The Project Development Process

Design and Funding

Project Development Process

Spans Planning through Construction

Funding and Project Design

Concurrent, intertwined tracks

Funding – federal aid funds secured through the Transportation Improvement Program (TIP)

Project Design - Engineering, Environmental Permitting and Right of Way – MassDOT oversight

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Project Delivery

Requirements for Construction Advertising

- Funding –
  - Projects must appear on the TIP
- Design Process –
  - Engineering
  - Environmental permitting
  - Right of Way process

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Planning Entities

- MPO (Metropolitan Planning Organization)
- RPA (Regional Planning Agency)
- JTC/JTPG (Joint Transportation Committee or Joint Transportation Planning Group)
- OTP – (Office of Transportation Planning – MassDOT)

Metropolitan Planning Organization

- 13 MPOs in the Commonwealth
- 6 MPOs in District 5
  - Boston (18 communities)
  - SE MA Region
  - Old Colony
  - Cape Cod
  - Martha's Vineyard
  - Nantucket

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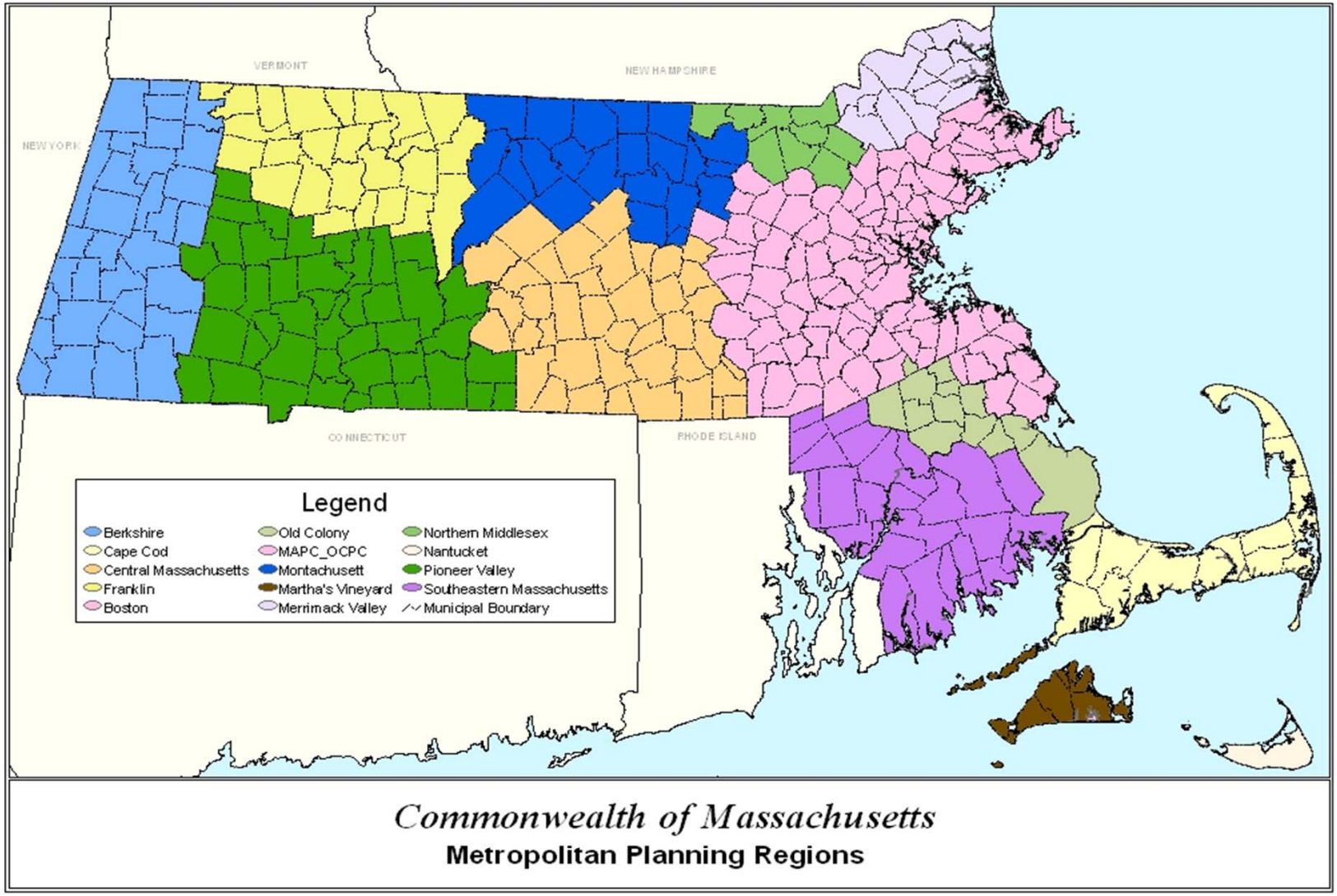

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Metropolitan Planning Regions

TIP Programming for Projects

- Transportation Improvement Program
- Spans four years, endorsed annually
- Conforms to projects and goals set out by RTP
- Federally mandated: all projects receiving federal funding must be in the TIP
- Includes highway and transit project listings
- State Transportation Improvement Program (STIP): a combination of the TIPs from all the MPOs, must be approved by FHWA, FTA, DEP, and EPA

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TIP

- Approximately $600 million per year
  - Federal aid with state match
- Statewide categories, regional allocations
  - IM, NHS, STP, CMAQ, HSIP, SRTS, ABP, FA Bridge, HPP, AC
  - Regional allocations distributed based on formula
    - Population, FA eligible lane miles
    - STP, CMAQ, HSIP funding targets
- Amended/Adjusted during the year

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Planning/Design Process

- Projects are developed to address identified needs
  - Safety
  - Congestion
  - Multimodal accommodation
  - Corridor improvements
  - Preservation

Planning/Design Process

- Proposals are initiated by:
  - MassDOT –
    - District
    - Office of Transportation Planning (OTP)
  - Municipalities
  - MPO/RPA
  - Legislative/Congressional

Funding Categories

- Highway Safety Improvement Program (HSIP)
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Surface Transportation Program (STP)
- Enhancement (STP-E)
- Interstate Maintenance (IM)
- National Highway System (NHS)
- Safe Routes to School (SRTS)

Safety Projects (HSIP)

- Statewide or Regional Target Funding
  - Projects developed from regional and statewide lists
    - Barnstable County Intersections of Critical Concern (CCC July 2010)
    - MassDOT Top Crash Locations
  - HSIP funding must meet specific criteria
    - Top 5% Crash Cluster
    - Roadway Safety Audit
  - Standalone project or within a larger project

Safety Projects

- Barnstable - Route 6 ramps at Route 149
- Sandwich – Route 6 ramps at Route 130
- Sandwich – Route 6 Cable Barrier
- Orleans Route 6A at Route 28
- Barnstable Route 28 at Bearses Way
- Harwich – Route 6 ramps at Route 137 (within the Route 137 corridor project)

Barnstable Rte 6 at Rte 149

Congestion

- Must meet air quality criteria criteria
- Vetted through the CMAQ committee
- Greenhouse gas reduction
- CMAQ Eligible Projects
  - Dennis/Yarmouth Cape Cod Rail Trail Ext.
  - Orleans Route 6A at Route 28
  - Falmouth Route 28 at Jones Road
  - Falmouth Route 28 at Davisville/Old Meetinghouse Road

Pavement Preservation
Statewide Categories

- Interstate Maintenance projects (IM)
- National Highway System Projects (NHS)
  - Generally limited access highways
  - Lists are data driven – roadway condition
    - Falmouth Route 28
    - Bourne/Sandwich Route 6
    - Bourne Route 28

Surface Transportation Program (STP)

- General category for projects on federal eligible roadways
- Corridor Improvements,
- Intersection improvements
- Enhancements (STP-E)

- Accelerated Bridge (ABP)
- Federal Aid/Non-Federal Aid Bridge
- High Priority Projects (HPP) – federal earmarks

Project Development Process
Concept to Construction

Project Need Form (PNF)

- PNF Submitted to District and RPA
  - Opens a dialogue
  - Outcomes -
    - No concurrence of project need
    - Additional planning: complex proposal
      - public outreach, informational meeting
      - local support
    - Advance to Project Initiation Stage – PIF

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Project Initiation Form (PIF)

- PIF builds on PNF
- Additional detail, public outreach

- PIF document presented to Project Review Committee (PRC) for approval

- PNF and PIF forms are on MassDOT Website

District available for advice/information

Project Review Committee

- Project Review Committee
  - Meets 3 times/year
  - Proposals are reviewed statewide
    - Expectations of improvement – safety, congestion, mobility, multi-modal improvements, pavement preservation, environmental and neighborhood impacts, environmental justice, local/regional support
  - Upon approval “proposals” become “projects” in the MassDOT system

Design Process

- All Highway projects must be on federal aid eligible, publically accepted roads
  - Functional Classification (urban minor collector or above)
  - local road classification not acceptable for FA funds, publically accepted roads - Chapter 90
- Roads may be under state or municipal jurisdiction
- Municipalities are responsible for design, environmental permitting and right of way on municipal roads. Design eligible for Chapter 90 funds.

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Contract Considerations

- MassDOT Pre-qualified design consultant
- MassDOT Pre-qualified Surveyor
  - notify abutters prior to surveying on private property
- MassDOT Scope and Work hour estimate
- Account for construction phase services

Design Process

- Engineering Design, Environmental Permitting and Right of Way
- Consultant or in-house
- Review Stages
  - Preliminary design - 25%. Design Public Hearing
  - Final design - 75%, 100%, PSE
    - PSE – Plans, Specifications, Estimate
    - PSE = bid package

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Design Process Reviews

District review

- Projects, DUCE and Traffic Operations
- Bridge, Environmental and State Aid

- Boston Office review
  - Traffic, Bridge, ADA/AAB, Bike/Ped, Pavement Design, Landscape, ROW, Environmental, Geotechnical, Hydraulics

- Boston Project Manager coordinates

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Engineering Reviews

- Review for compliance with State and Federal standards, Best Management Engineering Practices
  - Project Development and Design Guide
  - Standards Specifications for Highways and Bridges (blue book)
  - Construction and Bridge Standards
  - AASHTO – 13 controlling criteria
    - Design Exception Report (DER)
  - MUTCD (Manual of Uniform Traffic Control Devices)
  - Utility Coordination
  - ADA/AAB, Complete Streets, GreenDOT

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25% Design Stage

- **Preliminary Design –**
  - **Obtain and plot Survey**
  - **Prepare Base Plans**
  - **Compile necessary Traffic Data (traffic counts, crash data)**
  - **Develop Horizontal and Vertical Geometry**
  - **Develop Typical Cross Sections**
  - **Develop Draft Traffic Signal Plan (if required)**
  - **Develop Bridge Type Studies and Sketch Plans for Bridges, Culverts and Walls (if required)**
  - **Coordination with Landscape Design**
  - **Develop Preliminary Pavement Design**
  - **Develop Preliminary Right of Way plans**
  - **Develop preliminary Cost Estimate**
  - **Prepare a Functional Design Report**
  - **Prepare a Design Exception Report (if necessary)**

Design Exception

- 13 controlling criteria –
- Roadway and Bridge
  - Design speed, Lane width, shoulder width,
    Horizontal alignment, vertical alignment
    Grades, stopping sight distance
    Cross slope, superelevation,
    horizontal clearance (other than clear zone)
- Bridge criteria –
  - Width, structural capacity and vertical clearance.

Design Exception Process

- Design Exception Report
- District performs initial review
- Design Exception Committee
- Approval by Chief Engineer
- FHWA approval

Design Public Hearing

- Upon review and approval of the 25% design submission a design public hearing is held.
- Opportunity to solicit public input
  - Project adequately developed
    - Basic geometric design
    - Operation of Traffic Signals
    - Right of Way – land acquisitions, slope easements

Utility Coordination

- District Utility/Constructability Section
  - Coordination with utilities throughout design and construction
  - field meetings – Utility companies, designer, municipality, MassDOT
- Engineering Directives
  - Scheduling within construction contract
  - Reimbursement - meet performance criteria
  - Right of Way acquisition

75% Design Stage

- **Refine horizontal and vertical geometry**
- **Prepare subsurface exploratory plan**
- **Develop Construction cross sections**
- **Develop Construction Plans**
- **Develop Traffic management plans**
- **Develop Traffic-related PS&E data**
- **Refine pavement design**
- **Develop drainage design**
- **Coordinate Utility Relocation**
- **Develop Special Provisions**
- **Update Cost estimate**

100% Design Stage

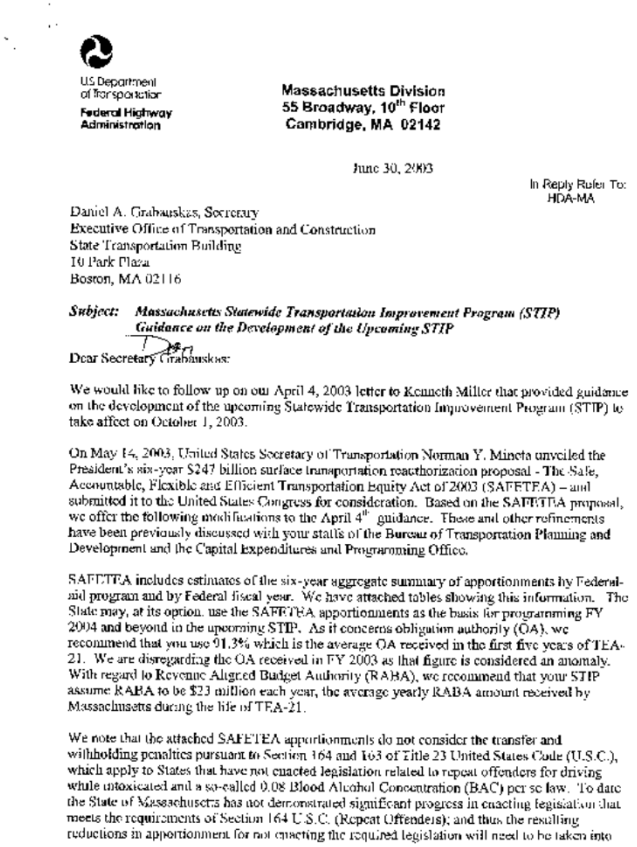
- Finalize Construction Plans
- Finalize Estimate
- Finalize Special Provisions
- Calculation Book submitted
- Detail Sheets submitted

Estimate

- Bid items
- Construction Engineering
- Contingencies
- Traffic Police
- Utility relocation (100% municipal, 50% private)

- 2003 FHWA memo

- "Finally, we would like to stress the need for project cost estimates in the STIP to reflect the amount that will be subsequently requested to be obligated at the time of authorization. **Cost estimates should include an amount for contingency, resident engineer costs, construction engineering, utilities and other costs as needed and appropriate."**



U.S. Department of Transportation
Federal Highway Administration

Massachusetts Division
55 Broadway, 10th Floor
Cambridge, MA 02142

June 30, 2003

In Reply Refer To:
HDA-MA

Daniel A. Grabauskas, Secretary
Executive Office of Transportation and Construction
State Transportation Building
10 Park Plaza
Boston, MA 02116

Subject: ***Massachusetts Statewide Transportation Improvement Program (STIP) Guidance on the Development of the Upcoming STIP***

Dear Secretary Grabauskas:

We would like to follow up on our April 4, 2003 letter to Kenneth Miller that provided guidance on the development of the upcoming Statewide Transportation Improvement Program (STIP) to take affect on October 1, 2003.

On May 14, 2003, United States Secretary of Transportation Norman Y. Mineta unveiled the President's six-year $247 billion surface transportation reauthorization proposal - The Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 (SAFETEA) – and submitted it to the United States Congress for consideration. Based on the SAFETEA proposal, we offer the following modifications to the April 4th guidance. These and other refinements have been previously discussed with your staffs of the Bureau of Transportation Planning and Development and the Capital Expenditures and Programming Office.

SAFETEA includes estimates of the six-year aggregate summary of apportionments by Federal-aid program and by Federal fiscal year. We have attached tables showing this information. The State may, at its option, use the SAFETEA apportionments as the basis for programming FY 2004 and beyond in the upcoming STIP. As it concerns obligation authority (OA), we recommend that you use 91.3% which is the average OA received in the first five years of TEA-21. We are disregarding the OA received in FY 2003 as that figure is considered an anomaly. With regard to Revenue Aligned Budget Authority (RABA), we recommend that your STIP assume RABA to be $23 million each year, the average yearly RABA amount received by Massachusetts during the life of TEA-21.

We note that the attached SAFETEA apportionments do not consider the transfer and withholding penalties pursuant to Section 164 and 163 of Title 23 United States Code (U.S.C.), which apply to States that have not enacted legislation related to repeat offenders for driving while intoxicated and a so-called 0.08 Blood Alcohol Concentration (BAC) per se law. To date the State of Massachusetts has not demonstrated significant progress in enacting legislation that meets the requirements of Section 164 U.S.C. (Repeat Offenders); and thus the resulting reductions in apportionment for not enacting the required legislation will need to be taken into

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Estimate

- Bid Items (100s;Earthwork, 200s;Drainage, 400s; Paving…..)
- Traffic Police (flaggers are a contract item)
- Construction contingencies – calculated at 10% of the bid items.
- Construction Engineering
  - Under $1 million, 15%
  - $1 to $ 5 million , 10%
  - $ 5 and above, 5%
  - Immediate oversight, materials, office personnel (traffic, construction, etc.)
- Utility Relocations
  - 100% municipal,
  - 50% private
  - Betterments are the responsibility of the utility

Cost Adjustments

- Best estimate early on- PNF/PIF
- 25% project not fully developed
- Factors that affect the cost
  - Pavement design – resurfacing, full depth
  - Drainage
  - Environmental permit requirements, mitigation
  - Design quality - omissions, errors
  - Public input (design public hearing)
    - Enhancements, additional project elements
  - Sidewalks, shoulders, bicycle accommodation
  - Material cost adjustment (steel, asphalt)
  - Updates in Standards and Regulations

Environmental

- All environmental permits must be secured prior to advertising.
- Permits vary depending on the project and associated impacts
- MEPA/NEPA
- Wetland Protection Act (NOI, RDA)
- Army Corps, Coast Guard, EPA, DEP, CZM, Historic

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Right of Way

- Right of Way must be secured prior to advertising
- State and/or Municipal (community compliance)
- Municipalities are responsible to secure ROW on municipally owned roadways
- By law all impacted property owners must be offered just compensation for their property and informed of their right to have an appraisal

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Final Design Stage

- Engineering Design at PSE
- Environmental Permits acquired
- Right of Way secured
- Funds programmed in current year of TIP

- Project ready for construction advertising

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Coordinating funds and design

- Recommended programming
  - 75% design stage minimum in current year
  - 25% design stage minimum in 2nd year
  - Preliminary in 3rd or 4th year
  - Not programmed unless PRC approved

- Proponents advocate at JTC/MPO meetings for their projects to be programmed in the TIP

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Construction Stage

- All TIP projects have MassDOT oversight
- Municipal design contracts should include hours during construction –
  - Review of shop drawings
  - Questions/ construction advice
  - Fine tuning and adjustment of traffic signals
  - meetings

Construction Stage

- Municipal Agreement – each municipality and the Commonwealth sign prior to commencement of construction. "The Department shall participate in the construction of up to, but not exceeding 10% over the bid items of work."
- Sample agreements are sent out with the PRC approval letter.

Questions???

Contact info -

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