



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Design Memorandum No. 16-04 **Technical Advisory**

January 28, 2016

TO: All Design, Operations, District Personnel, and Consultants

FROM: /s/Kenneth Franklin
Kenneth Franklin
Director, Utilities and Railroads Division
Capital Program Management

SUBJECT: Designer Summary of Required Utility Relocation - Project Design and Utility Summary

EFFECTIVE: Projects With Unresolved Utility Conflicts

This memo is to clarify the requirements in the Indiana Design Manual Chapter 104 regarding making reasonable efforts to design around existing utilities and documenting this effort for approval by the project manager. A Project Design and Utility Summary table has been created as a tool for documentation and as a decision matrix for utility conflict resolutions. The Project Design and Utility Summary table is available from the Department's Utility Coordination Standard Documents website at <http://www.in.gov/indot/3269.htm>.

It is imperative to establish the total project footprint and costs as early in the project development process as possible. A project's purpose and need as described in the Engineering Assessment or other prior studies and considerations need to be verified and substantiated in accordance with the Department's [Open Roads Program Guide](#). Evaluating alternatives to utility relocation is consistent with the Open Roads Project Review process as impacts with Utilities can directly affect the budget, schedule, environmental studies, right of way acquisition, and constructability. Alternative analysis is an iterative process that requires a collaborative effort among the Designer, Project Manager, Utility Coordinator, affected Utilities, as well as Environmental Services, Real Estate, and Construction Divisions. For example, designing around a utility may eliminate the need for right of way acquisition and allow for an accelerated schedule. By defining the proposed project footprint, evaluating existing utilities to remain in place, and utilities proposed to be relocated, "everyone knows where everyone goes".

When to Start

The complexity of the project and the level of existing utility involvement will define the extent of design alternatives analysis. The project team should set the expectations at the initiation of the project. This could be at the Start Plan Development date, project kick-off meeting, or even earlier when scoping is part of the design services contract. The expectations should align with the project's purpose and need, project cost, project schedule, and be documented. Timing will be critical in developing the Design Around utility alternatives in order to keep the project on schedule.

Documentation

When an existing Utility cannot be designed around, the designer should summarize specific locations and provide justification to impact the Utility. Where it is feasible to leave a utility in place, a brief description and cost estimate of the Design Around alternative should be developed and included with the summary table. As early as possible in the project development stage, the designer should develop an initial summary when utilities cannot be designed around and identify the need for additional information (underground manhole/vault dimensions, need for Subsurface Utility Engineering [SUE], etc). The initial project design and utility summary should be submitted to the Utility Coordinator and Project Manager. The Utility Coordinator will engage the Utilities for facility information details, eligibility for reimbursement, identifying conflict points, relocation options, and relocation costs. The Design Around alternative and cost to leave the utility in place is an extremely valuable option for the Utility and Project Team to consider when determining a recommended solution to a utility conflict.

The summary table and Design Around cost estimate should be of sufficient detail and accuracy in order for the Utility Coordinator, the Designer, and the Project Manager to collaborate with the rest of the project team to determine a final resolution to each conflict.

As new information becomes available, the project design is refined, design changes are required, and at each major project development milestone, the project design and utility summary table and cost estimate should be updated and shared with the project team.

Designers should expect the analysis process to continue into the later stages of project development or until a resolution is agreed upon. For example, an underground utility may be in conflict with a proposed footer, but the exact elevation of the utility is not available until the completion of SUE and the geotechnical report is complete to finalize the footer design; or right-of-way changes due to the buying process require a retaining wall and present a new utility conflict.

Questions regarding the designer's responsibility to design around utilities or the project design and utility summary table should be directed to Mike Hoy, Utilities and Railroad Division, at mhoy@indot.in.gov.

Project Design and Utility Summary

Reporting Period:

INDOT DES NO: 1234567
 Project Description:
 Utility Coordinator:
 INDOT Oversight Agent:
 INDOT Project Manager:

INDOT Contract NO:
 INDOT Letting Date:
 Ready for Contract Date:
 Design Consultant:
 Phone No:

Utility Coordinator	Designer (collaboration with Utility Coordinator as needed)												Utility Coordinator			Project Team Collaboration												
Utility Name & Contact Person	Conflict ID	Drawing or Sheet No.	Utility Type	Material and Size	Description Of Design Conflict With Utility	Start Station	Start Offset	End Station	End Offset	Utility Investigation Level Needed	Designer's Justification To Impact The Utility	Design Around Alternative description*	Design Around Estimated Cost*	Utility Relocation Plan	Estimated Utility Relocation Cost	Utility Relocation Reimbursable	Environmental Impact		Right-of-Way Impact		Constructability Impact		Project Schedule Impact		Project Cost Impact		Recommended Resolution	
																	Design Around	Utility Relocation	Design Around	Utility Relocation	Design Around	Utility Relocation	Design Around	Utility Relocation	Design Around	Utility Relocation		
XYZ Water	I - 3	22 - 24/94	Water	Steel/10 inch main	Roadway widening proposed pavement section - direct conflict with existing line at only 8 inches below proposed grade	101+60 Line "A"	18 ft Lt.	116+10 Line "A"	19 ft Lt.	QL-D & C; Old Plans, Survey with manhole/valve inverts	Site constraints prohibit shifting of the alignment horizontally and vertically (horizontal - existing intersections, drive approaches, buildings; vertical - existing overpass, intersections, & drive approaches)	N/A	N/A	Relocate to 5 ft inside proposed R/W via Work-in-Contract	\$105,000	No	N/A	CE/NEPA document Additional Information required to account for this utility work outside original project construction limits; No additional impacts expected after environmental coord. (no waterways, wetlands, historic in area)	N/A	No additional R/W required	N/A	Work-in-Contract: R/W must be clear, staked, & small shed removed @ 103+34 Line "A", 35 ft. Lt.	N/A	Work-in-Contract; expected 4 additional construction weeks added to time set	N/A	\$105,000 non-reimbursable - paid by the Utility per the Work-in-Contract agreement	Utility relocate via Work-in-Contract	
123 Communications	100-106	33-37/94	Communications	PVC 4 in. dia.; 4 x 3 conduit bank; concrete encased; 3200 copper pair; 1 - 6' x 10' x 7' deep vault; 4 manholes	Roadway widening proposed with reconstruction of existing open ditch exposes 4 x 3 duct bank; vault and manholes	145+10 Line "A"	26 ft Rt.	164+50 Line "A"	26 ft Rt.	QL-D & C; Old Plans, Survey with manhole dimensions/elevations recorded	Proposed design meets the current Purpose and Need of the project; To design around the utility, there is substantial project impact of additional R/W and Construction cost.	Leave utility in place by constructing a slightly graded foreslope to provide cover over the utility, then construct the open ditch further away from the roadway; substantial project impact of additional R/W and Construction cost	\$200,000 of additional R/W and Construction costs	Substantial cost and time to relocate - prefer to stay in place; Relocate to 5 ft inside proposed R/W	\$1,200,000	No	CE/NEPA document Additional Information required to account for 0.7 acre of additional R/W; No additional impacts expected after environmental coord. (no waterways, wetlands, historic in area)	No additional impact (area already covered in CE/NEPA doc.)	2 parcels impacted for a total of 0.7 additional acres permanent R/W	No additional R/W required	None	R/W must be clear & staked prior to notice to proceed issued for utility work	Approx. 20 additional days to construct design around option (additional fill and stormwater structures)	11 months after N.T.P issued	\$200,000	\$1,200,000 non-reimbursable	Design Around Option chosen; Utility enters into agreement to pay \$200,000 Design Around Option; Saves the Utility \$1,000,000; Saves 10 months during construction	
ABC Gas	200-202	26/94	Natural Gas	Steel/ 4 inch	Proposed stormwater structures	117+50 Line "A"	16 ft Rt.	119+15 Line "A"	17 ft Rt.	4 locations where proposed stormwater structures cross the existing gas line; QL-A required (pot hole for exact elevation)	Unable to design around the unknown elevations of the gas line; Update - Utility pot holed their facility; Designer was able to make modifications to the stormwater system to leave the utility in place	Unknown; Update - Designer was able to make modifications to the stormwater system to leave the utility in place	Unknown; Update - Designer was able to make modifications to the stormwater system to leave the utility in place	Utility pot holed their facility	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Design changes to leave the gas line in place	

*Design around alternative and estimated construction cost level of detail should match the current plan development stage and level of known information of the conflict (i.e. initial assessment estimated costs should be similar to an engineering assessment estimation; SUE QL-A provided for Utility - higher level of known information, design alternative and estimate should be more refined.

