmental Section.
  
- **1972 Coastal Zone Management Act** — A coastal zone consistency review and concurrence determination is required from the Massachusetts Coastal Zone Management (CZM) Office for Federal-aid highway projects or projects requiring other federal actions located within the designated coastal zone. This review is to ensure consistency with the state coastal zone policies.
  
- **Section 9 of River and Harbor Act of 1899** — A permit is required from the U.S. Coast Guard for certain highway projects involving bridges or causeways over tidal or otherwise navigable waters. Other federal approvals such as water quality certification and a coastal zone consistency statement (if applicable) are needed before the U.S. Coast Guard will issue the Bridge Permit. Projects that are funded by FHWA and are "replacement in kind" may be eligible for an exemption from a Coast Guard Permit. The Consultant should obtain data on boat length and size from the local harbormaster, and other knowledgeable agencies, and consult with the MassHighway Environmental Section.
  
- **Section 10 of River and Harbor Act 1899** — A permit is required from the U.S. Army Corps of Engineers for highway projects requiring construction in or over navigable waters, the excavation from, or dredging or disposal of materials in such waters, or any obstruction or alteration in a navigable water (e.g. stream channelization).
  
- **Section 106 of the 1966 National Historic Preservation Act** — Section 106 is a process involving FHWA, MassHighway, the Massachusetts State Historic Preservation Officer, the appropriate Tribal Historic Preservation Officer, and the Advisory Council on Historic Preservation which must be followed for any Federal-aid highway project affecting bridges, districts, structures, sites (including archaeological sites) or properties of religious and cultural significance identified by Federally recognized Indian tribes that are listed in, or eligible for listing in the National Register of Historic Places. Additional details about the Section 106 process should be discussed with the MassHighway Environmental Section.

- **National Pollutant Discharge Elimination System (NPDES)**

**Construction General Permit** — As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. The NPDES Construction General Permit is administered by the United States Environmental Protection Agency and requires preparation of a Storm water Pollution Prevention Plan (SWPPP) for construction activities. Additional details about the NPDES process should be discussed with the MassHighway Environmental Section.

*State Laws and Requirements*

Bridge projects funded by a State Transportation Bond, which are functionally equivalent and in a similar location, are exempt from the Wetlands Protection Act (WPA), Chapter 91, and MEPA. The project proponent should consult with the Environmental Section for a determination.

- **Wild and Scenic Rivers Act (16USC1271)** – The Act establishes the policy that certain rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Act both identifies specific river reaches for designation as wild or scenic, and provides criteria to be used for classifying additional river reaches. The National Wild and Scenic River System was established to protect the environmental values of free-flowing streams from degradation by impacting activities, including water resources projects. The National Park Service and designated local Wild and Scenic River Management Council have review project permits to ensure that the action will not adversely affect the river system. This review function is most often through the ACOE on Section 404 permits (including section 10 of Rivers and Harbors Act) and through the Coast Guard (Section 9 of the Rivers and Harbors Act) for navigatable waterways.
- **Massachusetts Wetland Protection Act MGL Chapter 131, Section 40 as administered by 310 CMR 10.00** -- This act applies to projects which remove, fill, dredge, or alter a resource area defined in the Wetland Regulations. Resource areas are defined as:

- Bordering Vegetated Wetlands (BVW) or salt marsh

- ❑ Any bank, or any water body or waterway or a Coastal Bank
- ❑ Land under any water body (LUW), waterway, the ocean, or a salt pond
- ❑ Riverfront Area - Extends 200 feet (25 feet in municipalities with large populations and in densely developed areas) on each side of perennial rivers or streams
- ❑ Land subject to coastal storm flowage
- ❑ Isolated or bordering land subject to flooding
- ❑ Coastal Beaches and tidal flats
- ❑ Coastal Dunes
- ❑ Designated Port
- ❑ Banks or land under a Fish Pier
- ❑ Barrier Beaches
- ❑ Land containing shellfish

A buffer zone is defined as land within 100 feet horizontally of any resource area listed above. Request for a Determination of Applicability must be filed to determine if an Order of Conditions must be obtained from the local conservation commission. If work is proposed within a resource area, then a Notice of Intent must be submitted to the local conservation commission. If work is proposed in a buffer zone, then either a Notice of Intent or an Abbreviated Notice of Resource Area Delineation needs to be filed with the local Conservation Commission.

Appeals of Conservation Commission decisions are made to the Department of Environmental Protection (DEP). DEP is also the authority to whom variance requests are made. Variances are required if the general performance standards of the WPA cannot be met, such as if 5000 square feet or more of Bordering Vegetated Wetland is proposed for filling. Details regarding appeals or variances should be discussed with the MassHighway Environmental Section.

- **Rivers Protection Act** – The Rivers Protection Act, Chapter 258 of the Acts of 1996, protects nearly 9,000 miles of Massachusetts riverbanks – helping keep water clean, preserving wildlife habitat, and controlling flooding. The law creates a 200-foot riverfront area that extends on both sides of rivers and

streams. In certain urban areas, the riverfront area is 25 feet. The riverfront area provides the eight interests of the Wetlands Protection Act: protection of public and private water supply, protection of groundwater supply, protection of land containing shellfish, protection of wildlife habitat, flood control, storm damage prevention, prevention of pollution, and protection of fisheries. The law also establishes the policy of the state to protect the natural integrity of rivers and to encourage and establish open space along rivers. This law is administered through the WPA.

- **Chapter 91** — A Chapter 91 Waterways license is required from DEP for highway projects that do not qualify for the bridge exemption and which involve construction, dredging and filling performed in private and Commonwealth tidelands, as well as great ponds and certain rivers and streams. Additional details about the Chapter 91 process are to be discussed with the MassHighway Environmental Section.
- **Chapter 254** — A process involving the Massachusetts Historical Commission which must be followed for highway projects affecting bridges, districts, structures, or sites (including archaeological sites) listed in the State Register of Historic Places. All properties listed in, or formally determined by the Keeper to be eligible for listing in, the National Register of Historic Places are automatically listed in the State Register. In most cases, completion of the Section 106 process for a Federal-aid highway project will satisfy the requirements of the Chapter 254 process. Additional details about the Chapter 254 process should be discussed with the MassHighway Environmental Section.

**LIST OF ABBREVIATIONS**

<b>ACEC</b>	<i>Area of Critical Environmental Concern</i>
<b>ACOE</b>	<i>U.S. Army Corps of Engineers</i>
<b>ANRAD</b>	<i>Abbreviated Notice of Resource Area Determination</i>
<b>BLSF</b>	<i>Bordering Land Subject to Flooding</i>
<b>BVW</b>	<i>Bordering Vegetated Wetland</i>
<b>CE</b>	<i>Categorical Exclusion</i>
<b>CH 91</b>	<i>Chapter 91 Waterways License or Permit</i>
<b>DEP</b>	<i>Massachusetts Department of Environmental Protection</i>
<b>DOA</b>	<i>Determination of Applicability</i>
<b>EA</b>	<i>Environmental Assessment</i>
<b>EIR</b>	<i>Environmental Impact Report Prepared Under MEPA</i>
<b>EIS</b>	<i>Environmental Impact Statement Prepared Under NEPA</i>
<b>ENF</b>	<i>Environmental Notification Form</i>
<b>EOEA</b>	<i>Executive Office of Environmental Affairs</i>
<b>EPA</b>	<i>U.S. Environmental Protection Agency</i>
<b>FA</b>	<i>Federal Aid</i>
<b>FHWA</b>	<i>Federal Highway Administration</i>
<b>FONSI</b>	<i>Finding of No Significant Impact</i>
<b>ILSF</b>	<i>Isolated Land Subject to Flooding</i>
<b>JP</b>	<i>Joint Processing Meeting (ACOE, EPA, National Marine Fisheries, MCZM, U.S. Fish &amp; Wildlife)</i>
<b>LUW</b>	<i>Land Under Water</i>
<b>MA SHPO</b>	<i>Massachusetts Historic Preservation Officer</i>
<b>MCZM</b>	<i>Massachusetts Coastal Zone Management</i>
<b>MEPA</b>	<i>Massachusetts Environmental Policy Act</i>
<b>MGL</b>	<i>Massachusetts General Law</i>
<b>MHC</b>	<i>Massachusetts Historic Commission</i>
<b>MOA</b>	<i>Memorandum of Agreement</i>
<b>NEPA</b>	<i>National Environmental Policy Act</i>
<b>NFA</b>	<i>Non Federal Aid</i>
<b>NOI</b>	<i>Notice of Intent</i>
<b>NR</b>	<i>National Register</i>
<b>OOC</b>	<i>Order of Conditions</i>
<b>ORAD</b>	<i>Order of Resource Area Determination</i>
<b>PGP</b>	<i>Programmatic General Permit</i>
<b>RDA</b>	<i>Request for Determination of Applicability</i>
<b>RFA</b>	<i>Riverfront Area</i>
<b>ROD</b>	<i>Record of Decision</i>
<b>SOOC</b>	<i>Superceding Order of Conditions</i>
<b>STURAA</b>	<i>Surface Transportation &amp; Uniform Relocation Assistance Act of 1987</i>
<b>SWPPP</b>	<i>Storm Water Pollution Prevention Plan</i>
<b>USCG</b>	<i>United States Coast Guard</i>
<b>WPA</b>	<i>Wetlands Protection Act</i>
<b>WQC</b>	<i>Water Quality Certificate</i>
<b>WQC SF</b>	<i>Water Quality Certificate Standard Form</i>

# ENVIRONMENTAL CLEARANCE TIMELINES

<u>FILING/PERMIT APPLICATION</u>	<u>COMMON REGULATORY THRESHOLDS</u>
ANRAD	Required when seeking approval of BVW boundary lines prior to proposing work or designing a project.
CG Permit	<p>Required for work in commercially navigable (includes historic usage) or tidal waterways where there is a change in the hydraulic opening of the bridge.</p> <p>STURAA Approval may be granted to coastal bridge projects with federal funds allocated towards construction where the navigational opening remains unchanged and where vessels 21 feet or greater do not pass under the bridge.</p>
CH 91 License	<p>Bridge projects subject to the Footprint Bridge Exemption are exempt from CH 91.</p> <p>Maintenance projects are exempt from CH 91.</p> <p>CH 91 applies to all waterways including Great Ponds (10 or more acres in size), the Connecticut River, sections of the Westfield River, non-tidal portions of the Merrimack River and any non-tidal river or stream on which public funds have been expended for stream clearance, channel improvement, or any form of flood control or prevention work, either upstream or downstream within the river basin, except for any portion of any such river or stream which is not normally navigable during any season by any vessel including a canoe etc. and work in all filled tidelands except landlocked tidelands and all filled lands lying below the natural high water mark of Great Ponds.</p> <p>Activities requiring a license include any construction, placement, excavation, addition, improvement, replacement, reconstruction, demolition or removal of any fill or structures, not previously authorized.</p>
CH 91 Permit	<p>Activities requiring a permit include beach nourishment and dredging within jurisdictional areas.</p> <p>Lowering the water level of a Great Pond.</p>
ENF	<p>Widening 4 feet or more for a half mile or more.</p> <p>Cutting 5 or more mature living public shade trees (not trees within State Highway Layout) 14" or more in diameter @ breast height.</p> <p>Altering bank or terrain 10 ft or more from the edge of pavement for 1/2 mile or more except for the installation of structures such as sidewalks, drainage systems, etc.</p> <p>Work in an ACEC.</p> <p>Altering 5,000 sf or more of BVW.</p> <p>Eliminating 300 linear feet of stone wall.</p> <p>Provided that a permit is required in accordance w/MGL c 21D, new capacity or expansion in capacity for the storage, recycling, treatment or disposal of hazardous waste.</p> <p>Creation of 5 or more acres of impervious area.</p> <p>Direct alteration of 25 or more acres of land.</p> <p>Conversion of land in active agricultural use to nonagricultural use.</p> <p>Conversion of land held for natural resources purposes in accordance with Article 97.</p> <p>Construction of 300 or more new parking spaces at a single location.</p>
EIR	<p>Constructing a new road 2 or more miles in length.</p> <p>Widening an existing road by 1 or more travel lanes for 2 or more miles.</p> <p>New interchange on a completed limited access highway.</p> <p>Requiring a variance from the WPA.</p> <p>Altering 1 or more acres of Salt Marsh or BVW.</p> <p>Altering 10 or more acres of other wetlands.</p> <p>Altering 50 or more acres of land.</p> <p>Creating 10 or more acres of impervious area.</p>
MCZM Concurrence	Work in water within the coastal zone when at least a PGP II or a Coast Guard Permit is required. Also will require concurrence when MEPA thresholds are triggered.

NOI	Under the WPA, required when proposing direct activity in or impact to resource areas subject to protection, including BVW, LUW, Bank, RFA, BLSF, ILSF, etc.
	The NOI is a 1 page form which the contractor must complete and file with EPA at least 48 hours prior to the start of construction.
NPDES	The National Pollution Discharge and Elimination Systems Program is administered by EPA and requires the filing of an NOI and the preparation of a SWPPP for projects involving construction projects with 1 or more acres of earth disturbance.
PGP I	Under 5,000 s.f. of cumulative impacts to Waters of the U.S.
	Instream work limited to July 1 to October 1.
	Maintenance dredging less than 1,000 c.y. not in a Special Aquatic Site.
	No impacts to Special Aquatic Sites or Essential Fish Habitat.
PGP II	Over 5,000 s.f. but under 1 acre of cumulative impacts to Waters of the U.S.
	Maintenance dredging greater than 1,000 c.y. but less than 25,000 c.y. not in a Special Aquatic Site.
	Work within the confines of a Wild and Scenic River.
	Temporary fill and excavation up to 1 acre in Special Aquatic Sites including salt marsh. Work in Essential Fish Habitat.
Individual ACOE Permit	Over 1 acre of impacts to Waters of the U.S.
	Maintenance dredge over 25,000 c.y. or any amount in a Special Aquatic Site.
	Permanent fill or excavation (any amount) in Special Aquatic Sites such as salt marsh, mudflats, pools and riffles, and vegetated shallows.
Programmatic 4(f)	Programmatic 4(f) Evaluations & Approvals for FHWA Projects that Necessitate the Use of an Historic Bridge. <i>Note: NFA NR Eligible historic bridge projects requiring a CG Permit will need an Individual 4(f) Evaluation and Approval.</i>
RDA	Required when work/activity will occur within 100 feet from the edge of BVW, LUW, Bank etc. or sometimes within Riverfront Area especially 100-200 feet from a perennial stream or river.
SWPPP	As of March 1, 2003, any construction project resulting in earth disturbance of 1 or more acres must file a NOI and a SWPPP concurrently with EPA in accordance with the NPDES requirements. The SWPPP is generally a list of best management practices to be used during construction in order to control erosion and sediment transport.
WQC	If under 5,000 s.f. of cumulative impacts, WQC is considered automatic with the issuance of an OOC.
	Over 5,000 s.f. of cumulative impacts.
	Over 100 c.y. of dredging.
	Any impacts associated with Bridge Projects that are exempt from the WPA.
	Work within an ORW.
	Any work requiring an Individual ACOE permit.
WQC SF	Expedited 42 day DEP review and permit issuance on Footprint Bridge projects may be sought provided certain criteria are met and provided DEP agrees to the expedited review.
Variance from the WPA	Non Limited projects with over 5,000 s.f. of impacts to BVW.
	Direct impacts to salt marsh or work within 100 feet of a salt marsh that will directly impact the salt marsh.

## ENVIRONMENTAL CLEARANCE TIMELINES

<u>LAW/REGULATION</u>	<u>ADMINISTRATIVE AGENCY</u>	<u>FILING</u>	<u>PERMIT/ACTION</u>	<u>AGENCY REVIEW TIME BEFORE ACTION/ISSUING PERMIT UNLESS OTHERWISE NOTED</u>
<b>State</b>				
Wetlands Protection Act (WPA) Wetlands Protection Act (MGL Ch 131 § 40) Wetlands Protection Regulations (310 CMR 10.00)	Local Conservation Commissions	RDA	DOA	30 to 60 days (average)*
		ANRAD	ORAD	30 to 60 days (average)*
		NOI	OOC	30 to 60 days (average)*
	DEP	Appeal	SOOC	6 to 12 months (average)
		Appeal for Variance	SOOC	12 months (average)**
Massachusetts Environmental Policy Act (MEPA) Massachusetts Environmental Policy Act (MGL Ch 30 § 61-62h) MEPA Regulations (301 CMR 11.00)	EOEA/MEPA Unit	ENF	Secretary's Certificate or Scope	30 days from date published in the Monitor
		Draft & Final EIR	Secretary's Certificate	2 to 3 years (minimum)^
Public Waterfront Act (Chapter 91) Public Waterfront Act (MGL Ch 91) Waterways Regulations (310 CMR 9.00)	DEP	Waterways License Application	Waterways License	4 to 9 months (average)
		Waterways Permit Application	Waterways Permit	3 to 4 months (average)
<b>Federal</b>				
National Environmental Policy Act (NEPA) NEPA of 1969, as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982) NEPA Regulations (40 CFR 1500-1508), TA 6640.8	FHWA	CE	Concurrence	2-4 weeks (average)
		EA	FONSI	3-6 years (average)
		EIS	ROD	3-6 years (average)
Army Corps of Engineers Permitting (404 Permit) Section 404 of the Federal Clean Water Act (33 U.S.C. 1251 et seq.) Section 10 of the Rivers & Harbors Act of 1899 (33 U.S.C. 401, 403) Applies to Non Bridge Structures in Navigable Waters.	ACOE/JP Meeting	Project Impact Documentation	PGP I (non-reporting)	1 day to 1 month (average)
		Letter to ACOE & Project Documentation	PGP II (Screened at JP Meeting)	2 months (average)
		Individual Permit Application	Individual Permit	9 to 12 months (average)
US Coast Guard Coast Guard Bridge Permit (1. 33 U.S.C. 401, 491 et seq. 511 et seq., 525 et seq., and 535, and Acts of Congress authorizing the construction of bridges, including international bridges) Various Memoranda of Understanding & Guidance Documentation	USCG	Project Impact Documentation	Letter of Permission	30 days (average)
	USCG	Bridge Permit Application	Bridge Permit	9 to 12 months (average)
	FHWA	STURAA Approval Request	STURAA Approval	30 days (average)

**NOTE 1: Add 2 to 3 months to all the above timeframes to account for internal review and preparation.**

**NOTE 2: All above timeframes can be extended by the permitting/review agencies if additional information is requested.**

\* Add 30 to 60 days if work will occur within an Estimated Habitat of Rare Wildlife.

\*\* The determination resulting from appeal would be a "final decision of the Commissioner."

^ This time period is from the time of filing the Draft, to the issuance of the Secretary Certificate on the Final, depending on the extent of comments received on the Draft and Final documents and the amount of time necessary to address the comments.

## ENVIRONMENTAL CLEARANCE TIMELINES

<u>LAW/REGULATION</u>	<u>ADMINISTRATIVE AGENCY</u>	<u>FILING</u>	<u>PERMIT/ACTION</u>	<u>AGENCY REVIEW TIME BEFORE ACTION/ISSUING PERMIT UNLESS OTHERWISE NOTED</u>
Section 4(f) Approval Section 4(f) (49 USC 303 ) Section 4(f) 23 CFR ch 1 § 771.135 Various Memoranda of Understanding	FHWA	Programmatic 4(f) Documentation	Programmatic 4(f) Approval	30 days (average)
	Lead Federal Agency	Individual 4(f) Documentation	Individual 4(f) Approval	4 to 6 months (average)
National Pollutant Discharge Elimination System Water Pollution Control Act Amendments of 1972 (The Clean Water Act) Title 40 of the CFR at Part 122, 64 CFR 68722	EPA	NOI & SWPPP <sup>%</sup>	Construction Permit	Contractor to File 48 Hours Prior to Construction
<b>Federal &amp; State</b>				
Water Quality Certification (WQC) Federal Clean Water Act (33 U.S.C 1251 <i>et seq.</i> ) Massachusetts Clean Waters Act (MGL ch 21 §§ 26-53) 401 Water Quality Certification (314 CMR 9.00) Massachusetts Surface Water Quality Standards (314 CMR 4.00)	DEP	Individual WQC Application for Major or Minor Projects	WQC	120 or 150 days (minimum)
		WQC SF for Expedited Review	WQC	42 days
		NOI & Under 5,000 s.f. of impact (No work in ORW, etc.)	Automatic w/OOC	See WPA
Coastal Zone Consistency Review ~ Federal Coastal Zone Management Act 16 (U.S.C. 1452, Sec. 303 (1) and (2)) Massachusetts Office of Coastal Zone Management (MGL ch 21A, § 4A) Coastal Zone Management Program Federal Consistency Review Procedures (301 CMR 21.00)	MCZM	Through ENF or EIR Processes	Concurrence Determination	See MEPA Review Times
		Through ACOE PGP I	Automatic Concurrence with MCZM Policies	Same as PGP I Timeline
		Through ACOE PGP II	May Need Individual Concurrence/Depends on Project Impacts and JP Meeting	Same as PGP II Timeline
		Individual Concurrence Letter	Concurrence Determination	Up to 180 Days

**NOTE 1: Add 2 to 3 months to all the above timeframes to account for internal review and preparation.**

**NOTE 2: All above timeframes can be extended by the permitting/review agencies if additional information is requested.**

~ MCZM thresholds are the same as MEPA, ACOE and CG thresholds. MCZM reviews projects during the MEPA, ACOE, and CG permitting processes and determines if the project is consistent with the Massachusetts State Coastal Policies. Review times are dependent on the issuance of state permits. MCZM can only issue concurrence after all state permits have been issued.

<sup>%</sup> Construction Contractor is Responsible for Preparing & Filing Documents and Obtaining this Permit for Projects

## ENVIRONMENTAL CLEARANCE TIMELINES

<u>LAW/REGULATION</u>	<u>PROPONENT</u>	<u>RESOURCE AGENCY</u>	<u>PERMIT/ACTION</u>	<u>AGENCY REVIEW TIME BEFORE ACTION/ISSUING PERMIT UNLESS OTHERWISE NOTED</u>
<i>Cultural Resources Review</i>  <i>Federal Section 106 Review: National Historic Preservation Act of 1966, as amended (16 USC 470) (36 CFR Part 800)</i>	FHWA	MA SHPO	No Historic Properties Affected	N/A#
			No Historic Properties Adversely Affected	21 days ##
			Historic Properties Adversely Affected	90 days ###
<i>Federal Appendix C Review: 33 CFR 325 Appendix C</i>	ACOE	MA SHPO	No Historic Properties Affected	30 days
			No Historic Properties Adversely Affected	45 days ##
			Historic Properties Adversely Affected	90 days ###
State Chapter 254 Review: M.G.L. ch 9, §§, 26-27c, as amended by St. 1988, ch 254 (950 CMR 71)	MassHighway	MHC	No Historic Properties Affected	30 days
			No Historic Properties Adversely Affected	30 days
			Historic Properties Adversely Affected	30 days

**NOTE 1: Add 2 to 3 months to all the above timeframes to account for internal review and preparation.**

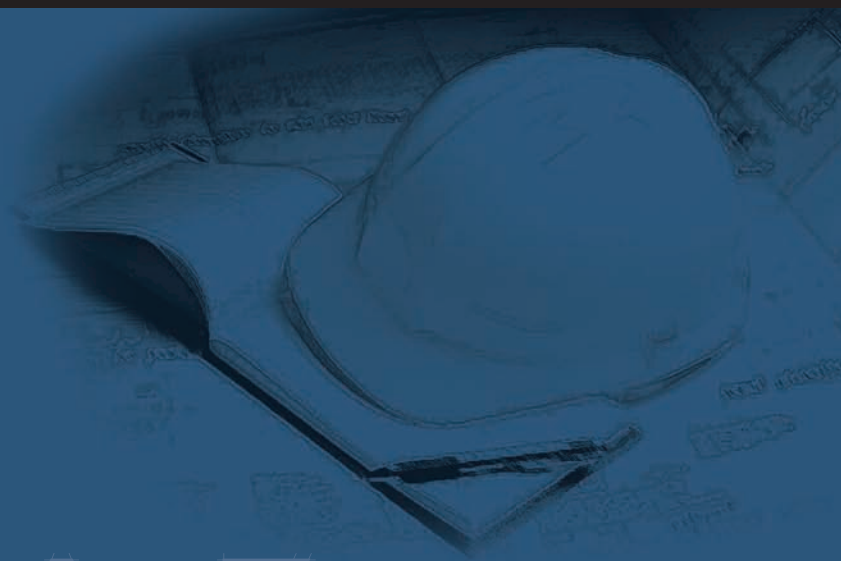
**NOTE 2: All above timeframes can be extended by the permitting/review agencies if additional information is requested.**

# FHWA's 2004 Section 106 Programmatic Agreement authorizes MassHighway to review and clear projects not affecting historic properties in-house, with no resource agency review.

## Assumes documentation of consultation with local historical commission has been included in effect finding package and 30 day MA SHPO review period.

### Assumes documentation of consultation with local historical commission has been included in effect finding package. Assumes 30 day MA SHPO review period; additional time to consult with interested parties; FHWA/ACOE review and processing of documentation; and ratification of MOA amongst relevant parties.





2-A-7

## Environmental Requirements for 25 Percent Design



## Environmental Requirements for 25 Percent Design

This Appendix contains information concerning environmental elements of the project to be included with the 25 Percent Design Submission. Inclusion of these data early in the process is intended to assist in the identification of project impacts and expedite environmental clearances. Also included is a 25% Design Submission Checklist. The designer should also consult MassHighway's website for additional useful information ([www.mass.gov/mhd/environ/publications](http://www.mass.gov/mhd/environ/publications).)

### *Cultural Resources*

- Show all bridges and culverts within or adjacent to the project limits and label all those having MassHighway BDEPT numbers.
- Provide photographs of all known historically significant buildings/structures within or adjacent to the project limits, show their location and label all those having numbered street addresses.
- Show the location of historic district boundaries.
- Label all historical/locally significant monuments and markers and, if possible, show their future location if they are proposed to be moved.
- Show a detail of the proposed type of street lighting.
- Label and show preliminary tops and bottoms of slopes and limits of all proposed takings and easements.
- Label all preliminary wall locations.
- Identify potential landscaping enhancement opportunities.
- Show all proposed trees to be removed that have a 14" or greater diameter at breast height (DBH).
- Provide copies of all correspondence with the local historic commission.

*Hazardous Materials*

- Identify locations of known sources of hazardous waste and hazardous material releases within the project limits (with appropriate tracking numbers).

*Wetland and Water Resources*

- Show the location of all existing drainage structures and existing and proposed drainage discharge locations.
- Show the location of all wetland resource areas within 100 feet of the project limits (e.g., bordering and isolated vegetated wetland areas and land under water) including the ordinary high water (i.e., one-year flood) of waterways and water bodies.
- Show the location of potential wetland replacement areas.
- Show on a separate locus any storm water "critical areas" as defined in the DEP Stormwater Standards (cold water fisheries, Zone IIs, public swimming beaches, shellfish growing areas, and drinking water reservoir watershed).
- Show on a separate locus any Federal Emergency Management Administration (FEMA) floodplain.
- Show on a separate locus any Estimated Habitat for Wildlife or Area of Critical Environmental Concern (ACEC).
- Provide photographs in digital format of all bridge replacement/rehabilitation projects that include work in water or wetlands. Photographs should clearly show riverbanks of all four quadrants of the bridge and include any proposed wetland replication or flood compensation storage areas. All submissions for roadway reconstruction projects should include photos of all cross culverts where work is proposed.
- If a water body can be used for boating/canoeing, consider maintaining or increasing the clearance under bridges. Any related information should be clearly identified on the plans.

*Section 4(f) Properties*

- Show and label the location of all publicly owned parks, recreational areas, wildlife and waterfowl refuges and historic properties/sites.

### Information Sources

The following references, databases, and information sources may be helpful to the designer during the preparation of 25 Percent plans:

#### *Project History*

- Local Planning/Public Works/Economic Development Departments (Location/Feasibility Studies)
- Regional Planning Agency (Corridor Planning Studies)
- Major Environmental Documents (EA, EIR/EIS, 4(f) Documentation)
- Design Reports
- Bridge Type Studies

#### *Hazardous Materials Site Screening (40 CFR, 310 CMR, sec. 30)*

- Massachusetts Geographic Information System (available from MA GIS - <http://www.mass.gov/mgis/massgis.htm>) for mapping and a data base of certain hazardous material sites
- Federal: Comprehensive Environmental Recovery Compensation Liability Act (CERCLA) List (Federal Superfund Site List)
- State: Department of Environmental Protection (DEP) Bureau of Waste Site Clean-up (21E) — also known as the Massachusetts Oil and Hazardous Materials Release Prevention and Response Act (MA Superfund)
- Local: Fire Department/Fire Prevention Office, Board of Health, for known underground tanks and/or spills

#### *Cultural Resources (Section 106) of the National Historic Preservation Act of 1966 as amended (36 CFR, Part 800) and M.G.L. Ch. 9 ss. 26-27C as amended by Ch. 254 of the Acts of 1988 (950 CMR 71)*

- Local Historical Commissions
- State/National Register of Historic Places (available on MA GIS)
- The Inventory of Historical and Archaeological Assets of the Commonwealth (available at Massachusetts Historical Commission (MHC))
- Corridor Planning Studies

- MA GIS contains mapping and a data base of certain cultural resources
- Tribal Historic Preservation Officer (consult with MassHighway Cultural Resource Unit)

*Wetlands and Water Resources*

- FEMA Maps
- MA Surface Water Quality Standards (Outstanding Water Resources (ORW))

*Rare and Endangered Species and Habitat*

- MA Division of Fisheries & Wildlife (MA National Heritage Program)
- MA Natural Heritage Atlas
- MA GIS contains mapping and a data base of priority habitats of rare species and estimated habitats of rare wildlife

*National Environmental Policy Act and Massachusetts Environmental Policy Act (NEPA/MEPA)*

- Area of Critical Environmental Concern (ACEC): MA GIS, Executive Office of Environmental Affairs (EOEA) (MEPA Unit)

*Section 4(f) Properties (49 USC Section 303) Publicly Owned Parks, Recreational Areas, Waterfowl Refuges, Historic Sites*

- Department of Conservation and Recreation (DCR)
- Local planning department, parks department, public works department, historical commission
- MA Division of Fisheries & Wildlife
- Division of Conservation Services at EOEA
- MA GIS contains mapping and a data base of certain publicly owned properties.

**25% DESIGN SUBMISSION CHECKLIST**  
**EARLY ENVIRONMENTAL COORDINATION FOR DESIGN PROJECTS**  
**ENGINEERING DIRECTIVE E-02-005 DATED 12/16/02**

The Designer should complete this form and submit it with backup information and explanations of how each item has been addressed as a part of the 25% Design Submission. Example Coordination Letters are available on the Environmental Page of the MassHighway Website under Documents – Environmental Publications.

<i>Community Concerns</i>		Addressed
1	Coordinate with local boards, commissions and officials to identify specific issues or concerns. Attach all written correspondence.	
<i>Cultural Resources</i>		
2	Send a letter to the Local Historical Commission (LHC) with a scope & locus, seeking comments. XC (with scope & locus) the State Historic Preservation Officer (SHPO) and MHD's Cultural Resources Unit (CRU).	
3	For projects in MHD Districts 1 or 5: Send a letter to the appropriate Tribal Historic Preservation Officer (THPO) – the Stockbridge-Munsee THPO for District 1, the Wampanoag THPO for District 5 – with a scope & locus, seeking comments. XC the SHPO and MHD's CRU. No THPO letters are required for projects in Districts 2, 3, or 4.	
4	On the plans - show property lines, plus footprints and street addresses of all buildings adjacent to the project.	
5	On the plans - show all bridges and culverts and label with MHD BDEPT # (if structure has one). Label the waterway, RR line, street or other feature intersected by the bridge/culvert.	
6	On the plans – show and label the existing and proposed edge of roadway.	
7	On the plans – show and label all existing and proposed guardrail.	
8	On the plans – show and label all slope limits, proposed easements, and proposed takings.	
9	On the plans – show and label all walls and fences.	
10	On the plans – show and label all trees 14" or more at breast height proposed for removal.	
11	On the plans – show and label all roadside monuments, historical markers, highway bounds, etc., and show future locations if any are proposed to be moved.	
12	On the plans – show and label all publicly owned parks, recreational areas, and wildlife refuges (potential 4[f]).	
13	On the plans – show and label any proposed landscape improvements.	
14	Provide details, cuts, etc., of any proposed ornamental elements, such as street lighting.	
15	Provide copies of any written comments regarding cultural resources received by the municipality or its consultant.	
<i>Hazardous Materials</i>		
16	Identify locations of known sources of hazardous waste and hazardous material releases, provide written documentation of the findings and identify sources consulted.	
17	Identify sources of construction demolition materials requiring special handling and disposal (i.e., treated timber, ACM, lead based paint, mercury switches, etc.), provide written documentation of the findings and identify sources consulted.	
<i>Wetland and Water Resources</i>		
18	On the plans, show the location of all existing and proposed drainage structures and discharge points.	
19	On the plans, show all wetland boundaries within 100 ft of the project limits, including bordering and isolated vegetated wetlands, land under water, and ordinary high water (i.e., 1-yr flood).	
20	On the plans, show the location of potential wetland replacement areas.	
21	On a separate locus, show limits of stormwater "critical areas" in relationship to the project limits.	
22	On a separate locus, show the limits of any FEMA floodplains or floodways in relationship to the project limits.	
23	On a separate locus, show the limits of Priority and Estimated Endangered Species Habitat and Areas of Critical Environmental Concern (ACEC) in relationship to the project limits.	
24	Submit coordination letters with a scope and locus to the Mass Division of Fisheries & Wildlife, Mass Natural Heritage & Endangered Species Program and U.S. Fish and Wildlife and, where applicable, the Mass Division of Marine Fisheries. Attach all written correspondence.	
25	Provide photographs of any cross culverts where work is proposed.	
26	If a culvert has the potential to be a fish passage, make necessary accommodations (e.g. low flow channel, burying culvert bottom at streambed grade).	
27	Provide photographs of proposed wetland impact areas and proposed replication areas or flood compensation storage areas.	
<i>Items Needed Specifically for Bridge Rehab/Replacement Projects with Work in Water or Wetlands</i>		
28	Provide photographs of riverbanks in all 4 quadrants.	
29	Submit a Navigability Survey to the Municipal Harbor Master where work will occur on bridges over Coast Guard regulated navigable waterways. Navigability Survey can be found on the MassHighway Website. Include completed survey. Also submit a completed US Coast Guard Public Notice Checklist.	
30	Identify any Army Corps of Engineers (ACOE) Special Aquatic Sites (e.g. Salt Marsh, Tidal Flat) and/or Essential Fish Habitat within the project limits. Note: Impacts to Special Aquatic Sites require Individual 404 ACOE Permitting.	
31	Where work will occur within or adjacent to a Wild and Scenic River, submit a letter to the National Parks Service with a scope and locus to initiate early coordination. Attach all written correspondence.	

Glossary: **FEMA** – Federal Emergency Management Agency  
**Stormwater "critical areas"** – Cold water fisheries, Zone IIs, public swimming beaches, shellfish growing areas, drinking water reservoir watersheds.





10 Park Plaza, Rm. 4260 • Boston, Massachusetts 02116 • (617) 973-7484 • FAX (617) 973-8879

## USCG PERMIT APPLICATION REVIEW CHECKLIST

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**TO:**  
**FROM:**  
**RE:**  
**FILE #:**

---

Permit Application Type:  
Application Received:  
Deficiency Review Date:

The following is needed prior to the review and filing of the permit application for the above-mentioned project. Also, attached are sample USCG application plan sheets for your use.

### Application & Narrative

- Applicant
- Consultant
- Project Information
- Authority Information
- International Bridges
- Proposed Clearances and Elevations
- Existing Bridge Structure, clearances and Elevations at the Bridge Site
- Removal of a Bridge
- Construction Activity
- Alternatives to the Proposed Project
- Identify any Public Parks, Recreation Areas, Natural Habitats, Historic or Cultural Sites Located Within One-Half Mile of Project Site
- Section 4(f)
- Coastal Zone Consistency Certification
- Wetlands
- Floodplain
- Water Quality Certificate (WQC)



## USCG PERMIT APPLICATION REVIEW CHECKLIST

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- Endangered Species
- Wild and Scenic River
- Prime or Unique Farmlands
- Statewide Implementation Plan (SIP)
- Noise Levels
- Displacement of Residences or Businesses
- State and Local Authorizations
- Other Federal Agency Approvals
- Essential Fish Habitat Assessment
- Fill Above and Below Mean High Water
- Names and Addresses of Adjacent Property Owners
- Underlying Studies, Reports, and Other Information
- Construction Sequence – Anticipated - In the sequence, include when the sedimentation controls, cofferdams, method of dewatering, and etc. will be implemented.
- Forward the Response letter from Mass Natural Heritage and endangered Species Program.
- Forward an electronic copy of the WQC application and project narrative with revisions. Email – [peter.martellucci@state.ma.us](mailto:peter.martellucci@state.ma.us)

### Construction Plans for CG application

#### GENERAL

- Submit one original set of plans on mylar or linen size 8 ½ X 11 inches. Submit fewest number of sheets possible, showing significant structural details. Plans must be of good reproducible quality.
- Each drawing must have simple title, date and number (e.g., sheet 1 of 2, sheet 2 of 2) in lower right hand corner.
- Show graphic scale and north arrow on each individual plan sheet.
- All dimensions and distances must be shown in both English and metric measurement systems.



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## USCG PERMIT APPLICATION REVIEW CHECKLIST

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- State government datum used in plan and elevation views and location of datum. Datum utilized should be the same for all drawings submitted. Provide survey notes or report showing calculations used to derive elevations and identify referenced tidal bench mark.

### VICINITY MAP

- Clearly identify entire work site.
- Show course of river.
- Identify structures crossing waterways within ½ mile of proposed structure.
- Show location of any public park, recreation area, wildlife or waterfowl refuge or any historic site in the vicinity.

### PLAN VIEW

- Show existing shorelines.
- Show ebb and flood in tidal waters and direction of flow in non-tidal rivers. Show unusual current patterns if applicable.
- Show mean high and low waterlines if the proposed activity is in tidal areas. Show ordinary high water line and ordinary low water line if proposed activity is in a lake, river or stream.
- Show an existing bridge, if any is to be replaced, and whether or not it is to be removed.
- If the bridge will have a draw, show the draw in the open and closed positions.
- Show principal dimensions of structure from grade to grade. Show length, width, etc. Show location and dimensions of sidewalks, railings, pipelines, etc.
- Show location of dredging, excavation, fill or rap-rip. Give approximate number of cubic yards and type of material.
- Identify and show location of any fenders, dolphins, piles, cables, etc. existing or to be constructed in the waterway. Identify type of material to be utilized.
- Show limits of maintained navigational channel, if applicable.
- Show axis of channel.
- Show horizontal clearances, normal to the axis of the channel.
- Show water depth at mean low or ordinary low water at various locations in the channel, under, upstream and downstream of the bridge.



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## USCG PERMIT APPLICATION REVIEW CHECKLIST

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### ELEVATION VIEW

- Show mean high and mean low water elevations in tidal areas. Show ordinary high and low water in non-tidal areas.
- Show horizontal clearances normal to the axis of the channel(s).
- Show vertical clearances above mean high or ordinary high water. Vertical clearances should be shown at waterward face of each pier and at center of navigational channel.
- Show proposed and existing contour of waterway bottom.
- Show 100 year flood height and flood of record.

### SECTION VIEW

- Include location of sidewalks, fishing platforms, railings pipelines, fenders, rip-rap, etc.

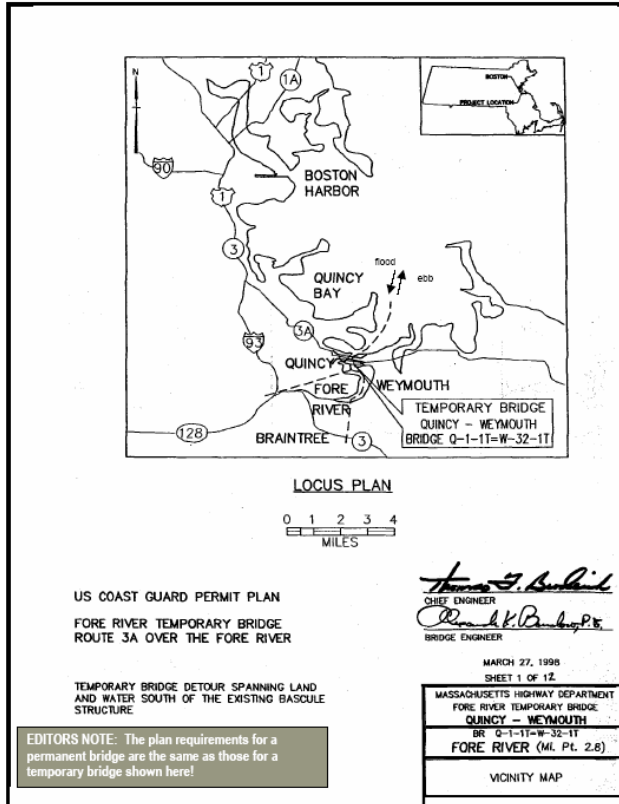
### FENDERS (if applicable)

- Show fenders in plan and elevation views including detail of attachment to pier, countersunk bolts, and relationship to mean high and low waterlines (on elevation view).

Title Blocks -Show the following items in the title blocks located in the lower your drawings:

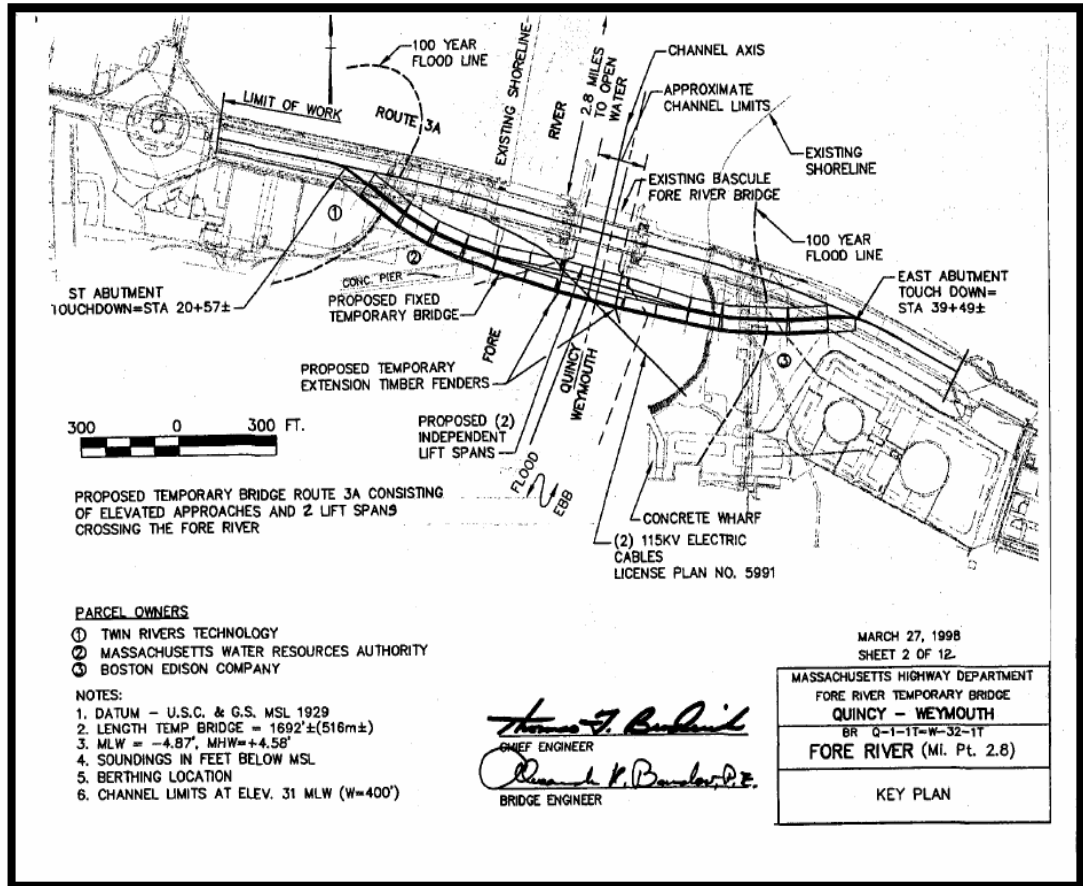
- Applicant/Agent and Owner
- North Arrow
- Waterway name
- Mile point of bridge location, **in miles and metric equivalent**
- City, County and State
- Date of plans
- Sheet number of total number of sheets in set

## USCG PERMIT APPLICATION REVIEW CHECKLIST

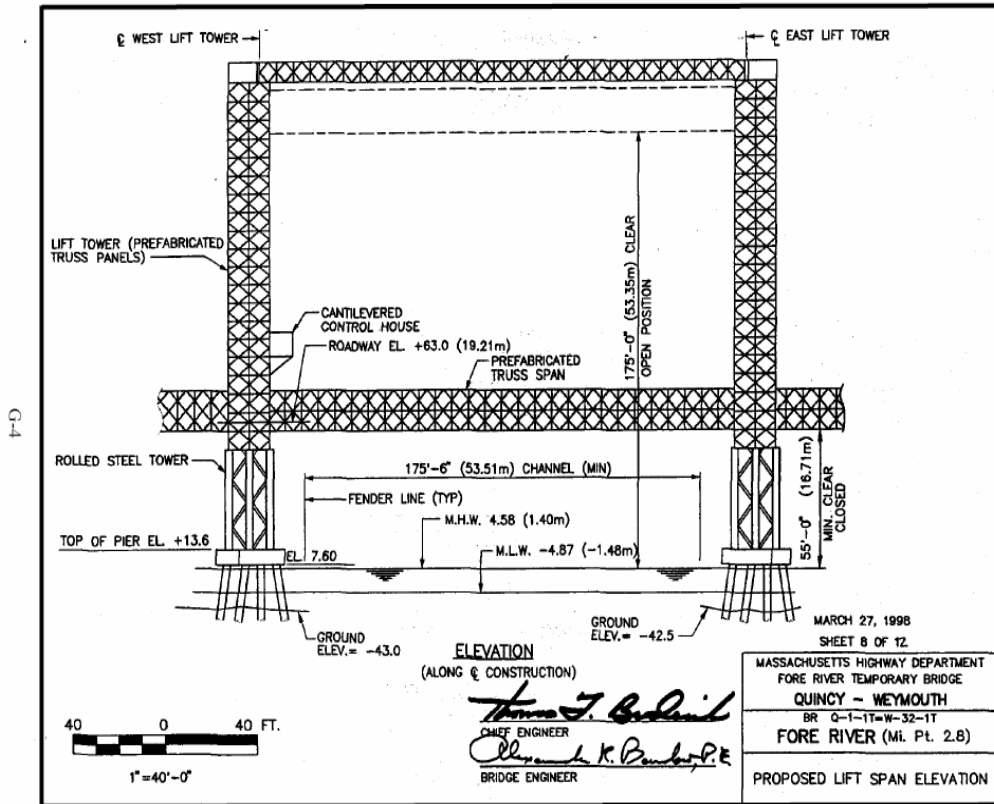


G-2

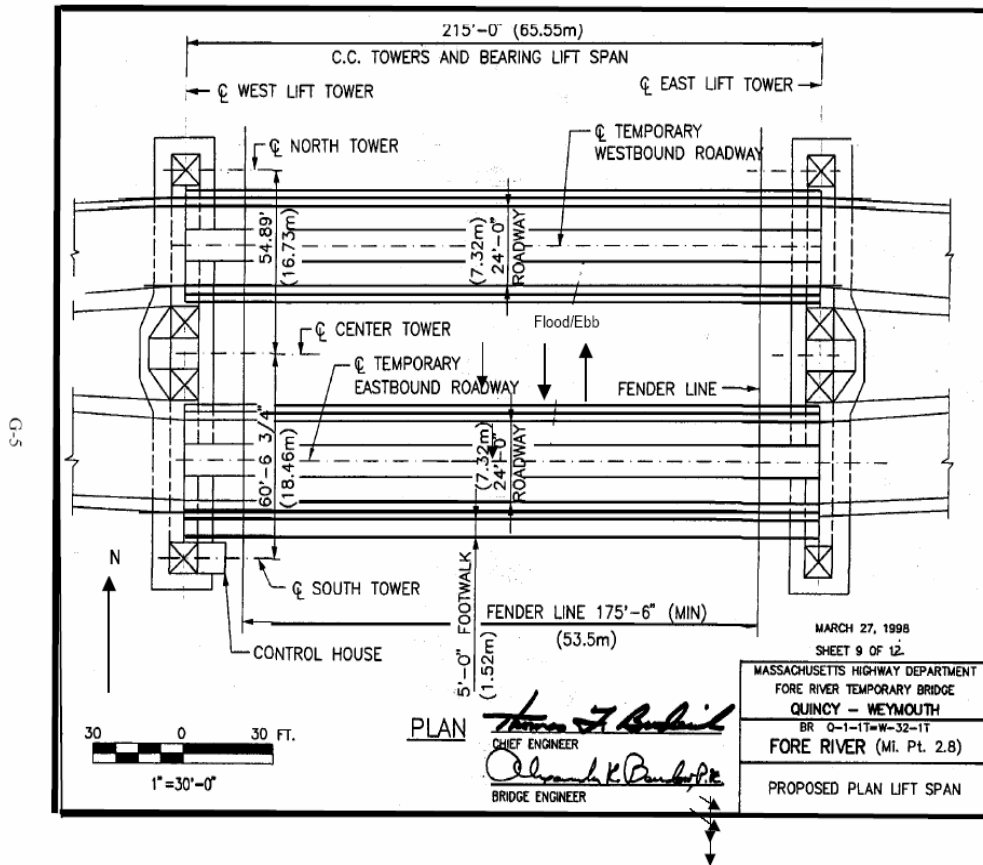
## USCG PERMIT APPLICATION REVIEW CHECKLIST



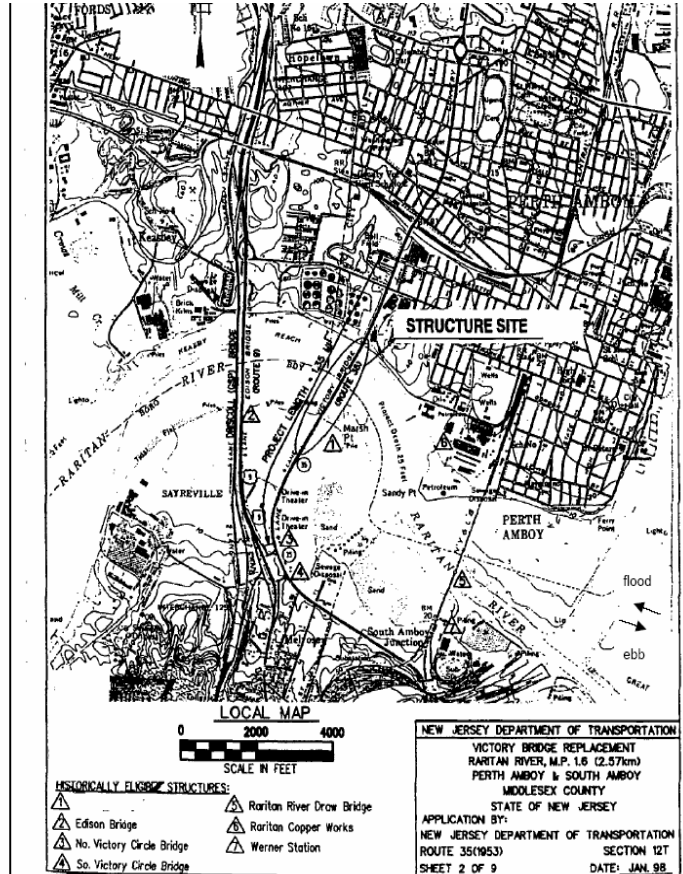
## USCG PERMIT APPLICATION REVIEW CHECKLIST



## USCG PERMIT APPLICATION REVIEW CHECKLIST

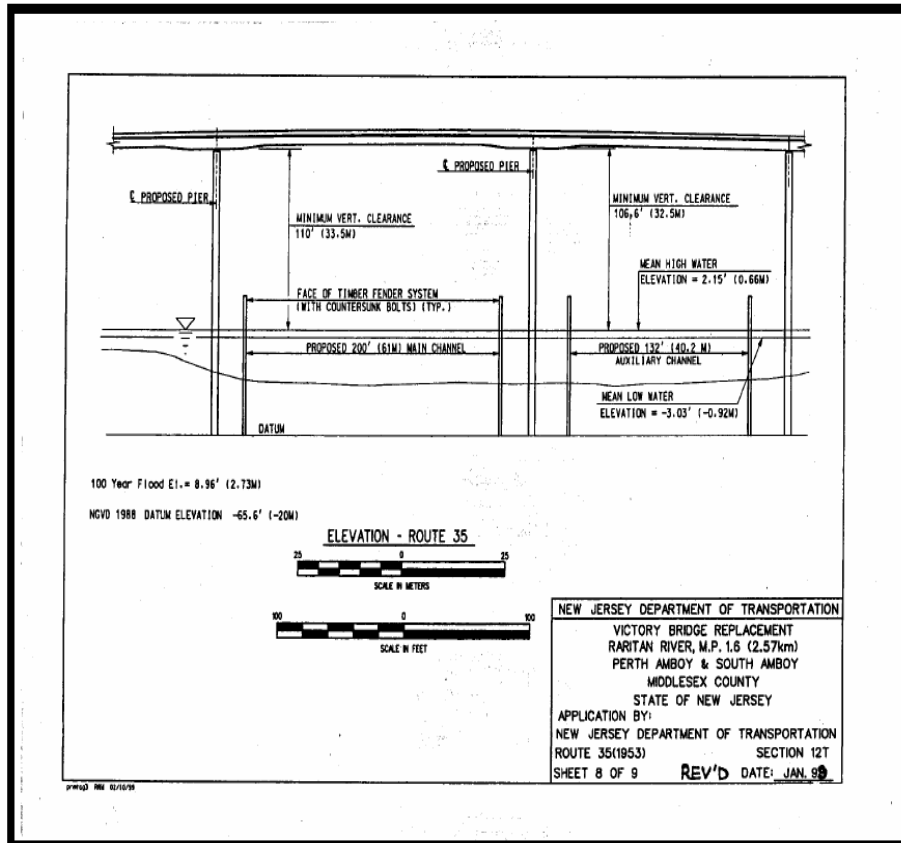


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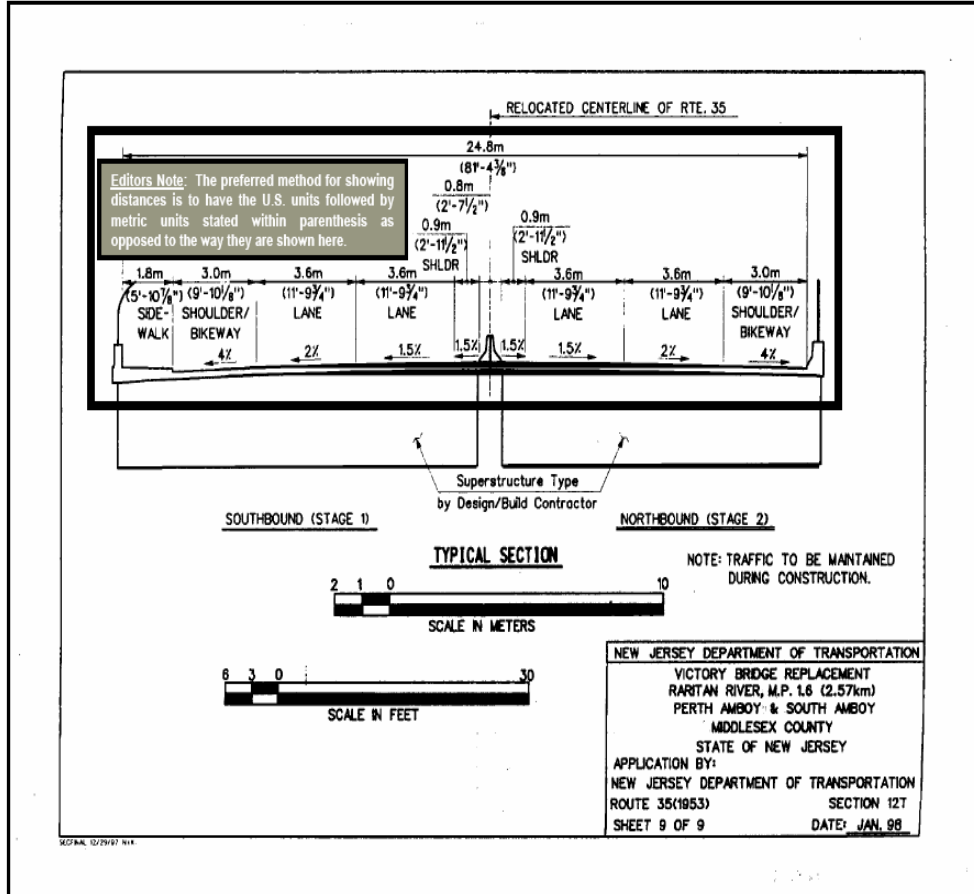


## USCG PERMIT APPLICATION REVIEW CHECKLIST

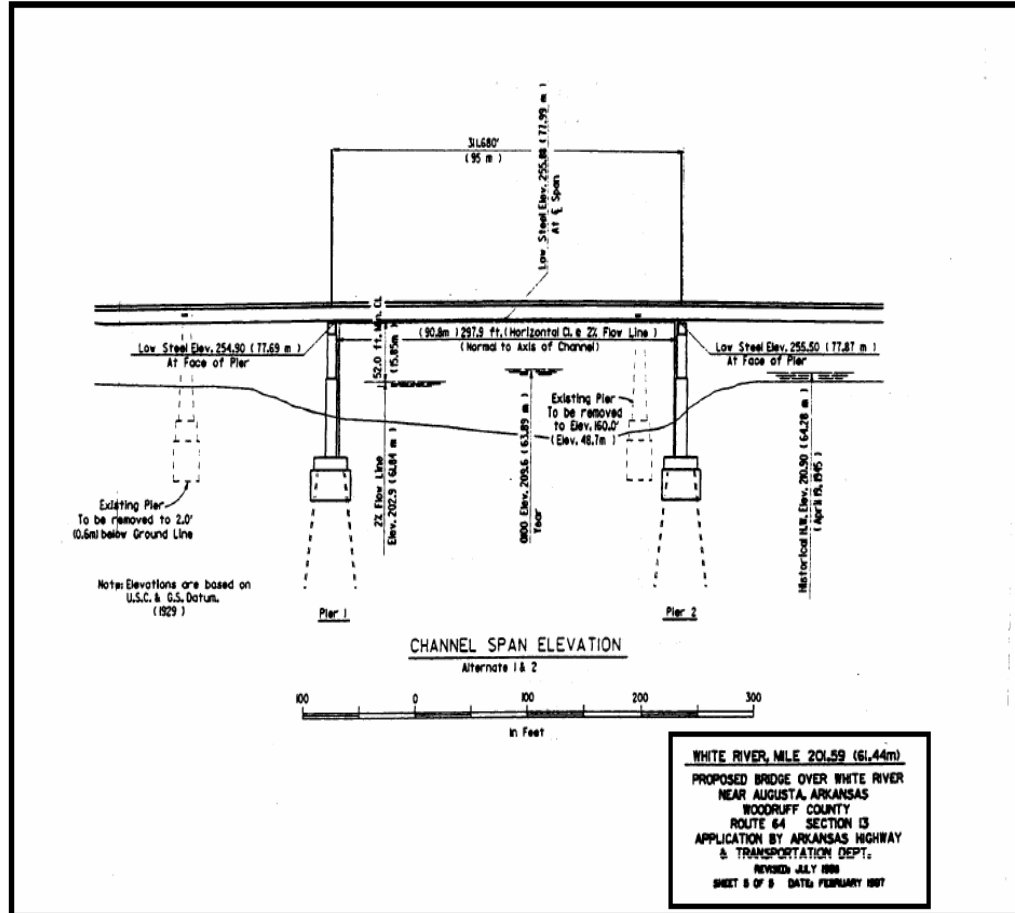
G-7



## USCG PERMIT APPLICATION REVIEW CHECKLIST



## USCG PERMIT APPLICATION REVIEW CHECKLIST





January 2, 2006

RE: **Eastfield/Rehabilitation of Bridge E-15-001, Main St. (Route 250) over Long River**  
(MHD Project Number **123456**)  
Section 106 Review

**Sarah Storey**, Chairperson  
**Eastfield** Historical Commission  
**100 Main Street**  
**Eastfield, MA 05555**

Dear **Ms. Storey**:

The Massachusetts Highway Department (MassHighway) and the **Town of Eastfield** propose to **rehabilitate Bridge E-15-001, which carries Main Street (Route 250) over the Long River in Eastfield**. It is anticipated that this project will be supported in part with federal funds and will require review, therefore, under Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800). The enclosed project information is provided for the **Eastfield** Historical Commission's review in compliance with the regulations governing Section 106.

**The existing bridge is a five-span concrete T-beam structure with an overall length of 120 feet and an overall width of 48 feet. Erected in 1937, the existing superstructure is carried on two 1937 concrete abutments and four earlier masonry piers. The proposed project will rehabilitate the existing substructure and replace the existing concrete T-beams with a new, five-span steel stringer superstructure carrying a 58-foot-wide deck. It is estimated that 180 feet of roadway approach work will be required at each end of the bridge.**

MassHighway and the **Town of Eastfield** request that the **Eastfield** Historical Commission review the enclosed materials at its earliest convenience, and solicit any comments that the Commission wishes to make regarding this project. Written comments should be submitted to: John Blundo, P.E., Chief Engineer, Massachusetts Highway Department, 10 Park Plaza, Boston, MA 02116, Attn: Geoffrey Fulgione.

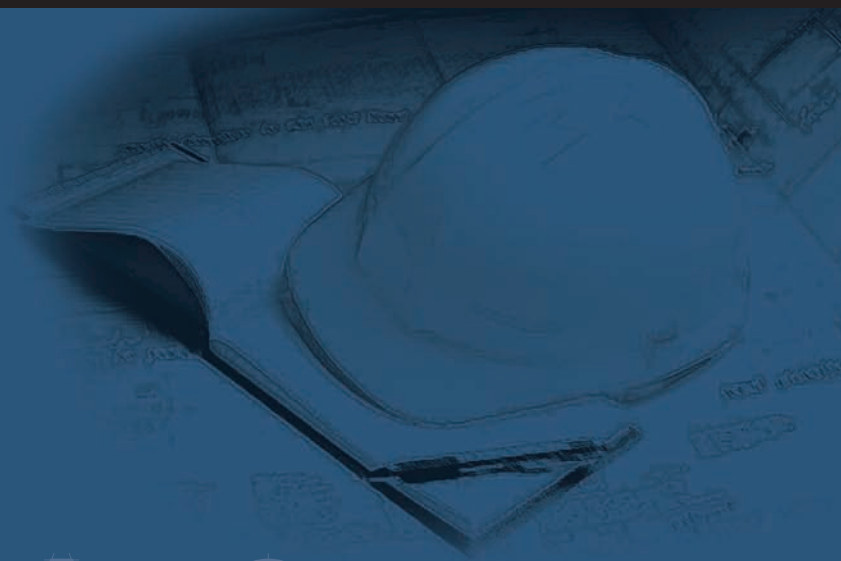
If you have any questions concerning the enclosed project information, please feel free to contact **John Smith** (617 973-0000) of MassHighway's Project Management Section. If you have any questions concerning the Section 106 process, please feel free to contact Geoffrey Fulgione (617 973-8253) of MassHighway's Cultural Resources Unit.

Sincerely,

**William Johnson**  
**ABC Consultants**

atts: scope of work  
locus plan

xcs: B. Simon, DSHPO, with atts.  
G. Fulgione, MassHighway, with atts.



2-A-8

## 25 Percent Checklist



**PURPOSE**

The 25% highway design review is intended to provide MassHighway the opportunity to evaluate the proposed design relative to current design standards, right of way impacts, environmental impacts and other potential community concerns associated with the proposed design.

**GENERAL**

This checklist represents the minimum amount of issues that should be considered when reviewing a 25% highway submittal. The information below is not intended to address all aspects of plan preparation. To the extent practical, any comments relative to plan preparation made at the 25% stage will certainly improve the quality of the 75% submittal.

Any question listed below with a No (N) or Not Applicable (NA) answer will require a written comment.

**PLANS**

- |             | <b>Y</b>                 | <b>N</b>                 | <b>NA</b>                |                                                                                                                                                   |
|-------------|--------------------------|--------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.01</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <b>1.00 Title Sheet</b><br>Is the Title Sheet prepared consistent with Exhibit 18-13?<br>Comment: _____                                           |
| <b>1.02</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the DESIGN DESIGNATION table completed?<br>Comment: _____                                                                                      |
| <b>1.03</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Does the Design Speed correlate with Exhibit 3-7, or the design speed identified in the Design Exception Report, if applicable?<br>Comment: _____ |
| <b>1.04</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are the stations and coordinates for the beginning and end of project shown on the locus map?<br>Comment: _____                                   |
| <b>1.05</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are bridge numbers shown on the locus map?<br>Comment: _____                                                                                      |

- |             | <b>Y</b>                 | <b>N</b>                 | <b>NA</b>                |                                                                                                                                                                     |
|-------------|--------------------------|--------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2.01</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <b>2.00 Typical Sections</b><br>Do the proposed lane and shoulder widths shown on the typical sections properly account for the offset dimension?<br>Comment: _____ |
| <b>2.02</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are the proposed lane and shoulder widths consistent with Section 5.3.3, or the Design Exception Report, if applicable?<br>Comment: _____                           |
| <b>2.03</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the method of banking adequately represented on the Typical Sections in manner consistent with Section 4.2.5?<br>Comment: _____                                  |
| <b>2.04</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the location of the PGL the most appropriate location for the proposed project?<br>Comment: _____                                                                |

- Y N NA 2.00 Typical Sections (Cont.)**
- 2.05    Does the shoulder break away from travel lanes when the width is greater than 4 feet?  
Comment: \_\_\_\_\_
- 2.06    Is the proposed pavement structure appropriate (full depth, reclamation, overlay)?  
Comment: \_\_\_\_\_
- 2.07    Are the pavement structure materials labeled consistent with the latest STANDARD NOMENCLATURE AND LIST OF STANDARD ITEMS?  
Comment: \_\_\_\_\_
- 2.08    Is the proposed wearing surface compatible with the function of the proposed roadway?  
Comment: \_\_\_\_\_
- 2.09    If a narrow (less than 4 feet) box widening is proposed, was Cement Concrete Base Course considered in lieu of full depth pavement?  
Comment: \_\_\_\_\_
- 2.10    Are the guardrail details consistent with the CONSTRUCTION AND TRAFFIC STANDARD DETAILS?  
Comment: \_\_\_\_\_
- 2.11    Section 5.3 provided general guidance on a variety of cross section elements for each area type. Are the proposed Typical Sections consistent with these figures relative to dimensions, slopes and materials?  
Comment: \_\_\_\_\_
- 2.12    If retaining walls are proposed, does the design allow for guardrail to be adequately installed? Guardrail located on top of an existing or proposed stone masonry wall generally requires a moment slab.  
Comment: \_\_\_\_\_

- Y N NA 3.00 Construction Drawings**
- 3.01    Is the existing Base Plan information plotted consistent with Section 18.2.1.2?  
Comment: \_\_\_\_\_
- 3.02    Is the proposed horizontal geometry adequately described? (PC, PT, R, T, DELTA, L)?  
Comment: \_\_\_\_\_
- 3.03    Is the minimum radius consistent with Exhibits 4-8 & 4-9 based on the Design Speed noted on the Title Sheet?  
Comment: \_\_\_\_\_
- 3.04    If compound curves are employed, are they designed in accordance with Section 4.2.1.3?  
Comment: \_\_\_\_\_
- 3.05    Are there any features which negatively impact horizontal sight distance as described in Section 4.2.2?  
Comment: \_\_\_\_\_
- 3.06    Are cross culverts and drainage outlet locations shown on the plans?

Comment: \_\_\_\_\_

**Y N NA 3.00 Construction Drawings (Cont.)**

3.07    Are approximate slope limits shown?

Comment: \_\_\_\_\_

3.08    Based on the cross-sections provided and other available information are the proposed guardrail locations appropriate?

Comment: \_\_\_\_\_

3.09    Have the impacts to existing wetlands and other resource areas been minimized?

Comment: \_\_\_\_\_

3.10    Does the proposed design reasonably accommodate vehicle turning movements based on the turning paths transparencies included in Chapter 6?

Comment: \_\_\_\_\_

3.11    If applicable, are storage and deceleration lengths consistent with Section 6.7.3?

Comment: \_\_\_\_\_

3.12    Is the proposed design consistent with ADA and AAB requirements?

Comment: \_\_\_\_\_

3.13    Are stations at the beginning and end of project noted?

Comment: \_\_\_\_\_

3.14    Is the existing layout information accurately depicted?

Comment: \_\_\_\_\_

3.15    Are the approximate limits of proposed takings and easements shown?

Comment: \_\_\_\_\_

3.16    Is sufficient right of way available to perform the work?

Comment: \_\_\_\_\_

**Y N NA 4.00 Profiles**

4.01    Is the existing base profile information plotted consistent with Section 18.2.1.3? (station equations, cross culverts, bridge structures, sills of structures, high tension lines, bench marks, etc.)

Comment: \_\_\_\_\_

4.02    Are the proposed profiles prepared consistent with Exhibit 18-10?

Comment: \_\_\_\_\_

4.03    Are all aspects of the vertical geometry noted (Stopping Sight Distance, Passing Sight Distance (if applicable), G1, G2, L, K, station and elevation of the PVC, PVT and PVI)?

Comment: \_\_\_\_\_

4.04    Is the stopping sight distance consistent with the Design Speed noted on the Title Sheet and Exhibit 3-8?

Comment: \_\_\_\_\_

4.05    Is the K value consistent with the Design Speed noted on the Title Sheet and Exhibit 4-26 or 4-27?

Comment: \_\_\_\_\_

**Y N NA 4.00 Profiles (Cont.)**

4.06    Is the maximum grade consistent with the Design Speed noted on the Title Sheet and Exhibit 4-21?

Comment: \_\_\_\_\_

4.07    Is the minimum grade consistent with Section 4.3.1? If a closed drainage system is proposed it is recommended that a minimum grade of 0.6% be used.

Comment: \_\_\_\_\_

**Y N NA 5.00 Traffic Signal Plans**

5.01    Are signal heads located in the vision cone specified by the MUTCD?

Comment: \_\_\_\_\_

5.02    Are pavement markings clearly displayed and labeled?

Comment: \_\_\_\_\_

5.03    Does the Phasing Diagram adequately address pedestrian volumes? (pedestrian phases concurrent or actuated)

Comment: \_\_\_\_\_

5.04    If appropriate does the Phasing Diagram address emergency preemption?

Comment: \_\_\_\_\_

**Y N NA 6.00 Traffic Management Plans** (may be 8-1/2 x 11 for simple projects)

6.01    Does the TMP provide sufficient information to determine that the proposed project can be constructed without undue inconvenience to the public?

Comment: \_\_\_\_\_

6.02    For projects with a detour, is the proposed detour reasonable considering available traffic data?

Comment: \_\_\_\_\_

6.03    Does the proposed TMP adequately address bicycle and pedestrian accommodation?

Comment: \_\_\_\_\_

**7.00 Cross Sections** (Although only top line sections in critical areas are required according to the Highway Design Manual, the latest engineering software makes providing all cross sections a simple matter. The top line information is intended to depict the relationship between the proposed roadway and the existing features only. However to the extent that additional information is provided, it is worthwhile to comment relative to consistency with Section 18.2.2.5.)

**Y N NA**

7.01    Is the existing cross-section information plotted consistent with Section 18.2.1.4 and Exhibit 18-5? Are walls, hydrants, poles, trees over 8 inches, sills, wells, septic systems, cross culverts, ledge, layout lines, etc. plotted on the cross-sections?

Comment: \_\_\_\_\_

**Y N NA 7.00 Cross Sections (Cont.)**  
7.02    Does the proposed cross-section provide sufficient area to install guardrail where necessary?

Comment: \_\_\_\_\_

7.03    Have the proposed side and back slopes been appropriately chosen to balance impacts with safety and slope stability?

Comment: \_\_\_\_\_

**SPECIAL CONSIDERATIONS**

**Y N NA 8.00 Projects that include bridge(s)**  
8.01    Is the project subject to MassHighway's Non-NHS Bridge R&R Policy? (According to Engineering Directive P-92-010 in order for these guidelines to apply the roadway must be classified as either a Minor Arterial, Urban Extension of a Minor Arterial, Collector or Local roadway)

Comment: \_\_\_\_\_

8.02    If the project is subject to P-92-010 is the proposed bridge width and approach geometry consistent with the Engineering Directive?

Comment: \_\_\_\_\_

8.03    For bridge projects that are not subject to P-92-010 are the proposed bridge dimensions and vertical clearance consistent with Section 4.3.4 and Exhibit 4-28?

Comment: \_\_\_\_\_

8.04    Do the construction drawings adequately depict the existing bridge structure including subsurface features?

Comment: \_\_\_\_\_

8.05    Do the construction drawings adequately depict the relationship between the existing and the proposed bridge structure?

Comment: \_\_\_\_\_

8.06    Does the TMP provide adequate dimensions such that the relationship between the lane configurations and the beam spacing of both the existing and the proposed structure can be evaluated?

Comment: \_\_\_\_\_

8.07    Do the plans and cross-sections indicate that sufficient space is available to install approach guardrail?

Comment: \_\_\_\_\_

**9.00 Freeways**

The review of Freeway designs, particularly those involving grade separated interchanges does not lend itself well to a checklist type review. The design of a grade separated interchange must be evaluated based on the entire contents of Chapter 6. Listed below are some of the key items that should be reviewed.

**Y N NA**  
9.01    Is the proposed cross-section consistent with Section 5.3.4.1?

Comment: \_\_\_\_\_

**Y N NA 9.00 Freeways (Cont.)**

9.02    Is the median barrier provided consistent Exhibit 5-33?  
Comment: \_\_\_\_\_

9.03    Is the ramp spacing consistent with Exhibit 7-12?  
Comment: \_\_\_\_\_

9.04    Are the deceleration and acceleration lengths consistent with Exhibits 7-13 & 7-14?  
Comment: \_\_\_\_\_

9.05    Are the selected ramp design speeds consistent with Exhibit 7-15?  
Comment: \_\_\_\_\_

9.06    Does the minimum radius meet the criteria in Exhibit 7-24?  
Comment: \_\_\_\_\_

9.07    Are the ramp cross sections consistent with Section 7.7.1.2 and Exhibits 7-22 & 7-23?  
Comment: \_\_\_\_\_

9.08    Is the ramp geometry consistent with the guidelines provided in Exhibit 7-30 (a-k)?  
Comment: \_\_\_\_\_

**Y N NA 10.00 ESTIMATE**

10.01    Is sufficient back up information provided to determine if the preliminary estimate is reasonable?  
Comment: \_\_\_\_\_

10.02    Does the estimate anticipate inflation as result of the project's proposed advertising date?  
Comment: \_\_\_\_\_

10.03    Does the estimate include increase for contingency, contract administration, traffic police, etc.?  
Comment: \_\_\_\_\_

**11.00 FUNCTIONAL DESIGN REPORT**

Refer to guidance from MassHighway's Traffic Section.

**12.00 DESIGN EXCEPTION REPORT**

Refer to Chapter 2 of the Highway Design Manual and the Design Exception Report Checklist.

**Y N NA 13.00 CONCLUSIONS**

13.01    Is the scope of work consistent with the scope approved by PRC?  
Comment: \_\_\_\_\_

13.02    Is the estimated total construction cost consistent with the STIP?

**PROJECT DESCRIPTION:** \_\_\_\_\_

**25% HIGHWAY DESIGN REVIEW CHECKLIST**

**Submission Date** \_\_\_\_\_

Comment: \_\_\_\_\_

**Y N NA 13.00 CONCLUSIONS (Cont.)**

**13.03**    Does the project address known geometric and safety concerns?

Comment: \_\_\_\_\_

**13.04**    Do the plans represent a project that is reasonable from a constructability standpoint with respect to construction techniques and available right of way?

Comment: \_\_\_\_\_

**13.05**    Is a letter of support and all correspondence with local historic commissions included?

Comment: \_\_\_\_\_

**13.06**    Are the plans suitable for conducting a Design Public Hearing?

Comment: \_\_\_\_\_



## HIGHWAY SUBMITTALS

	25%						75%					100%					
	PLANS	X-SECTIONS	ESTIMATE	DER	FDR	PREL. ROW	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	LAYOUT PLANS & INST	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	DETAIL SHEETS	FINAL ROW PLANS
DISTRICT	2	2	2	1	1		2	2	2	2		2	2	2	2	2	
TRAFFIC ENGINEERING	1				1		1		1	1		1		1	1	1	
REGULATIONS UNIT (NOTE 1)							1		1	1		1		1	1	1	
ENVIRONMENTAL (note 2)	1						2		2	2		2		2	2		
RIGHT OF WAY	1					2	1				2	1					2
AAB COORDINATOR	1						1		1	1		1		1	1		
BICYCLE AND PED COORD (Note 3)	1						1		1	1		1		1	1		
LANDSCAPE SECTION	1						1		1	1		1		1	1		
FHWA (Note 4) (half size)	1	1	1	1	1		1	1	1	1		1	1	1	1	1	
CITY/TOWN	1						1					1					
UTILITIES (Note 5)																	
PROJECT MANAGER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1 FEDERAL AID PROJECTS ONLY

2 REFER TO ENGINEERING DIRECTIVE E-02-005 REGARDING REQUIREMENTS FOR EARLY ENVIRONMENTAL COORDINATION

3 75% AND 100% SUBMITTALS TO BICYCLE AND PED. COORD. NOT NECESSARY IF APPROVED AT 25% (UNLESS DESIGN HAS CHANGED)

4 REFER TO FEDERAL OVERSIGHT AGREEMENT DATED 3-8-99

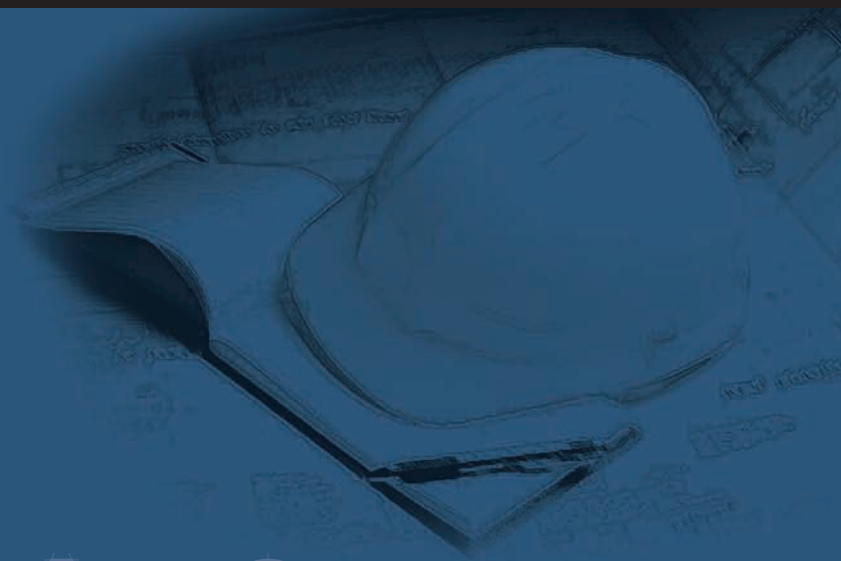
5 See UTILITY TAB Below

## UTILITY SUBMITTALS

UTILITY TYPE	25%						75%					100%					
	PLANS	X-SECTIONS	ESTIMATE	DER	FDR	PREL. ROW	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	LAYOUT PLANS & INST	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	DETAIL SHEETS	FINAL ROW PLANS
Electric	2						2					2					
Telephone	2						2					2					
Gas	2						2					2					
Cable TV	1						1					1					
Fire Alarm	1						1					1					
Sewer*	1						1					1					
Water*	1						1					1					
DPW/City Highway Dept. *	1						1					1					
RCN, AT&T, MCI, Sprint, Qwest or other long distance utility	1						1					1					

\* Some Municipalities may have the same office review these plans. Therefore, each department may not have to receive an individual set. The consultant should determine if each department's review and subsequent plans submittal is applicable.

All utility plan submissions should have a list of the names of the actual utility companies to which these plans are to be forwarded. Utility contact information for many municipalities may be found on MassHighway's webpage - "Doing Business with MassHighway".



2-A-9

## 75 Percent Checklist



**PURPOSE**

The 75% highway design review allows MassHighway to ensure that all comments from the 25% review have been addressed. It is also an opportunity to make certain that the plans and special provisions provide sufficient information to bid and construct the project.

**GENERAL**

This checklist represents the minimum amount of issues that should be considered when reviewing a 75% highway submittal. This checklist does not generally repeat items covered in the 25% Design Review Checklist. The submittal should include: responses to all comments from the 25% review, plans which are 90% complete, cross-sections, special provisions and estimate (including non-participating items).

Any question listed below with a No (N) or Not Applicable (NA) answer will require a written comment.

**RESPONSE TO COMMENTS**

**Y N NA**

**1.01**    Have all comments from the 25% review been addressed?  
Comment: \_\_\_\_\_

**PLANS**

**Y N NA 2.00 Title Sheet**

**2.01**    Is the Title Sheet prepared consistent with Exhibit 18-13?  
Comment: \_\_\_\_\_

**2.02**    Does the index indicate that the plans have been organized in the same order as indicated in Section 18.2.2.6?  
Comment: \_\_\_\_\_

**2.03**    Are all sheets sized in accordance with E-99-004?  
Comment: \_\_\_\_\_

**2.04**    Are the stations and coordinates for the beginning and end of the Project Limits labeled on the project locus?  
Comment: \_\_\_\_\_

**2.05**    Is the latest version of all appropriate documents listed on the right side of the Title Sheet (e.g. (Date) Standard Specifications, Supplemental Specifications (Date), etc.)?  
Comment: \_\_\_\_\_

**Y N NA 3.00 Typical Sections**

**3.01**    Do the typical sections provide sufficient representative sections so that adequate dimensioning and materials information is communicated to the contractor?

Comment: \_\_\_\_\_

**Y N NA 3.00 Typical Sections (Cont.)**

3.02    All proposed materials should be labeled on the Typical Sections. Are the material descriptions identical to the STANDARD NOMENCLATURE AND LIST OF STANDARD ITEMS or the material description in the STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES (Std. Specs.)?

Comment: \_\_\_\_\_

3.03    Is the gravel borrow type specified?

Comment: \_\_\_\_\_

3.04    Was the proposed pavement design developed consistent With Chapter 9 of the Project Development and Design Guidebook?

Comment: \_\_\_\_\_

3.05    Are the pavement thicknesses and materials consistent with the approved pavement design?

Comment: \_\_\_\_\_

**Y N NA 4.00 Construction Drawings**

4.01    Are the symbols and abbreviations used consistent with Exhibits 18-1 & 18-2?

Comment: \_\_\_\_\_

4.02    Are the proposed horizontal geometry (PC, PT, R, T, DELTA, L) and lane and shoulder widths shown on every sheet?

Comment: \_\_\_\_\_

4.03    Are limits of slope work clearly shown throughout the entire project?

Comment: \_\_\_\_\_

4.04    Do the limits of work shown at the back of sidewalks, walls and bridges provide sufficient area for the proposed work to be constructed and to adequately transition to the existing topography?

Comment: \_\_\_\_\_

4.05    Are the limits of proposed takings and easements shown?

Comment: \_\_\_\_\_

4.06    Is sufficient right of way available to perform the work?

Comment: \_\_\_\_\_

4.07    Is the disposition of every existing item located between the slope limits labeled on the construction drawings (e.g. Rem., R&R, R&S, Ret., etc.)?

Comment: \_\_\_\_\_

4.08    Is all work not to be performed by MassHighway's Contractor labeled BY OTHERS?

Comment: \_\_\_\_\_

**Y N NA 4.00 Construction Drawings (Cont.)**

4.09    Is all necessary information to construct the proposed drainage system shown on the drawings? (The words DRAINAGE DETAILS with location reference SEE BELOW or SEE PAGE NO:\_\_\_ should appear at the top of each sheet. Depending on the amount of information depicted on the construction drawings a separate set of drawings may be required. Refer to DRAINAGE AND WATER SUPPLY DETAILS below for additional information)

Comment: \_\_\_\_\_

4.10    Do the plans adequately address water supply details? (The words WATER SUPPLY ALTERATIONS with location reference SEE BELOW or SEE PAGE NO:\_\_\_ should appear at the top of each sheet. Refer to DRAINAGE AND WATER SUPPLY DETAILS below for additional information.)

Comment: \_\_\_\_\_

4.11    Are the proposed guardrail locations consistent with Section 5.6 of THE HIGHWAY DESIGN MANUAL, ENGINEERING DIRECTIVE E-95-008 and E-00-002, THE ROADSIDE DESIGN GUIDE, and THE CONSTRUCTION AND TRAFFIC STANDARD DETAILS? (The words HIGHWAY GUARD should appear at the top of each sheet. The type of guardrail, end treatments and stations should be noted for all proposed guardrail.)

Comment: \_\_\_\_\_

4.12    If plan and profile are separate sheets is the sheet number for the profile noted in the lower right corner of the drawing?

Comment: \_\_\_\_\_

4.13    Are all proposed materials adequately labeled? (e.g. type of curb, sidewalk treatment, driveway material, etc.)

Comment: \_\_\_\_\_

4.14    Is the proposed design consistent with ADA and AAB requirements? (A significant amount of information is necessary to present a design that adequately represents the proposed dimensions and elevations. In most instances, a separate large scale detail will be required)

Comment: \_\_\_\_\_

**Y N NA 5.00 Profiles**

5.01    Are the proposed profiles prepared consistent with Exhibit 18-10?

Comment: \_\_\_\_\_

5.02    Are all aspects of the vertical geometry noted (Stopping Sight Distance, Passing Sight Distance, if applicable, G1, G2, L, K, station and elevation of the PVC, PVT and PVI)?

Comment: \_\_\_\_\_

**Y N NA 6.00 Curb Tie and Grading Plans**

6.01    Does the curb tie information adequately provide station and offset information to PC's, PT's tapers, etc.?

Comment: \_\_\_\_\_

**Y N NA 6.00 Curb Tie and Grading Plans (Cont.)**

**PROJECT DESCRIPTION:** \_\_\_\_\_

**75% HIGHWAY DESIGN REVIEW CHECKLIST**

**Submission Date** \_\_\_\_\_

6.02    Are grades shown every 25 feet, or closer, to note intermediate high or low points?

Comment: \_\_\_\_\_

6.03    Does the curb tie and grading plan provide sufficient information to the contractor to adequately layout the proposed curb and construct a roadway that will not have ponding?

Comment: \_\_\_\_\_

**Y N NA 7.00 Drainage and Water Supply Details**

7.01    Are drainage structures located approximately 300 feet apart on tangents, or closer for intersections?

Comment: \_\_\_\_\_

7.02    Are drainage structures located approximately 200 to 250 feet apart on the inside of superelevated curves?

Comment: \_\_\_\_\_

7.03    Are drainage structures located approximately 250 feet apart on highway grades

Comment: \_\_\_\_\_

7.04    Are drainage structures located at the uphill side of bridges?

Comment: \_\_\_\_\_

7.05    For major highways are six drainage structures used at low points (three each side)?

Comment: \_\_\_\_\_

7.06    For all other roadways are four drainage structures used at low points?

Comment: \_\_\_\_\_

7.07    Are drainage structures proposed prior to superelevation transitions?

Comment: \_\_\_\_\_

7.08    Have catch basin to catch basin connections been avoided?

Comment: \_\_\_\_\_

7.09    Is the drainage trunkline located in the most appropriate location for future maintenance?

Comment: \_\_\_\_\_

7.10    Has every effort been made to limit the amount of structures located in the travel lane?

Comment: \_\_\_\_\_

7.11    Does the location and number of pipes entering manholes allow the walls of the manhole to maintain their structural integrity?

Comment: \_\_\_\_\_

7.12    Is the length, size, direction of flow and type of material noted on each length of pipe? (Invert elevations should only be noted on cross culverts, not on the drainage trunkline)

Comment: \_\_\_\_\_

7.13    Is the disposition of the existing drainage system adequately labeled? (RET, ADJ, R&R, ABON, REM, etc.)

Comment: \_\_\_\_\_

**Y N NA 7.00 Drainage and Water Supply Details (Cont.)**

**PROJECT DESCRIPTION:** \_\_\_\_\_

**75% HIGHWAY DESIGN REVIEW CHECKLIST**

**Submission Date** \_\_\_\_\_

7.14    Do the plans fully address all the impacts that the proposed roadway design may have on the existing water supply system? (Full depth reconstruction, profile changes, roadway widenings, etc. may all influence the water supply alterations required.)

Comment: \_\_\_\_\_

7.15    Are the disposition of all curb stops and service boxes located within the proposed slope limits labeled?

Comment: \_\_\_\_\_

**Y N NA 8.00 Traffic Signal Plans**

8.01    Do plans for signalized intersections include signal equipment locations, sequence and timing chart, phasing diagram, list of major items, pavement markings and signs?

Comment: \_\_\_\_\_

8.02    Are signal heads located in the vision cone specified by the MUTCD?

Comment: \_\_\_\_\_

**Y N NA 9.00 Traffic Management Plans (may be 8-1/2 x 11 for simple projects)**

9.01    Does the TMP provide sufficient information to determine that the proposed project can be constructed without undue inconvenience to the public?

Comment: \_\_\_\_\_

9.02    For projects with a detour, is the proposed detour reasonable considering available traffic data?

Comment: \_\_\_\_\_

9.03    Does the proposed TMP adequately address bicycle and pedestrian accommodation?

Comment: \_\_\_\_\_

9.04    Does the TMP anticipate the proposed changes in grade? Temporary barrier or sheeting may be required, or sufficient area must be available for slopes.

Comment: \_\_\_\_\_

9.05    For bridge projects, does the TMP provide sufficient space to allow for demolition, forming, dowel bar splicing, etc.?

Comment: \_\_\_\_\_

**Y N NA 10.00 Cross Sections**

10.01    Are the cross-sections plotted consistent with Section 18.2.14?

Comment: \_\_\_\_\_

10.02    Is the proposed profile elevation shown on each cross section?

Comment: \_\_\_\_\_

**Y N NA 10.00 Cross Sections (Cont.)**

10.03    Are the edge elevations noted on all sections that are superelevated or located on the transition to a superelevated section?

Comment: \_\_\_\_\_

10.04    Is the PC, R, PT and Rate of Bank noted on each sheet that contains a superelevated or transition cross section?

Comment: \_\_\_\_\_

10.05    Are the pay limits for the appropriate excavation types shown properly? (e.g. ITEM 140., ITEM 141., ITEM 123., ITEM 125. ITEM 121.)

Comment: \_\_\_\_\_

10.06    Does the proposed cross-section provide sufficient area to install guardrail where necessary?

Comment: \_\_\_\_\_

10.07    Do the proposed cross sections relate well to the adjacent properties? (e.g. slope, material treatment, existing trees, walls, etc.)

Comment: \_\_\_\_\_

10.08    Are cross sections provided at all intersecting driveways?

Comment: \_\_\_\_\_

10.09    Does the gravel box adjust to cut and fill ("daylight") cross sections consistent with Chapter 5 and the Typical Sections?

Comment: \_\_\_\_\_

**11.00 SPECIAL PROVISIONS**

Special provisions should only be written when absolutely necessary to address a project specific issue that is not satisfactorily addressed in the STD. SPECS. and SUPPLEMENTAL SPECS., or if the item has an asterisk in the STANDARD NOMENCLATURE. If a special provision is absolutely necessary, particular attention should be paid to the basis of payment and method of measurement.

**Y N NA**

11.01    Is an adequate Scope of Work provided?

Comment: \_\_\_\_\_

11.02    Are all the latest manuals, supplemental manuals and documents listed in the contract?

Comment: \_\_\_\_\_

11.03    If the project requires specific information relative to lane closures and traffic management is the information concisely conveyed as a supplement to Subsection 7.09 Public Safety and Convenience?

Comment: \_\_\_\_\_

11.04    If workhours, other than the standard eight hour shift, are proposed, is (are) the available workshift(s) described as a supplement to Subsection 7.09 Schedule of Operations?

Comment: \_\_\_\_\_

**Y N NA 11.00 SPECIAL PROVISIONS (Cont.)**

11.05    Is a complete list of affected utility companies included as a supplement to Subsection 7.13 Protection and Restoration of Property?

Comment: \_\_\_\_\_

11.06    Do all items contained in the estimate with an asterisk in the STANDARD NOMENCLATURE have a special provision?

Comment: \_\_\_\_\_

11.07    Are all item descriptions and units contained in the special provisions consistent with the estimate (and STANDARD NOMENCLATURE, if applicable)?

Comment: \_\_\_\_\_

11.08    If the plans contain work that requires specific construction techniques not defined in the STD. SPECS., has a special provision been included?

Comment: \_\_\_\_\_

11.09    Do all special provisions include a very specific, unambiguous, method of measurement and basis of payment that will eliminate the potential for disputes during construction?

Comment: \_\_\_\_\_

11.10    For Items labeled R&S, is the location where they are to be stacked clearly identified?

Comment: \_\_\_\_\_

11.11    Have the special provisions been reviewed to ensure that there are no proprietary items specified? If proprietary items are specified, please justify.

Comment: \_\_\_\_\_

**Y N NA 12.00 ESTIMATE**

12.01    Is the methodology used to estimate the project consistent with the STD. SPECS. and the latest SUPPLEMENTAL SPECIFICATIONS?

Comment: \_\_\_\_\_

12.02    Does every item of work shown on the plans have an associated pay item?

Comment: \_\_\_\_\_

12.03    Is there a clear delineation between highway items and bridge items such that all work is included in the estimate and no work is included twice?

Comment: \_\_\_\_\_

12.04    Does the estimate include a payment method for all work associated with the environmental permits?

Comment: \_\_\_\_\_

The following issues should be considered when reviewing contract estimates. The issues listed below are based on analysis of common extra work orders:

**Y N NA 13.00 Section 100**

13.01    Is the estimated quantity for ITEM 101. of significant size to prevent unusually high bid prices? (If not consider eliminating item. Section 101.81 indicates that if item is not in contract work is included in Earth Excavation or Borrow).

Comment: \_\_\_\_\_

**Y N NA 13.00 Section 100 (Cont.)**

13.02    If ITEM 101. is included in the estimate then ITEM 103. and 104. should not be used. The only exception would be in instances where the tree removal is outside the limits of the clearing and grubbing. In this case, the Detail Sheets should describe the station and offset for the trees to be paid for under ITEMS 103. or 104.

Comment: \_\_\_\_\_

13.03    All earthwork volumes shall be calculated using the shrinkage and swell criteria from Exhibit 18-30. The contract quantity will then be calculated using the SUMMARY EARTHWORKS QUANTITY SHEET on page 18-73.

Comment: \_\_\_\_\_

13.04    If ITEM 112. is included in the contract, consider the use of ITEM 119.

Comment: \_\_\_\_\_

13.05    ITEM 120. includes the excavation of a huge variety of materials and should be used whenever possible.

Comment: \_\_\_\_\_

13.06    If ITEM 120.1 is included in the contract do not include ITEM 121 and ITEM 120.

Comment: \_\_\_\_\_

13.07    Considering the boring information, ITEM 121. (unless ITEM 120.1 is used) and 144. may be required.

Comment: \_\_\_\_\_

13.08    ITEM 141.1 should be included in nearly every project that will require excavation.

Comment: \_\_\_\_\_

13.08    ITEM 142. will most likely be required if ITEM 202.2 or ITEM 202.3 is proposed.

Comment: \_\_\_\_\_

13.09    Is ITEM 150.1 appropriate based on the type of construction involved and the boring information?

Comment: \_\_\_\_\_

13.10    Consider ITEM 156. for contracts that include drainage or water supply work.

**14.00 Section 200**

14.01    In areas with a significant amount of existing utilities, consideration should be given to include ITEMS 204. and 238.XX.

Comment: \_\_\_\_\_

14.02    Trunklines 36" (900 mm) or greater require ITEM 203.

Comment: \_\_\_\_\_

14.03    Grade changes of more than 6" (150 mm) require ITEM 220.5.

Comment: \_\_\_\_\_

14.04    The condition of the existing drainage system should be evaluated to determine if ITEMS 221. and 222. should be specified rather than 220. Also 220.2 should be considered.

Comment: \_\_\_\_\_

**Y N NA 15.00 Section 300**

15.01    Contracts that include alterations to a water system will generally require ITEMS 156., 309. and 903.

Comment: \_\_\_\_\_

15.02    Consider ITEMS 357. and 381. to allow for existing boxes that are not adjustable.

Comment: \_\_\_\_\_

15.03    Consider contingency items for service lines.

Comment: \_\_\_\_\_

15.04    Projects involving roadway widening may require ITEM 376.2.

Comment: \_\_\_\_\_

15.05    Will temporary or transitional water service use be required? Will weekend or evening work be required to implement?

Comment: \_\_\_\_\_

**16.00 Section 400**

16.01    ITEM 440. and ITEM 443. should be included in all projects with full depth

Comment: \_\_\_\_\_

16.02    Consider ITEM 463. for projects that include full depth reconstruction.

Comment: \_\_\_\_\_

16.03    ITEM 464. should be estimated at a rate of 1/20 gal/sy (0.20 l/sm).

Comment: \_\_\_\_\_

16.04    ITEM 464.5 should be included in all projects that include paving.

Comment: \_\_\_\_\_

16.05    ITEM 472. should be included in nearly every project requiring paving.

Comment: \_\_\_\_\_

**17.00 Section 500**

17.01    Curbing to be set on radius of 100 ft (30 m) or less shall paid for using the appropriate "curved" curb item.

Comment: \_\_\_\_\_

17.02    Edging to be set on radius of 10 ft (3 m) or less shall paid for using the appropriate "curved" edging item.

Comment: \_\_\_\_\_

**18.00 Section 600**

18.01    Wood blocks must be used on all guardrail installations, see E-00-002.

Comment: \_\_\_\_\_

18.02    Refer to E-95-008 and E-02-001 for the design of impact attenuators.

Comment: \_\_\_\_\_

18.03    Buried ends are measured as units of 37.5 ft (11.46 m)

Comment: \_\_\_\_\_

18.04    Leading and trailing ends at bridges are measured as units of 25 ft (7.64 m).

Comment: \_\_\_\_\_

**Y N NA 18.00 Section 600 (Cont.)**

**PROJECT DESCRIPTION:** \_\_\_\_\_

**75% HIGHWAY DESIGN REVIEW CHECKLIST**

**Submission Date** \_\_\_\_\_

**18.05**    Leading and trailing ends at bridges are thrie beam, therefore if Type SS highway guard is proposed, ITEM 627.6 will be required.

Comment: \_\_\_\_\_

**18.06**    Guardrail constructed to a radius of less than 150 ft (45 m) will paid for under the appropriate curved guardrail item.

Comment: \_\_\_\_\_

**18.07**    The Method of Measurement and Basis of Payment for stone masonry walls has been revised in the Supplemental Specifications. ITEM 685. now includes the cement concrete footing and the coping material. Excavation is still paid for under ITEM 141.

Comment: \_\_\_\_\_

**19.00 Section 700**

**19.01**    All projects shall include ITEM 748. This item should be estimated at 3% of construction costs.

Comment: \_\_\_\_\_

**20.00 Section 800**

**20.01**    Refer to E-02-003 for estimating procedures for ITEM 851.

Comment: \_\_\_\_\_

**20.02**    All guardrail installations require delineators. Refer to Subsection 828.60 for estimating.

Comment: \_\_\_\_\_

**20.03**    ITEM 854.034 and/or 854.036 should be included for temporary pavement markings on proposed top course.

Comment: \_\_\_\_\_

**20.04**    If the TMP requires the removal of pavement markings, include ITEM 854.1 and/or 854.2.

Comment: \_\_\_\_\_

**20.05**    If ITEM 853.2 is specified, will ITEM 853.21 be required?

Comment: \_\_\_\_\_

**20.06**    Will ITEM 856.12 be required?

Comment: \_\_\_\_\_

**21.00 Section 900**

**21.01**    If ITEM 987., 987.1, 987.12 or 987.2 is proposed, refer to E-99-001 for applicability.

Comment: \_\_\_\_\_

**CONCLUSIONS**

**Y N NA**

**22.01**    Have all the comments from the 25% review been satisfactorily addressed?

Comment: \_\_\_\_\_

**22.02**    Is the estimated total construction cost consistent with the TIP?

Comment: \_\_\_\_\_

**22.03**    Has an independent constructability review been performed?

Comment: \_\_\_\_\_

**22.04**    Do the plans represent a project that is reasonable from a constructability standpoint with respect to construction techniques and available right of way?

Comment: \_\_\_\_\_

**22.05**    Does the estimate include all the items of work necessary to complete the project?

Comment: \_\_\_\_\_

**22.06**    Does the estimate appropriately distinguish participating from non-participating items?

Comment: \_\_\_\_\_



## HIGHWAY SUBMITTALS

	25%						75%					100%					
	PLANS	X-SECTIONS	ESTIMATE	DER	FDR	PREL. ROW	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	LAYOUT PLANS & INST	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	DETAIL SHEETS	FINAL ROW PLANS
DISTRICT	2	2	2	1	1		2	2	2	2		2	2	2	2	2	
TRAFFIC ENGINEERING	1				1		1		1	1		1		1	1	1	
REGULATIONS UNIT (NOTE 1)							1		1	1		1		1	1	1	
ENVIRONMENTAL (note 2)	1						2		2	2		2		2	2		
RIGHT OF WAY	1					2	1				2	1					2
AAB COORDINATOR	1						1		1	1		1		1	1		
BICYCLE AND PED COORD (Note 3)	1						1		1	1		1		1	1		
LANDSCAPE SECTION	1						1		1	1		1		1	1		
FHWA (Note 4) (half size)	1	1	1	1	1		1	1	1	1		1	1	1	1	1	
CITY/TOWN	1						1					1					
UTILITIES (Note 5)																	
PROJECT MANAGER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1 FEDERAL AID PROJECTS ONLY

2 REFER TO ENGINEERING DIRECTIVE E-02-005 REGARDING REQUIREMENTS FOR EARLY ENVIRONMENTAL COORDINATION

3 75% AND 100% SUBMITTALS TO BICYCLE AND PED. COORD. NOT NECESSARY IF APPROVED AT 25% (UNLESS DESIGN HAS CHANGED)

4 REFER TO FEDERAL OVERSIGHT AGREEMENT DATED 3-8-99

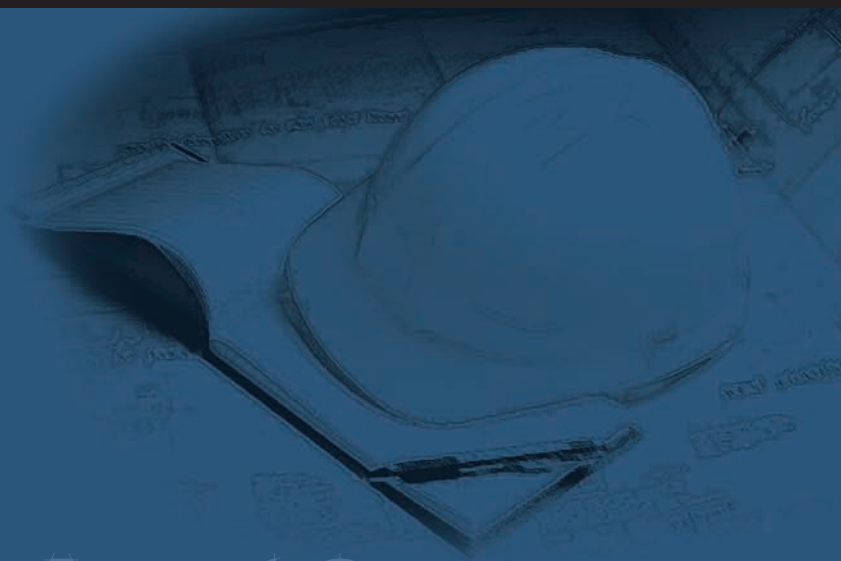
5 See UTILITY TAB Below

## UTILITY SUBMITTALS

UTILITY TYPE	25%						75%					100%					
	PLANS	X-SECTIONS	ESTIMATE	DER	FDR	PREL. ROW	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	LAYOUT PLANS & INST	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	DETAIL SHEETS	FINAL ROW PLANS
Electric	2						2					2					
Telephone	2						2					2					
Gas	2						2					2					
Cable TV	1						1					1					
Fire Alarm	1						1					1					
Sewer*	1						1					1					
Water*	1						1					1					
DPW/City Highway Dept. *	1						1					1					
RCN, AT&T, MCI, Sprint, Qwest or other long distance utility	1						1					1					

\* Some Municipalities may have the same office review these plans. Therefore, each department may not have to receive an individual set. The consultant should determine if each department's review and subsequent plans submittal is applicable.

All utility plan submissions should have a list of the names of the actual utility companies to which these plans are to be forwarded. Utility contact information for many municipalities may be found on MassHighway's webpage - "Doing Business with MassHighway



2-A-10

## 100/PSE Percent Checklist



**PROJECT/DESCRIPTION** \_\_\_\_\_  
**100%/P.S.&E. HIGHWAY DESIGN REVIEW CHECKLIST**    **Submission Date** \_\_\_\_\_

**PURPOSE**

The purpose of the 100% review is to ensure that all comments from the 75% review have been satisfactorily addressed. The review also provides an opportunity to ensure that a complete contract package will be available for bidding and construction purposes.

**GENERAL**

The submittal shall include responses to 75% review comments; completed plans, special provisions and estimate and detail sheets.

Any question listed below with a NO (N) answer will require a written comment.

**Y    N    NA    1.00 RESPONSE TO COMMENTS**

1.01    Have all comments from the 75% review been addressed?  
Comment: \_\_\_\_\_

**PLANS**

**Y    N    NA    2.00 Title Sheet**

2.01    Is the Title Sheet prepared consistent with Exhibit 18-13?  
Comment: \_\_\_\_\_

Are the latest documents referenced on the title sheet?

2.02 Comment: \_\_\_\_\_

**Y    N    NA    3.00 Typical Sections**

3.01    All proposed materials should be labeled on the Typical Sections. Are the material descriptions identical to the STANDARD NOMENCLATURE AND LIST OF STANDARD ITEMS or the material description in the STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES (STD. SPECS)?  
Comment: \_\_\_\_\_

**Y    N    NA    4.00 Construction Drawings**

4.01    Is the disposition of all existing and proposed features located within the limits of work labeled?  
Comment: \_\_\_\_\_

**5.00 SPECIAL PROVISIONS**

Special provisions should only be written when absolutely necessary to address a project specific issue that is not satisfactorily addressed in the STD. SPECS. and SUPPLEMENTAL SPECIFICATIONS, or if the item has an asterisk in the STANDARD NOMENCLATURE. If a special provision is absolutely necessary, particular attention should be paid to the basis of payment and method of measurement.

- |      | <b>Y</b>                 | <b>N</b>                 | <b>NA</b>                |                                                                                                                                                                                                                         |
|------|--------------------------|--------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.01 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is an adequate Scope of Work provided?<br>Comment: _____                                                                                                                                                                |
| 5.02 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are all the latest manuals, supplemental manuals and other documents that are to be part of the contract by reference, listed?<br>Comment: _____                                                                        |
| 5.03 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If the project requires specific information relative to lane closures and traffic management is the information concisely conveyed as a supplement to subsection 7.09 Public Safety and Convenience?<br>Comment: _____ |
| 5.04 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is a complete list of affected utility companies included as a supplement to subsection 7.13 Protection and Restoration of Property?<br>Comment: _____                                                                  |
| 5.05 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is (are) the available workshift(s) described as a supplement to Subsection 8.02 Schedule of Operations?<br>Comment: _____                                                                                              |
| 5.06 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Do all items contained in the estimate with an asterisk in the STANDARD NOMENCLATURE have a special provision?<br>Comment: _____                                                                                        |
| 5.07 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are all item descriptions and units contained in the special provisions consistent with the estimate (and Standard Nomenclature if applicable)?<br>Comment: _____                                                       |
| 5.08 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Do all special provisions include a very specific, unambiguous, method of measurement and basis of payment that will eliminate the potential for disputes during construction?<br>Comment: _____                        |
| 5.09 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the location for items to be removed and stacked clearly identified?<br>Comment: _____                                                                                                                               |
| 5.10 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Have the special provisions been reviewed to ensure that there are no proprietary items specified? If proprietary items are specified, please justify.<br>Comment: _____                                                |

**Y    N    NA    6.00 ESTIMATE**

- |      |                          |                          |                          |                                                                                                                                               |
|------|--------------------------|--------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 6.01 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the methodology used to estimate the project consistent with the STD. SPECS. and the latest SUPPLEMENTAL SPECIFICATIONS?<br>Comment: _____ |
| 6.02 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Does every item of work shown on the plans have an associated pay item?<br>Comment: _____                                                     |
| 6.03 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Do the unit prices reflect the latest pricing trends?<br>Comment: _____                                                                       |

**PROJECT/DESCRIPTION** \_\_\_\_\_  
**100%/P.S.&E. HIGHWAY DESIGN REVIEW CHECKLIST**    **Submission Date** \_\_\_\_\_

**Y    N    NA    6.00 ESTIMATE (Cont.)**

6.04    Do the unit prices reflect the magnitude of the quantity of work vs. mobilization/set up costs? (e.g. 100 Tons of ITEM 460. on a bridge replacement project will cost significantly more than 100,000 Tons on an Interstate resurfacing project)

Comment: \_\_\_\_\_

**Y    N    NA    7.00 DETAIL SHEETS**

7.01    Do the Earthwork quantities on the PRELIMINARY ESTIMATE OF QUANTITIES - DETAIL SHEET (page 18-65) correspond with those noted on the Summary Quantity Sheet?

Comment: \_\_\_\_\_

7.02    Does the pavement structure on the PRELIMINARY ESTIMATE OF QUANTITIES - DETAIL SHEET correspond with the Typical Sections?

Comment: \_\_\_\_\_

7.03    Are all items not completely described and located on the plans adequately described?

Comment: \_\_\_\_\_

**Y    N    NA    8.00 CONCLUSIONS**

8.01    Have all the comments from the 75% review been satisfactorily addressed?

Comment: \_\_\_\_\_

8.02    Is the estimated total construction cost consistent with the TIP?

Comment: \_\_\_\_\_

8.03    Has an independent constructability review been performed?

Comment: \_\_\_\_\_

8.04    Do the plans represent a project that is reasonable from a constructability standpoint with respect to construction techniques and available right of way?

Comment: \_\_\_\_\_

8.05    Does the estimate include all the items of work necessary to complete the project?

Comment: \_\_\_\_\_

8.06    Are the special provisions clear and unambiguous with well defined method of measurement and basis of payment?

Comment: \_\_\_\_\_



## HIGHWAY SUBMITTALS

	25%						75%					100%					
	PLANS	X-SECTIONS	ESTIMATE	DER	FDR	PREL. ROW	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	LAYOUT PLANS & INST	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	DETAIL SHEETS	FINAL ROW PLANS
DISTRICT	2	2	2	1	1		2	2	2	2		2	2	2	2	2	
TRAFFIC ENGINEERING	1				1		1		1	1		1		1	1	1	
REGULATIONS UNIT (NOTE 1)							1		1	1		1		1	1	1	
ENVIRONMENTAL (note 2)	1						2		2	2		2		2	2		
RIGHT OF WAY	1					2	1				2	1					2
AAB COORDINATOR	1						1		1	1		1		1	1		
BICYCLE AND PED COORD (Note 3)	1						1		1	1		1		1	1		
LANDSCAPE SECTION	1						1		1	1		1		1	1		
FHWA (Note 4) (half size)	1	1	1	1	1		1	1	1	1		1	1	1	1	1	
CITY/TOWN	1						1					1					
UTILITIES (Note 5)																	
PROJECT MANAGER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1 FEDERAL AID PROJECTS ONLY

2 REFER TO ENGINEERING DIRECTIVE E-02-005 REGARDING REQUIREMENTS FOR EARLY ENVIRONMENTAL COORDINATION

3 75% AND 100% SUBMITTALS TO BICYCLE AND PED. COORD. NOT NECESSARY IF APPROVED AT 25% (UNLESS DESIGN HAS CHANGED)

4 REFER TO FEDERAL OVERSIGHT AGREEMENT DATED 3-8-99

5 See UTILITY TAB Below

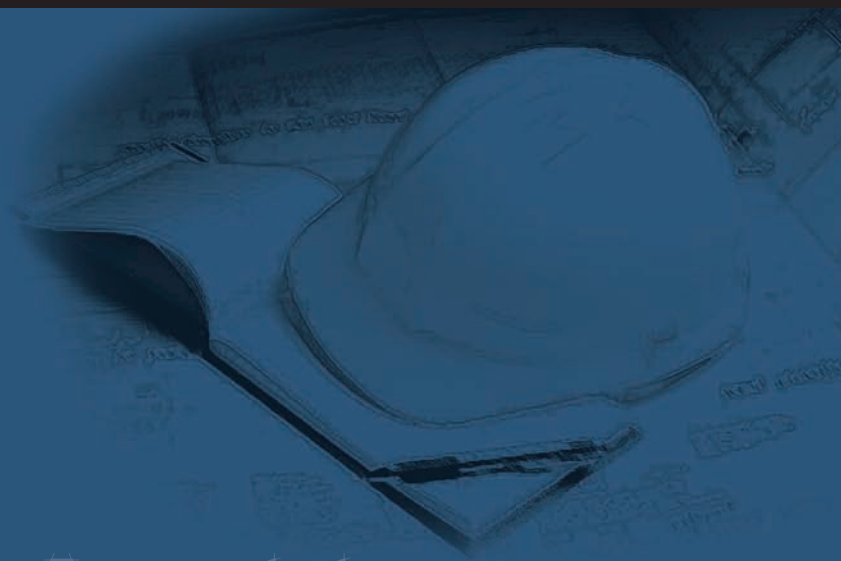
## UTILITY SUBMITTALS

UTILITY TYPE	25%						75%					100%					
	PLANS	X-SECTIONS	ESTIMATE	DER	FDR	PREL. ROW	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	LAYOUT PLANS & INST	PLANS	X-SECTIONS	SPECIAL PROVISIONS	ESTIMATE	DETAIL SHEETS	FINAL ROW PLANS
Electric	2						2					2					
Telephone	2						2					2					
Gas	2						2					2					
Cable TV	1						1					1					
Fire Alarm	1						1					1					
Sewer*	1						1					1					
Water*	1						1					1					
DPW/City Highway Dept. *	1						1					1					
RCN, AT&T, MCI, Sprint, Qwest or other long distance utility	1						1					1					

\* Some Municipalities may have the same office review these plans. Therefore, each department may not have to receive an individual set. The consultant should determine if each department's review and subsequent plans submittal is applicable.

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2-A-11

## Design Exception Process

## **DESIGN EXCEPTION REPORT**

**The Federal Highway Administration (FHWA) has established 13 controlling criteria as defined in 23 CFR 625, which must be adhered to when designing a roadway improvement project. The Massachusetts Highway Department has adopted this policy and applies the requirements of 23 CFR 625 to all projects regardless of funding source. Chapter 2 of the MassHighway Project Development and Design Guide describes in detail the Design Exception Process. Additional guidance regarding the Design Exception process is described in Engineering Directives E-97-007 and E-99-002.**

**The Design Exception Report Checklist standardizes the preparation of Design Exception reports and streamlines MassHighway's review process. The Design Exception Report should follow the Table of Contents listed below:**

### **Recommended Table of Contents**

**Cover Page  
Executive Summary  
Locus Map  
Design Exception Report Checklist  
Typical Sections (8 1/2 x 11)  
Photographs  
Supplemental Narrative  
Supplemental Crash Data  
Attachment A (Controlling Criteria)  
Attachment B (Summary of Impacts)**



**DESIGN EXCEPTION REPORT  
CHECKLIST**

**City/Town:** \_\_\_\_\_ **Project File No.:** \_\_\_\_\_

**Facility:** \_\_\_\_\_ **Fed. Aid Proj. No.:** \_\_\_\_\_

**I. Project Description**

**A. Type of Work Proposed**

- |                                                    |                                                                |
|----------------------------------------------------|----------------------------------------------------------------|
| <input type="checkbox"/> Full Depth Reconstruction | <input type="checkbox"/> Resurfacing/Box Widening              |
| <input type="checkbox"/> Reclamation               | <input type="checkbox"/> NHS Bridge Replacement/Rehabilitation |
| <input type="checkbox"/> New Construction          | <input type="checkbox"/> Other _____                           |

**B. Purpose of Project**

- |                                                   |                                      |
|---------------------------------------------------|--------------------------------------|
| <input type="checkbox"/> Safety Improvement       | <input type="checkbox"/> Maintenance |
| <input type="checkbox"/> Additional Capacity      | <input type="checkbox"/> Other       |
| <input type="checkbox"/> Describe if Other: _____ |                                      |

**C. Footprint Road Project?**     YES     NO

**II. Indicate Controlling Criteria, as defined by Project Development and Design Guide, requiring a Design Exception. (See worksheet ATTACHMENT A).**

**A. Roadway and Bridge Criteria**

- |                                               |                                                  |
|-----------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Design Speed         | <input type="checkbox"/> Grades                  |
| <input type="checkbox"/> Lane Width           | <input type="checkbox"/> Stopping Sight Distance |
| <input type="checkbox"/> Shoulder Width       | <input type="checkbox"/> Cross Slope             |
| <input type="checkbox"/> Horizontal Alignment | <input type="checkbox"/> Superelevation          |
| <input type="checkbox"/> Vertical Alignment   | <input type="checkbox"/> Horizontal Clearance    |

**B. Bridge Only Criteria**

- |                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> Width               | <input type="checkbox"/> Vertical Clearance |
| <input type="checkbox"/> Structural Capacity |                                             |

**III. Description of Facility**

**A. Functional Classification**

- |                                          |                                          |
|------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Urban Freeway   | <input type="checkbox"/> Rural Freeway   |
| <input type="checkbox"/> Urban Arterial  | <input type="checkbox"/> Rural Arterial  |
| <input type="checkbox"/> Urban Collector | <input type="checkbox"/> Rural Collector |
| <input type="checkbox"/> Urban Local     | <input type="checkbox"/> Rural Local     |

**DESIGN EXCEPTION REPORT  
CHECKLIST**

**City/Town:** \_\_\_\_\_

**Project File No.:** \_\_\_\_\_

(Description of Facility cont'd)

**B. NHS**

Yes

No

**C. General Description of Project Area**

Undeveloped

Residential

Commercial

Industrial

Scenic

Historic

Describe if Other: \_\_\_\_\_

**D. Traffic Volume**

ADT (Current) \_\_\_\_\_

T (Peak Hour) \_\_\_\_\_

ADT (Design Year) \_\_\_\_\_

T (Avg. Day) \_\_\_\_\_

K \_\_\_\_\_

DHV \_\_\_\_\_

D \_\_\_\_\_

DDHV \_\_\_\_\_

**E. Speed**

Posted \_\_\_\_\_

85th Percentile \_\_\_\_\_

Observed \_\_\_\_\_

Existing Design Speed \_\_\_\_\_

**F. Lane and Shoulder Width**

Existing

Lane Width \_\_\_\_\_

Right Shoulder \_\_\_\_\_

Left Shoulder \_\_\_\_\_

Attach a Typical Section (8 1/2" x 11") depicting existing dimensions and proposed cross-sections. Include R.O.W lines.

**G. Right of Way**

State Highway

County

City/Town

Average Width \_\_\_\_\_

## DESIGN EXCEPTION REPORT CHECKLIST

City/Town: \_\_\_\_\_

Project File No.: \_\_\_\_\_

(Description of Facility cont'd)

### H. Crash Data

The crash rate shall be calculated based on the latest three years of crash data available. Crash rates should be calculated for roadway segments based on Hundred Million Vehicle Miles traveled (HMVM) as follows:

$$\text{HMVM} = (A \times 100,000,000) / (\text{ADT} \times D \times L)$$

A = number of total crashes at the study location during a given period

ADT = Average Daily Traffic

D = number of days in the study period

L = length of study location in miles

Attach additional tables and diagrams as necessary to accurately communicate the crash history within the project limits.

Provide a detailed narrative that summarizes available data and draws a conclusion as to the expected effectiveness of any proposed improvements.

### I. Environmental Factors

Attach a brief discussion of the natural, cultural, historic or other environmental constraints associated with the proposed project. All of the following must be addressed: wetland/floodplain, trees, parkland, endangered species, cultural, historic, archaeological, etc.

### V. Summary of Impacts

Complete the attached spreadsheet titled Summary of Impacts (ATTACHMENT B). A separate spreadsheet is required for each of the controlling criteria for which a design exception is requested.

Attach photographs that illustrate existing features important to the proposed design.

### VI. Recommendation

By drawing from all of the above information, attach a narrative documenting that reasonable engineering judgement was used to justify the proposed design.

**DESIGN EXCEPTION REPORT  
CHECKLIST**

City/Town: \_\_\_\_\_

Project File No.: \_\_\_\_\_

**VII. Certification of Design Exception Report (Engineering Directive E-99-002)**

*I have reviewed this document as it relates to the proposed design and have determined the design to be safe for public health and welfare in conformity with accepted engineering standards.*

Signature and P.E. Stamp of Principal or Chief Engineer of firm preparing report:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**DESIGN EXCEPTION REPORT**  
**ATTACHMENT A**  
**CONTROLLING CRITERIA**

City/Town: \_\_\_\_\_ Project File No.: \_\_\_\_\_

**Design Speed**

Refer to Guidebook, Exhibit 3-7

Desirable \_\_\_\_\_  
 Minimum \_\_\_\_\_  
 Posted \_\_\_\_\_  
 Proposed \_\_\_\_\_

Design Exception Required.

**Lane Width**

Refer to Guidebook, Exhibit 5-14

Desirable \_\_\_\_\_  
 Minimum \_\_\_\_\_  
 Proposed \_\_\_\_\_

Design Exception Required.

**Shoulder Width**

Refer to Guidebook, Exhibit 5-12 (See Note 3)

**Right**

Desirable \_\_\_\_\_  
 Minimum \_\_\_\_\_  
 Proposed \_\_\_\_\_

Design Exception Required.

**Left**

Desirable \_\_\_\_\_  
 Minimum \_\_\_\_\_  
 Proposed \_\_\_\_\_

Design Exception Required.

**Horizontal Alignment**

Refer to Guidebook, Exhibit 4-8 and 4-9

Minimum \_\_\_\_\_  
 Proposed \_\_\_\_\_

PI Sta. _____	PI Sta. _____	PI Sta. _____	PI Sta. _____
Radius _____	Radius _____	Radius _____	Radius _____

Design Exception Required.

Refer to Guidebook, Chapter 4, Section 4.2 (Compound Curves)

Check all compound curves. The radius of the tighter curve should be no less than 50 percent of the flatter curve.

Design Exception Required.

**DESIGN EXCEPTION REPORT**  
**ATTACHMENT A**  
**CONTROLLING CRITERIA**

**City/Town:** \_\_\_\_\_ **Project File No.:** \_\_\_\_\_

(Horizontal Alignment cont'd)

Length of Curve.  
Lmin = 30 V (freeways)  
Lmin = 15 V (other major highways)  
V = Design Speed  
 Design Exception Required.

**Vertical Alignment**

For Crest Vertical Curves, refer to Guidebook, Exhibit 4-26

Minimum \_\_\_\_\_  
Proposed \_\_\_\_\_  
PVI Sta. \_\_\_\_\_ PVI Sta. \_\_\_\_\_ PVI Sta. \_\_\_\_\_ PVI Sta. \_\_\_\_\_  
K \_\_\_\_\_ K \_\_\_\_\_ K \_\_\_\_\_ K \_\_\_\_\_  
 Design Exception Required.

For sag curves, refer to Guidebook, Exhibit 4-27

Minimum \_\_\_\_\_  
Proposed \_\_\_\_\_  
PVI Sta. \_\_\_\_\_ PVI Sta. \_\_\_\_\_ PVI Sta. \_\_\_\_\_ PVI Sta. \_\_\_\_\_  
K \_\_\_\_\_ K \_\_\_\_\_ K \_\_\_\_\_ K \_\_\_\_\_  
 Design Exception Required.

**Grades**

Refer to Guidebook, Exhibit 4-21

Maximum \_\_\_\_\_  
Proposed \_\_\_\_\_  
 Design Exception Required.

**Stopping Sight Distance**

Refer to Guidebook, Exhibit 3-7

Minimum \_\_\_\_\_  
Desirable \_\_\_\_\_  
Proposed \_\_\_\_\_  
 Design Exception Required.

**DESIGN EXCEPTION REPORT**  
**ATTACHMENT A**  
**CONTROLLING CRITERIA**

**City/Town:** \_\_\_\_\_ **Project File No.:** \_\_\_\_\_

(Stopping Sight Distance cont'd)

Refer to Guidebook Section 3.7 and Exhibit 4-5 (SSD Middle Ordinate)

Minimum \_\_\_\_\_

Desirable \_\_\_\_\_

Design Exception Required.

**Cross Slope**

Refer to Guidebook, Section 5.5.2

Bit Conc. 0.020

Cem Conc. 0.016

Proposed \_\_\_\_\_

Design Exception Required.

**Superelevation**

Refer to Guidebook Section 4.2. Check required values for superelevation rates, transitioning, runoff, banking, etc. for all lanes and shoulders.

Design Exception Required.

**Horizontal Clearance**

Refer to AASHTO A Policy on Geometric Design of Highways and Streets.

Minimum 18 inches beyond face of curb.

Design Exception Required.

**Bridge Only Criteria**

**Lane and Shoulder Width**

Refer to AASHTO A Policy on Geometric Design of Highways and Streets.

Design Exception Required.

**Structural Capacity**

Refer to Chapter 3 of MassHighway Bridge Manual.

Design Exception Required.

**Vertical Clearance**

Refer to Guidebook Exhibit 4-28

Minimum \_\_\_\_\_

Proposed \_\_\_\_\_

Design Exception Required.

**ATTACHMENT B  
DESIGN EXCEPTION REPORT  
SUMMARY OF IMPACTS**

Provide a summary of the incremental impacts associated with the Desirable, Minimum and Proposed design. Include impacts of incremental designs.

A separate Summary of Impacts sheet shall be prepared for each controlling criteria element that does not meet the minimum specified.

**CONTROLLING CRITERIA:** \_\_\_\_\_

**SUMMARY OF IMPACTS**

INSERT VALUE IN THIS COLUMN	WETLANDS (SF)	TREES (EA)	PARKLANDS (SF)	STONE WALLS (LF)	SALT MARSH (SF)	ROW (\$)	CONST. COST (\$)	TOTAL COST (\$)
DESIRABLE								
MINIMUM								
ALTERNATIVE 1								
ALTERNATIVE 2								
RECOMMENDED								

NOTE: Attach a narrative detailing the impacts of each alternative.

NOTE: Columns and rows may need to be added to address additional incremental designs or impacts