

# MARYLAND BIKEWAYS PROGRAM APPLICATION RECOMMENDATIONS & PROJECT DELIVERABLES

## PROJECT ELEMENTS PER APPLICATION AND DELIVERABLE TYPE

The Maryland Department of Transportation (MDOT) Bikeways Program has assisted state agencies and local jurisdictions to successfully design and build bicycle infrastructure. As bicycle projects vary by facility (bike lanes, protected bike lanes or shared-use trails) and context (urban settings, suburban or rural), no two projects are exactly alike. To provide guidance to applicants, MDOT recommends the following items to be included in the application and anticipated deliverables at the completion of the project.

The information requested per project type ensures that applicants are better prepared for the current and next phase of the project. **The information is not completely inclusive of all activities that may be needed, nor does the lack of an item on the list mean it is not needed or required.** Planning, design and execution of projects vary and the needs will vary from project to project as will the state and federal rules and regulations that apply.

## ELEMENTS FOR FEASIBILITY STUDIES & PRELIMINARY (30%) DESIGN PROJECT APPLICATIONS

Feasibility studies are the initial step in bicycle project development. The MDOT Bikeways program provides funding to initiate project development with a feasibility study and preliminary design. As feasibility studies and preliminary design can be combined in the project development process, both elements are combined in the MDOT Bikeways application process. If applying for both feasibility study and preliminary design funds, the application may omit the feasibility study. If applying for preliminary design, include recommended elements of the feasibility study.

- If available, include a completed feasibility study in the application.
- Conceptual design based on survey or aerial photography delineating preferred alignment of project.

- Itemized cost estimate for the study to include existing conditions documentation, alternative alignment investigation, community outreach, preferred alignment identification, and design considerations for subsequent project development.
- Cost estimate to complete Preliminary (30%) Design including needed survey and design services.
- Letters of support from affected property owners. If a project significantly encroaches on private property, a letter of support is recommended from the property owner. Letters of support are recommended from home owners' associations, chambers of commerce, and business improvement districts.

## DELIVERABLES FOR FEASIBILITY STUDIES & PRELIMINARY (30%) DESIGN PROJECTS

At the completion of the Feasibility Study and Preliminary (30%) Design Project for shared-use paths or other more complex bicycle projects that will include curb relocation and or stormwater management, the following items should be presented:

- For feasibility studies, a completed technical memorandum including planning process, alignments investigated and a preferred alignment selected. The feasibility study should include conceptual (10%) design based on aerial photography delineating the preferred alignment of the project.
- For 30% design plans, include a title sheet with location map, legend for existing and proposed items including shading, scale, north arrow
- Typical Sections (with existing and proposed surfaces) with applicable station limits
- Design plan sheets
  - Survey line with bench marks and datum used to locate existing facilities and topography for the project's design.
  - A feasible horizontal and vertical alignment of proposed primary trail, spurs trails and destination/connector trails
  - Geometric values and stationing, on a table and on/near the alignment
  - Existing topography
    - Roadway traffic direction arrow
    - Identify existing facilities, buildings

- Floodplain, streams, ditches, storm drain systems, etc.
- Utilities designation and horizontal location
- Existing and proposed right-of-way lines
- All necessary dimensions and stations to identify and locate existing features, including topography and underground utilities.
- Size and location of all major improvements
- Proposed edge of pavement and curb lines
- Match lines
- Any needed demolition identified
- Construction access location identified
- Limits of toe/top of fill/cut slopes
- Grade and cross slope
- Preliminary pavement section
- Existing and proposed signing and pavement markings
- Limit of work
- Proposed stormwater management location and devices
- Detail sheets
  - Details drawing of proposed, non-standard elements.
  - Projects that propose boardwalks (elevated walkways), bridges, and retaining walls will include information noted on applicable status lists
- Property needs identified
- If railroad property or operations are affected by the project, documentation with the owner and operator of the railroad as well as Maryland Department of Transportation, State Highway Administration, Office of Traffic Safety is required.
- Quantity estimate with specific line items for known elements such as light fixtures, traffic barrier, structures, building, utility relocations
- Traffic analysis for projects that will influence traffic operations, such as lane removal or intersection redesign. Results of the analysis should be used to provide guidance for subsequent design phases of the project.
- For projects including bridges, boardwalks or retaining walls, additional structure elements should be completed including TS&L design and a soil boring request.

## ELEMENTS FOR SEMI-FINAL (65%) DESIGN PROJECT APPLICATIONS

Semi-final (65%) design represents a significant design effort for most bicycle facility design projects. Prior to applying for semi-final (65%) design, the following elements should be included in the MDOT Bikeways application:

- Completed feasibility study and preliminary (30%) design drawings. Include the design elements from the Preliminary (30%) Design checklist for shared-use path and more complex projects.
- Cost estimate to complete Semi-Final (65%) Design
- Letters of support from affected property owners. If a project significantly encroaches on private property, a letter of support is required from the property owner. Transfer of property or easement establishment does not have to be included, but an expression of cooperation is required. A letter of support may be substituted for a documented status of property transfer in the form of survey and draft deed agreements.

## DELIVERABLES FOR SEMI-FINAL (65%) DESIGN PROJECTS

By the completion of the Semi-Final (65%) Design Project for shared-use paths and more complex bicycle projects that will include significant curb relocation and or stormwater management, the following items, in addition to those listed in Preliminary (30%) Design, are to be presented:

- All design items and associated baselines
- Plan sheets with connecting design details to adjoining/intersection properties entrances, roads, trails and spur that demonstrate compliance with ADA guidelines
- Typical sections with proposed elements such as traffic barriers, fencing and structures
- Utility designation with horizontal and vertical locations
- All geotechnical investigation for structural foundations and stormwater management
- Existing and proposed right-of-way lines. Boundary survey for proposed right-of-way complete.
- Existing and proposed signing and pavement marking plans
- Erosion and sediment control (ESC) design plans and preliminary ESC permit approval

- Design of stormwater management facilities; closed storm drainage system; culverts and preliminary permit approval
- Preliminary maintenance of traffic plans or plate references.
- Cross sections at 50-foot intervals
- Trail projects that propose structures (bridges, box culverts, retaining walls, elevated walkways) have obtained concurrence for TS&L; Foundation Design; Soil Boring Report and; Scour Analysis Report
- Line item construction estimate with breakdown of lump sum items
- Property acquisition underway or complete
- Location of proposed staging areas
- If railroad property or operations are affected by the project, land acquisition and design coordination with the owner and operator of the railroad as well as Maryland Department of Transportation, State Highway Administration, Office of Traffic Safety is required.
- Concurrence of ADA compliance
- Vertical alignment with underground utilities and location of structures
- Proposed landscaping details and location
- Detail sheets demonstrating all proposed elements noted on design plans such as pedestrian and traffic lighting plans, structures, regulatory and informational signage
- Refined construction cost estimate

## DELIVERABLES FOR MINOR RETROFIT PROJECTS

Minor retrofit projects are for bicycle facility projects that only include signing and pavement marking with limited curb relocations and no stormwater management requirements. While other types of projects such as bike parking and bicycle counters are also considered Minor Retrofit projects, the following items are to be included for Minor Retrofit Design projects:

- Title sheet with location map, legend for existing and proposed items including shading, scale, north arrow
- Design plan sheets
  - Survey line with bench marks and datum used to locate existing facilities and topography for the project’s design; if applicable
  - Geometric values and stationing, on a table and on/near the alignment
  - Existing topography
    - Roadway traffic direction arrow
    - Identify existing facilities, buildings,
  - Utility designations and horizontal location
  - Existing and proposed right-of-way lines.
  - All necessary dimensions and stations to identify and locate existing features, including topography and underground utilities.
  - Size and location of all major improvements
  - Proposed edge of pavement and curb lines
  - Existing and proposed signing and pavement markings
  - Existing right-of-way. (If adjacent right-of-way is affected, consider a Design or Construction project)
  - Match lines
  - Any needed demolition identified
  - Typical Sections (with existing and proposed surfaces) with applicable station limits
  - Preliminary pavement section
  - Limit of work
- Details drawing of proposed, non-standard elements.
- Preliminary maintenance of traffic plans or plate references.

- For projects that will influence traffic operations, such as lane removal or intersection redesign, a traffic analysis must be completed. Results of the analysis will be used for the final design of the project.
- If railroad property or operations are affected by the project, land acquisition and design coordination with the owner and operator of the railroad as well as Maryland Department of Transportation, State Highway Administration, Office of Traffic Safety is required.

## ELEMENTS FOR CONSTRUCTION PROJECT APPLICATIONS

MDOT Bikeways Construction awards are primarily used for construction, although a portion of the award may be used for design. As such, the majority of design work must be completed prior to the application submittal or when the grant is awarded. For bicycle facility projects applying for construction funding, the following items are to be included in the application:

- All deliverables for semi-final (65%) design projects
- Property acquisition complete or nearing completion
- Public outreach conducted with general consensus in support of the project
- Required permits for construction mostly secure