

## Bay Bridge Lifecycle Study

The purpose of the Bay Bridge Life Cycle Study is to:

- provide a life cycle analysis for the existing Bay Bridge;
- understand the system preservation elements including the projected capital investment;
- time bridge repairs (and capital investment); and
- determine a variety of feasible replacement options with their respective range of costs.

### ANALYSIS/SUMMARY

The life cycle study will help MDTA determine:

- when a new crossing should be constructed and operational, allowing lead time for planning, design, and construction;
- when major system preservation investments will need to be programmed; and
- when routine system preservation investments will be required throughout the life of the structure.

The east bound Bay Bridge was opened in 1952 and the west bound Bay Bridge was opened in 1973. There have been numerous projects and system preservation efforts completed on the bridge since that time including the re-decking of the westbound bridge's suspension-span and through-truss sections completed in 2010. Through the course of this study, the previous work completed on the bridge as well as the most recent Bridge Inspection Reports will be evaluated. Based on the evaluation, a system preservation plan beyond the scope of MDTA's 20 Year Long Range Plan will be developed leading to the implementation of a new crossing.

In addition to the structural components, traffic analysis will be reviewed to determine the capacity needs for a new crossing and the adjacent infrastructure.

Various concepts will be developed to determine feasible options for a new bridge considering location (adjacent to the existing structures), constructability, maintenance of traffic during construction, and the inclusion of pedestrian and bicycle crossing options. While each of the concepts will likely require right-of-way, have environmental impacts and require mitigation, the life cycle study will be limited to a fatal flaw analysis. Impacts and mitigation for a new crossing would not be done through this study and would still have to be addressed in the future through a National Environmental Policy Act (NEPA) Project Planning Study.

It is estimated that the cost of the Bay Bridge Life Cycle Study would be between \$800K and \$1M and take approximately 2 years to complete. The firms conducting the study will be performing the following tasks:

- Review Previous Studies
  - Existing Environmental Inventory
  - Traffic Modeling & Analysis (Data Collection, Analysis, Traffic Forecasting)
  - Mapping
  - Roadway Improvement to Accommodate New Bridge
  - Structural Assessment
  - Structural/Bridge Configuration Alternatives
  - Life Cycle Cost Analysis
  - Life Cycle Cost Report
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