5. Key Findings and Trade-Offs

The East-West Passenger Rail Study evaluated a broad spectrum of elements that form the basis of providing passenger rail service found in any corridor in the nation. These elements included analysis of the physical characteristics of the route, representative services delivered by the train operations, potential ridership and travel characteristics. Key findings from the analysis include:

- A substantial reduction in travel times by as much as one hour over current times would be possible with new investment in rail corridor infrastructure.
- Travel time reductions reflect an increasingly higher level of investment made in new infrastructure.
- Commuter, business and recreational travel markets are present to varying degrees along the corridor. The study did not examine the possible long term impacts of the COVID-19 pandemic on commuting patterns.
- East-West train service can operate compatibly with MBTA Worcester/Framingham Line service when the currently planned infrastructure improvements between Worcester and Boston are in place.
- Passenger rail and CSX operations between Worcester and Pittsfield within an enhanced shared-track environment would require careful coordination of services and clear operational criteria.
- Passenger rail service operated between Worcester and Springfield over an independent alignment adjacent to CSX track(s) eliminates most of the interference between the two operations in this segment.
- Development of an independent passenger alignment adjacent to CSX tracks between Springfield and Pittsfield was not found to be feasible due to its topography and large areas of environmentally protected lands.
- None of the alternatives achieves all identified objectives. Each contains a set of positive (Pro) and negative (Con) attributes that must be considered to make an informed decision on the overall benefits provided by the alternative.

5.1. Key Trade-offs Among Final Alternatives

This section discusses trade-offs among the Final Alternatives based on the factors listed below. A more detailed description of the pros and cons of each option is provided on the following page, along with a summary in Table 5-1.

- Travel Times / Speeds
- Passenger / Freight interference
- Capital Cost
- Land Impacts
- Grade-Crossing Impacts

Table 5-1 – Pros and Cons of Final Alternatives

ALTERNATIVE	3	4	4/5 HYBRID
PROS	• Lowest capital cost • Fewest land impacts • Fewer grade-crossing impacts	• Reduced travel times / faster speeds • Higher ridership • Reduced passenger / freight interference	• Lowest travel times / fastest speeds • Highest ridership • Reduced passenger / freight interference • Fewer grade-crossing impacts
CONS	• Longest travel times / slowest speeds • Lowest ridership • Greatest passenger / freight interference	• Higher capital cost • Higher land impacts • Higher grade-crossing impacts	• Highest capital cost • Greatest land impacts

Alternative 3

Alternative 3 would provide direct passenger rail service between Pittsfield and Boston along a shared track / shared CSX and MBTA corridor. Up to 7 roundtrips were evaluated.

- Pros
  - **Lowest capital cost:** Infrastructure investments would be focused on restoring double track where single track sections exist today, making track and signal system upgrades to the existing tracks in the balance of the route, construction of new maintenance and station facilities where needed.
  - **Fewest land impacts:** Infrastructure improvements would be primarily confined to the existing CSX right-of-way on the existing fills or cuts. Moderate impacts are anticipated, especially at watercourses, to accommodate structures built to new engineering standards. Moderate impacts at the planned Chester and Palmer stations are also anticipated.
  - **Fewer grade-crossing impacts:** The probability of grade crossing incidents is reduced by slower speeds and fewer train frequencies.
- Cons
  - **Longest travel times / slowest speeds:** Operations within the existing shared track environment must conform to CSX freight design criteria with slower maximum, curve and average speeds (50 mph Springfield-Worcester).
  - **Lowest ridership:** Forecasted ridership is the lowest among the three final alternatives. The longer travel times dampen ridership demand.
  - **Greatest passenger / freight interference:** CSX and East-West trains would operate in a shared track environment for 105 miles between Pittsfield and Worcester. The substantial volume of freight traffic, differential in operating profiles (speeds/unscheduled operations) and required switching operations all increase the probability of delays due to train to train conflicts.

Alternative 4

Alternative 4 would provide direct passenger rail service between Pittsfield and Springfield along a shared track in the CSX corridor, along an independent passenger track between Springfield and

Worcester, and along a shared track/shared MBTA corridor between Worcester and Boston. Up to 9 roundtrips were evaluated.

- Pros
  - **Reduced travel times / faster speeds:** Operations within the Pittsfield to Springfield section must conform to CSX freight design criteria with slower maximum speeds and slower speeds through curves. Operations along the parallel independent passenger track between Springfield and Worcester would achieve higher maximum, curve and average speeds (55 mph Springfield-Worcester).
  - **Higher ridership:** Forecasted ridership is substantially higher in Alternative 4 compared to Alternative 3. The reduced travel times increase forecasted demand.
  - **Reduced passenger / freight interference:** CSX and East-West trains would operate in a shared track environment for 51 miles between Pittsfield and Springfield; a 51% reduction in shared track operations compared to Alternative 3. The probability of delay due to train to train conflicts is reduced proportionately.
- Cons
  - **Higher capital cost:** Infrastructure investments to restore double track where single track sections exist today would be confined to the Pittsfield to Springfield section. The new independent passenger track between Springfield and Worcester would add substantial additional capital costs. Construction of new maintenance and station facilities would also be needed.
  - **Higher land impacts:** Infrastructure improvements would remain mostly confined to the existing CSX Right of Way between Pittsfield and Springfield. The new independent passenger track between Springfield and Worcester would incur greater land impacts where its construction extends beyond the limits of the present alignment of the right-of-way. Moderate impacts remain with the planned Chester and Palmer stations.
  - **Higher grade-crossing impacts:** The faster speeds in the Springfield to Worcester section increase the risk of grade crossing incidents.

Hybrid Alternative 4/5

Hybrid Alternative 4/5 would provide direct passenger rail service between Pittsfield and Springfield along a shared track in the CSX corridor, along an independent passenger track with high-speed short cuts between Springfield and Worcester, and along a shared track/shared MBTA corridor between Worcester and Boston. Up to 9 roundtrips were evaluated.

- Pros
  - **Lowest travel times / fastest speeds:** This alternative provides the fastest speed and lowest overall travel time of the Final Alternatives. All three Final Alternatives have the same constraints, improvements, and speed for the Pittsfield – Springfield segment. In the Springfield – Worcester segment. However, between Springfield and Worcester Final Alternative 4/5 provides a parallel, independent, and higher-speed rail line with several strategic realignments to further straighten curves and increase speeds, resulting in the fastest overall option.
  - **Highest ridership:** Forecasted ridership is the greatest of the three alternatives. The substantially reduced travel times notably increased forecasted demand.
  - **Reduced passenger / freight interference:** As with Alternative 3, CSX and East-West trains would operate in a shared track environment for 51 miles between Pittsfield and Springfield. The probability of delay due to train to train conflicts is reduced proportionately.

- **Fewer grade-crossing impacts:** Consolidating three at-grade crossings in the Town of Wilbraham into two overhead bridges (i.e., vehicles travel above the railroad, which remains at-grade) reduces the probability of at-grade crossing incidents in an area with two industrial parcels that feature parking lots for heavy vehicles adjacent to the railroad.

- Cons
  - **Highest capital cost:** Infrastructure investments to restore double track where single track sections exist today would be confined to the Pittsfield to Springfield section. The new independent passenger track plus high-speed short cuts between Springfield and Worcester would require the largest capital investment cost. Construction of new maintenance and station facilities would also still be needed.
  - **Greatest land impacts:** Infrastructure improvements would remain largely confined to the existing CSX Right of Way between Pittsfield and Springfield. Construction of the new independent passenger track plus high-speed short cuts between Springfield and Worcester would incur the largest land impacts. Moderate impacts remain with the planned Chester and Palmer stations.

5.2. Project Development Process

The East – West Passenger Rail Study represents an important early step in the development process, prior to project initiation, that is necessary to turn a concept into a completed transportation project. In broad terms, the project development process follows these general stages.

1. Conceptual Planning
2. Project Initiation: Preliminary Design and Environmental Permitting
3. Funding
4. Final Design
5. Construction

These phases of the project development process are not always clear-cut, and are not necessarily sequential. The following is a brief review of the planning process, along with a discussion of the environmental and funding phases of the project development process.

Conceptual Planning

The first phase of a transportation project is intended to build upon an identified transportation need, goal, or concept, and begin to translate that general concept into a more clearly defined project. The planning process for a transportation project generally addresses the following major issues:

- Project purpose
- Geographic scope of the project and study area for planning
- Existing and anticipated future conditions in the study area
- Central issues and opportunities that the project needs to address
- Development of potential alternative solutions to the project purpose, issues, and opportunities, with high-level concept design to enable assessment of the alternatives
- Alternatives analysis of the potential solutions to evaluate the benefits, costs, and impacts of the various alternative solutions
- The planning process may entail the selection of a preferred alternative based on the alternatives analysis, or that decision may be finalized in the environmental permitting phase of project development, when there is more information about the alternatives

The East – West Passenger Rail Study substantially advances the Conceptual Planning for this project by clearly defining the project purpose, its geographic scope, some of its costs and benefits, and narrowing alternatives to focus on three alternatives. But the project is

not yet ready for the next major phase of Project Initiation and permitting, as described in detail in the next section. Specifically, there is still more work to be done to identify all of the central issues and opportunities that the project needs to address and to more fully understand the project's potential community and economic impacts and benefits. Therefore, the Recommendations focus on additional planning-phase issues that would complete the Conceptual Planning phase and form the basis for a subsequent Project Initiation phase once the actions outlined in section 1.3 on Next Steps and Recommendations are completed, and once funding has been identified to complete the project initiation and permitting phase.

Project Initiation: Preliminary Design and Environmental Permitting

The conceptual planning process is generally followed by the environmental review and permitting phase of project development. This phase of the project entails:

- Advancing the project design to a level that enables full assessment of its impacts
- Clearly delineating all environmental and social impacts that are expected to result from a proposed project
- Undertaking a public review of those impacts relative to the anticipated project benefits
- Developing strategies for minimizing and/or mitigating those impacts
- Obtaining the necessary approvals to move forward with the project from the responsible federal, state, and local regulatory agencies

The following are some of the key elements and phases of the environmental permitting phase.

- **Federal Environmental Review.** The central element of the federal environmental review process is the National Environmental Policy Act (NEPA). NEPA review and approval is required for any policy, program, or project that entails a federal action. For transportation projects, such federal actions generally entail the use of federal funding or the granting of a federal permit. The NEPA environmental review is conducted by a "lead federal agency" that is determined to have the most relevant jurisdiction of the policy, program, or project. For the East – West Passenger Rail project, it is anticipated that the Federal Railroad Administration (FRA) would most likely be the lead federal agency. There are three levels of NEPA review:
  - **Categorical Exclusion (CATEX).** A federal action may be categorically excluded from a more detailed NEPA review if that type of action has been determined to have no significant effect on the human environment. Each federal agency has NEPA procedures that define actions that categorically excluded.
  - **Environmental Assessment (EA).** If a federal action does not meet the standards for a CATEX, then the action may have the potential to cause significant environmental effects. This requires a review of the potential impacts of the federal action on a very broad range of environmental and social factors, including air quality, noise and vibration, water resources (water quality, wetlands, flooding hazards, floodplains, and ecological systems), wildlife and endangered species, waste and hazardous materials, recreational and open space resources, land uses, cultural and historical resources, aesthetics and visual impacts, socio-economic and Environmental Justice, public health and safety, transportation systems, and energy resources. If the lead federal agency determines that the federal action will not have significant

social and environmental impacts, then it will issue a Finding of No Significant Impact (FONSI). If the EA indicates that the environmental impacts of a proposed federal action would be significant, an Environmental Impact Study would be required.
    - The NNEIRI project completed an EA, and the FRA, as the lead federal agency, issued a FONSI.
    - The East – West Passenger Rail project would most likely entail an EA. That may be sufficient for Alternative 3, which proposes improvements similar to those evaluated in NNEIRI. Alternative 4 and Alternative 4/5, however, would have social and environmental impacts outside the historical railroad alignment, and may not receive a FONSI.
- **Environmental Impact Statement (EIS).** An EIS is required if it is determined that a proposed federal action has the potential to significantly affect the human and/or natural environment. The EIS for a transportation project would generally cover similar issues to what is covered in an EA, but the regulatory requirements for an EIS are more detailed and rigorous. In addition, there are generally higher standards for mitigation and monitoring of impacts. The EIS process concludes with the lead federal agency issuing a Record of Decision (ROD), which states the agency's decision, describes the alternatives evaluated, and states the requirements for mitigation and monitoring.
- **Other federal permits.** A range of other federal agency review and would likely be required for the East – West Passenger Rail project, including but not limited to the following:
    - Section 106 historical approval (Massachusetts Historical Commission)
    - Section 404 Clean Water Act permit (U.S. Army Corps of Engineers)
    - National Pollutant Discharge Elimination System (NPDES) permit (U.S. Environmental Protection Agency)

- **State and Local Environmental Review.** The East – West Passenger Rail project would also require state and local environmental review. The environmental review process for the Commonwealth of Massachusetts is governed by the Massachusetts Environmental Policy Act (MEPA). MEPA is administered by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). The requirements for MEPA are governed by the MEPA statute (Massachusetts General Laws, Chapter 30, Sections 61 – 62I), which establishes "impact thresholds" for the level of environmental review required for a given project. The MEPA process entails the following principal filings, depending upon the degree of impact.
    - **Environmental Notification Form (ENF).** An ENF provides general information about a project, along with an assessment of the project relative to established MEPA thresholds for impacts to land, wildlife, wetlands, waterways, tidelands, water quality, wastewater, transportation systems, energy, air quality, solid waste, hazardous waste, historical and archaeological resources, and Areas of Critical Environmental Concern (ACECs). The ENF is subject to public and public agency review and consultation.
    - **Environmental Impact Report (EIR).** If it is determined that the project exceeds any of the MEPA thresholds, a mandatory EIR is required. Irrespective of which thresholds are exceeded, the EIR must evaluate the full range of social and environmental impacts governed by MEPA. Depending on the scale of the project and the level of impact, a Single EIR (SEIR) may be required, or a Draft EIR (DEIR) and Final EIR (DEIR). Based on the public and agency review and comments provided on the project, the Secretary of EEA will issue a Determination on the

EIR as to whether or not the EIR is adequate, and what mitigation measures are required. If the EIR is determined to be inadequate, a supplemental EIR may be required to address those inadequacies.

These MEPA review filings and impact assessments share many similarities with NEPA review, and projects frequently file "joint documents" that cover review requirements for both NEPA and MEPA. Given the nature and anticipated impacts of the Final Alternatives, the East – West Passenger Rail project would almost certainly exceed thresholds that would trigger the preparation of an EIR; the scale of the project would most likely require both Draft and Final EIRs.

- **Other State and Local Permits**. Other state and local environmental permits would likely be required for the East – West Passenger Rail project, including but not limited to the following:
  - Chapter 91 Waterways License (Massachusetts Department of Environmental Protection, MassDEP)
  - Stormwater Management Standards Compliance Review (MassDEP)
  - Massachusetts Contingency Plan Review/Preliminary Determination (MassDEP)
  - Notification Prior to Construction or Demolition (MassDEP)
  - Section 401 Water Quality Certificate (MassDEP)
  - Order of Conditions under the MA Wetlands Protection Act and local wetlands bylaws (Conservation Commission for all municipalities affected by the project)
  - Building permits (Massachusetts Department of Public Safety, municipal governments)

Project Funding and Financing

The following summarizes currently authorized potential funding sources that could support the project's capital costs. These include grants and other federal funding sources, as well as potential "value capture" strategies that could be adopted to provide additional revenue streams for the project. Possible funding sources for East-West rail could include federal grants and loans administered by the Federal Transit Administration, Federal Railroad Administration, depending on the ultimate characteristics of the project.

This section provides an overview of potential capital sources of funding and financing that may be available from federal, state, local, and Amtrak sources:

- **Federal Transit Administration (FTA).** Since 1964, the FTA has provided grants to help create and enhance various local public transit systems. The FTA annually provides both competitive and formula FTA funds. FTA funds are available for transit projects, including commuter rail, but are not currently usable for intercity passenger rail projects.
  - **Capital Investment Grants (CIG) – New Starts.** New Starts is FTA's primary capital funding program for new or extended fixed guideway and corridor-based bus systems across the country, including rapid rail, light rail, commuter rail, bus rapid transit (BRT), and ferries.
  - **Pilot Program for Expedited Project Delivery.** FTA plans to select up to eight capital transit projects for expedited grant awards. These projects must be supported through a public-private partnership and operated and maintained by employees of an existing public transportation provider.
  - **Better Utilizing Investments to Leverage Development (BUILD) Transportation Grants Program (formerly TIGER).** The BUILD program is a highly competitive program for

projects of national interest. These projects should connect communities to jobs, education, and services that stimulate long-term job growth, and strengthen opportunities for the middle class.

- **Formula Funds.** FTA formula funds are distributed by formula to states and metropolitan areas to fund transit, not intercity rail, investments. In urbanized areas, transit formula funds can cover capital costs, but usually cannot be used to cover O&M costs, except for preventive maintenance costs. FTA formula funds are distributed to designated recipients in urbanized areas based on route miles, revenue vehicle miles, and population. following three programs:

- **Federal Railroad Administration (FRA).** The FRA has been supporting the nation's rail network through several competitive grant programs. Two active programs are the Consolidated Rail Infrastructure and Safety Improvements Program and Federal-State Partnership for State of Good Repair Grant Program. In addition, FRA administers grants to Amtrak for the Northeast Corridor and the National Network. FRA offers no formula programs comparable to those offered by FTA.
  - **Consolidated Rail Infrastructure and Safety Improvements Program.** This program was authorized in the FAST Act. It funds projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail.
  - **Federal-State Partnership for State of Good Repair Grant Program.** This program was authorized in the FAST Act. It funds capital projects that aim to repair, replace, or rehabilitate qualified railroad assets to reduce the state of good repair backlog and improve intercity passenger rail performance.
- **Potential State Funding Sources.** These include Commonwealth Transportation Funds (CTF) and MassDOT Pay-Go Capital Funds.
  - **Commonwealth Transportation Funds (CTF).** CTF capital contributions are made available to capital projects in the form of bond proceeds. These bonds are backed by the Commonwealth's revenues and repaid from the CTF.
  - **MassDOT Pay-Go Capital Funds.** MassDOT has three tolled facilities—the Western Turnpike, the Metropolitan Highway System, and the Tobin Bridge. The annual net revenues on each of the toll facilities are available for capital projects as pay-go capital funds.
- **Potential Local Funding Sources.** Municipalities and regional economic development agencies may provide local capital funding sources. These could be used to fund station area and intermodal facilities improvements through direct funding derived from a municipality's general fund or a special taxing district, as discussed below in the Value Capture section.
- **Potential Financing Sources.** The following are potential financing sources that could enable favorable borrowing to support implementation of a portion of the project costs.
  - **Transportation Infrastructure Finance and Innovation Act (TIFIA) program.** TIFIA provides federal credit assistance in direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance.
  - **Railroad Rehabilitation & Improvement Financing (RRIF) program.** RRIF provides assistance in direct loans and loan guarantees to rail projects. Eligible uses are to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, tunnels, yards, buildings, and shops; refinance outstanding debt incurred for these purposes; and to develop or establish new intermodal or railroad facilities.

- **General Obligation bonds.** General Obligation bonds can be a potential financing source for the project. Municipal bonds are secured by a local government's pledge to use legally available resources, including tax revenues, to repay bondholders.
- **Public Private Partnerships (P3s).** P3s offer an opportunity to tap into private financing sources and transfer certain project delivery risks. For example, a single private entity (which may be a consortium of several companies) assumes responsibility for multiple phases of the project, accepting long-term risks in return for prospective rewards.

- **Value capture** refers to strategies used by public agencies to recover a portion of increased property value (or, in some instances, sales tax revenues within a specific geography) as the result of public infrastructure investment. Value capture can refer to a variety of tools, such as developer contributions, transportation utility fees (TUFs), special taxes and fees (special assessment districts (SADs), business improvement districts (BIDs), sales tax districts, and land value taxes), tax increment financing (TIF), joint development (at-grade, above-grade/air rights, and utility), and naming rights.
  - **District-Based Tax Increment Financing.** Two Massachusetts district-based value capture mechanisms include District Infrastructure Finance (DIF) and the Infrastructure Investment Incentive Program (I-Cubed). These "incremental growth" mechanisms capture increases in property tax values to fund public improvements. The DIF typically refers to tax abatements provided to developers or employers to promote economic development. The I-Cubed mechanism is unique as it often includes a special assessment district component—which is a fee charged to property owners who would benefit from the new infrastructure, with those who benefit most from the project often paying a higher rate.
  - **Special Assessments and Taxes.** Two Massachusetts special tax and fee approaches include the Local Infrastructure Development Program (LIDP) and Business Improvement Districts (BID). These fee-based mechanisms charge property owners who benefit from the project. These mechanisms raise more funding toward the beginning of a project relative to incremental growth value capture mechanism.
  - **Real Estate Sales.** While the contractual instruments for real estate vary greatly – from air rights and ground leases to joint development – the legal mechanism is shared: the public sector leases or sells rights to land adjacent or on top of transit infrastructure to the private sector. The payment stream created through a real estate partnership is mutually beneficial to the public and private sectors because both receive new value from property benefitting from access to transit. Broadly speaking, these real estate transactions may be referred to as "joint development"; however, Massachusetts has greater experience with air rights and ground lease agreements.

The East – West Passenger Rail project is a large and complex project that would require a large capital investment. No one of the funding and financing strategies identified here would likely be adequate to fund the project independently, and the project would likely require a combination of many different funding sources and strategies.

5.3. Next Steps and Recommendations

Based on the study's Key Findings and Trade-Offs, there is additional study that is needed to fully complete the Conceptual Planning stage for East-West rail, additional evaluation needed for certain physical/operational elements, and strategic decisions that need to be made in order to advance opportunities for turning East-West

Passenger rail from a subject of study to a viable project that can be designed, permitted, funded, built, and operated.

While MassDOT acknowledges the preference of many Advisory Committee members to prioritize the 4/5 hybrid alternative, at this stage MassDOT recommends keeping Alternatives 3 and 4 under consideration until additional information becomes known. As such, MassDOT also recommends deferring consideration of phasing until more is known about the project's elements.

The following four areas are recommended in order to continue advancing the project remaining conceptual planning phase for East West Passenger Rail.

More Detailed Study of Economic and Community Benefits and Impacts

Many stakeholders have correctly noted that this study does not fully capture all of the potential economic and community impacts and benefits of East-West Passenger Rail. Additional study has been recommended on a number of key topics for the next round of MassDOT planning.

Therefore, MassDOT should identify funding for and begin work on additional conceptual planning for East-West Passenger rail, including

- Conducting surveys of both businesses and residents to understand market conditions, e.g., likely riders and demographics, fare sensitivity, and other market conditions
- Working with the business community across the Commonwealth and conduct additional analysis to better understand and articulate the full range of potential economic benefits, including anticipating the benefits of how the combination of a post-COVID "new normal" and focused policies to promote affordable living in western Massachusetts affect residential locational choices and work-from-home policies and trends
- Working with local and regional governments and community members to facilitate land use decisions and new development that supports and is supported by rail transportation, and that can make travel without automobiles more viable
- Conducting neighborhood workshops on community impacts and service expectations
- Reviewing and updating cost and ridership estimates periodically to reflect significant new data
- Considering how a price on carbon and VMT fees could impact rail service

Explore opportunities with rail partners

CSX policy regarding accommodation of passenger rail service along its routes favors complete separation of the passenger operations from its own tracks whenever possible. Separation is required for any passenger rail operation where train speeds exceed 90 mph. Where shared track operations occur, CSX requires new and upgraded construction to meet its latest engineering-related policies concerning weight and clearance requirements as well as design standards. Track restoration elements found in the East-West Study assumed wider track centers (distance between two tracks) than historically found along the route as well as replacement of undergrade bridges to comply with the guidance.

Therefore, MassDOT should:

- Continue discussions with CSX to ascertain whether their support for an East-West passenger service is possible and, if not, what other options exist

- Undertake additional analysis such as rail capacity modeling and right-of-way condition
- Conduct a life-cycle cost analysis, if possible, to determine the full spectrum of costs associated with greater control over the right-of-way
- Work with Amtrak to determine terms for increased right-of-way usage and the feasibility of service to Albany
- Secure independent appraisal of the current and prospective freight market

Figure 5-1 – Eastbound CSX Freight Departing Pittsfield (Credit: D. Hover)

Understand governance options for expanded passenger rail in western Massachusetts

MassDOT is not currently set up to operate as a railroad and the MBTA is limited to operations within its service areas. Therefore, state legislative changes will be needed to create a governance structure for passenger rail in the Commonwealth outside of the current MBTA service area. Such a governance structure would not only benefit an eventual East-West Passenger rail, but other services such as the Valley Flyer.

Therefore, MassDOT should develop a white paper to establish governance structure options for passenger rail outside the MBTA service district, considering:

- Structure of a public entity to provide management and oversight
    - Powers and authority
    - Eligibility to receive federal funds
    - Liability
    - Need for balance between operating independence and public control
    - Legal/regulatory, operational, and financial characteristics of intercity and commuter rail service
- Passenger rail operator
- Life cycle costs of acquiring and supporting public interest in the right-of-way and related infrastructure
- Funding sources
    - Development through construction
    - Operations (including any subsidy required for selected fare policy)
    - Maintenance and capital renewal

Evaluate funding opportunities and obstacles

The East – West Passenger Rail project is a large and complex project that would require large capital investments to develop as well as ongoing operations and maintenance funding, likely necessitating a combination of many different funding sources and strategies. MassDOT will need to work with in coordination with state and federal

elected officials and other key stakeholders to evaluate and identify funding obstacles and opportunities.

Therefore, MassDOT should:

- Continue to refine capital and operating cost estimates to set the parameters for future funding needs
- Develop a proposal for legislative changes to the federal benefit-cost analysis method based on outcomes from further study of economic and community impacts
- Based on findings from the governance white paper, catalogue existing funding sources and eligible recipients and possible future funding structures.