


CFLHD SUPPLEMENT 9.6.6.2-1

9.6.6.2 Design Documentation

The purpose of this Supplement is to describe the Design Technical Memorandum. Add the following to Section 9.6.6.2:

9.6.6.2.1 Design Technical Memorandum

The Design Technical Memorandum is intended to provide insight into the background and decisions that impact the design of the work elements within the contract. It is an important communication tool for internal Cross Functional Team members and our external partners.

The [Design Technical Memorandum](#) is available as an MSWord template. Links to examples are provided for each of numbered sections. To view the hyperlinks to the examples, turn on the hidden text by clicking Show/Hide  on the Standard toolbar.

Use the following outline to organize the information in the Design Technical Memorandum. The outline may be modified as appropriate to fit the characteristics of the project.

1. **Introduction** - Provide a brief description of the project (location, traffic volumes and concerns, major work elements, environmental document, etc.).
2. **Major Revisions from Previous Submittal** - Describe the major revisions and/or updates that have been made to the design since the previous submittal.
3. **Existing Conditions** - Briefly describe the existing conditions, including pavement widths, asphalt and aggregate base depths, roadside slopes, etc.
4. **Traffic Data** - List the traffic data that has been obtained and reference any reports. Provide analysis and assumptions for design volumes, including design vehicle.
5. **Crash Data** - List the crash data that has been obtained and reference any reports. Provide analysis of crash data.
6. **Survey** - Describe the survey data (aerial, ground survey, etc...) provided, when it was obtained and in what formats. Provide survey datum. Describe any additional survey that may be required for the project.
7. **Environmental** - Describe the environmental process for the project and current status. Describe the environmental survey corridor limits. Describe mitigation measures or restrictions tied to the environmental document. Describe any permits that are expected to be required and provide status of obtaining required permits.
8. **Design Speed** - Briefly describe how design speed was selected.

9. **Typical Section** - Briefly describe the typical section, including the design criteria (or design exception).
10. **Roadway Design** - Describe design criteria for horizontal and vertical designs.
11. **Safety** – Using the tables in the Design Technical Memorandum template, fill in the clear zone and guardrail design values. Provide a clear zone analysis. Provide a sight distance analysis. Document the crash reduction factor.
12. **Geotechnical and Pavements** - Using the tables in the Design Technical Memorandum template, fill in the pavement service life design values. Refer to any geotechnical and/or pavement reports. Briefly describe the conclusions and recommendations of the reports.
13. **Hydraulics** - Using the tables in the Design Technical Memorandum template, fill in the hydraulics design values. Refer to any hydraulic reports that have been produced. Briefly describe the methodology used and the conclusions and recommendations of the reports. Briefly describe the methodology used to design minor culverts and pavement drainage
14. **Structural Design** - Describe any bridge designs and issues involved, as applicable.
15. **Erosion and Sediment Control** - Describe the design criteria and methodology used.
16. **Traffic Control** - For preliminary designs, briefly describe a preliminary traffic control design (plans may not be required). For intermediate and final designs, describe the design criteria and methodology used for traffic control. Describe any proposed construction restrictions and any potential impacts to public traffic.
17. **Signing and Striping** - For preliminary designs, briefly describe a preliminary signing and striping design (plans may not be required). For intermediate and final designs, describe the design criteria and methodology used for signing and striping.
18. **Revegetation** - Describe any landscaping that is required. Describe any special issues with seeding (time of year, seeding mix, slope preparation, etc.).
19. **Right-of-Way** - Describe any right-of-way or easements that will need to be obtained.
20. **Utilities** – Describe the existing utilities near the project corridor. Describe any utility work that is part of the design and the agreements in place for temporary and permanent relocation.
21. **Specifications** - Refer to the SCRs and note any special issues that need to be discussed.

22. **Construction Schedule** - Describe the logic, time constraints, and production rates used in developing the construction schedule.
23. **Construction Cost Estimate** - Briefly describe the engineer's estimate giving the total cost. Include contingencies and identify any items not included in the engineer's estimate (right-of-way, construction engineering, etc). State the assumed inflation factor used to calculate the escalated estimate. Describe any risks that are contributing to the estimated cost.
24. **Every Day Counts (EDC) Initiatives** – Using the tables in the Design Technical Memorandum template, fill in the EDC initiatives that were considered at each design phase. Briefly describe why specific initiatives do not apply or were not considered for the project. If an initiative was considered at one phase and removed at another provide a detailed explanation as to why it was removed from consideration.
25. **Other Technologies** - List potential new, emerging, innovative, and underused technologies implemented into the project. These ideas may come from a variety of programs such as the FHWA Turner Fairbanks Highway Research Facility or other FHWA offices, Strategic Highway Research Program 2 (SHRP2), Transportation Research Board (TRB), Highways for LIFE (HfL), National Cooperative Highway Research Program (NCHRP), new industry products, or other technical sources. Cross-Functional Team members are encouraged to implement unique and new technologies for project deployment.

Include any additional information as appendices. Appendices may include the Highway Design Standards form, the FLH Standard Practice Checklist, Traffic Study, Crash Data, Clear Zone and Guardrail Summary, and Sight Distance Summary.