Hydraulic Issues for Design-Build vs. Design-Bid-Build Projects
Design-Build vs. Design-Bid-Build

- Different routes – Same destination
- What are the differences? (Cost-Time-Quality)
- Myths – Rumors – What you have heard
- Which method is better? It depends…
- What to look for? Who to consult with?
- Don’t copy from another project
- Sometimes less is more. More information may not be better
Design-Build and Drainage Design

Take Away Points

- Cost – Time – Quality (never ending debate)
- Continuous improvement: learn from the past, close the loops, better preparation next time
- TRUST and VERIFY (Owner and Contractor)
- Clarity – what do you want? How red is the sun?
- Shall – Should – Must: are these the same?
- Risk vs. Cost (Risk down – Cost down)
- Change orders: are there change orders in D-B?
- Design-Build your ways?
Design-Bid-Build Method

• Approved Hydraulic Reports
• Build per plans
• Change orders
• WSDOT is responsible for the designs and bears the risks.
• WSDOT controls the schedules and the costs.
Design-Build Method

• Conceptual Hydraulic Reports (10%-30% design approximately)
• Request-For-Proposal (RFP) Development. Chapter 1, 2
• Chapter 2.14 Hydraulics
• Purpose of the RFPs. To supplement the current manuals
• What should be included in the RFPs
Design-Build Method

- Design-Builder (D-B) is responsible for the design as well as the construction of it.
- D-B bears the risks. Some risks are shared between WSDOT and D-B.
- Design-Build process after awarded
  - Preliminary Hydraulic Report
  - Design packages
Design-Build Method

- Review timeline (14 calendar days)
- Review and concurrence process
- Weekly or bi-weekly meetings
- Existing drainage features must be documented
- Mandatory Standards (HRM, HM, Design, Construction and others)
- Permits (WSDOT and DB)
Design-Build Method

- The final products (Final hydraulic reports with as-built plans, the final drainage features built in the field)
- Final walk through with Hydraulics Office, PE Office, Maintenance Office and the Design-Builder
- Final Acceptance/Approval. All the issues must be resolved before we can accept the final hydraulic report.
Design-Build Method

Design-Builders’ goals

• Cost is not everything
• Balance between cost, schedule, customer service and reputation (for future jobs consideration)
Design-Build Method

WSDOT’s goals

• Cost (cost is not everything)
• Final product quality
• D-Bs’ reputation, previous job performance, capability
• Safety
• Public involvement, perspectives
• Impact to the traveling public
Design-Build Method

RFP Development

• How long does it take? 2 weeks to 2 years. Typically, less than a year.
• Less design work upfront
• More risks to the Design-Builder
• Clearly define the requirements, what can or cannot be done
• Identify deviations. Ideally, deviations should be approved prior to awarding
Design-Build Method

RFP Development

• Piezometers should be installed as early as possible.
• Geotechnical work, infiltration rates should be determined prior to awarding.
• All the commitments should be clearly documented in the RFP.
• Permits should be obtained prior to awarding but not required.
Design-Build Method

RFP Development

- Right-of-Way should be obtained prior to awarding but not required.
- Utilities conflicts are mostly not looked at in details during RFP development.
- There are no structure notes in the contract plans or in the hydraulic reports.
- Innovative designs: what are allowed
- Flow spreads during construction
- Temporary Erosion and Sediment Control (TESC) – Water quality during
Lessons Learned

Is pipe liner considered as new pipe? **Yes**/**No**

• Be very specific in the RFP about the requirements or what the final products will be.
• If it is not clear, provide examples.
Lessons Learned

Acceptable construction methods.

Open cut / Jacking

- Large culverts, fish passage culverts
- Construction windows (during summer time, one-weekend closure)
- Utilities conflicts (Who will be responsible?)
Lessons Learned

Catch basins installed next to barriers and curbs.

Openings must be flushing with the barrier face or curb face.
Design-Build and Drainage Design

Interpreting the Hydraulics Manual and Highway Runoff Manual
• If a manual doesn’t say I can do it, then I shouldn’t do it - WSDOT interpretation
• If a manual doesn’t say I can’t do it, then I can do it – D-B interpretation

Use the RFP Chapter 2.14 to clarify the design so that you get what you want!
Design-Build and Drainage Design

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Design-Build Method

Any questions?

Design-Build Resources and Training
http://www.wsdot.wa.gov/Projects/delivery/designbuild/Default.htm