

**Draft Minutes**  
**April 25, 2004**

**By:**

**Jorge E. Pagán-Ortiz**

**General:**

1. Chairman Raja Veeramachaneni and Bill Bailey welcomed everyone to Cody, Wyoming
2. Past Chair Merrill Dougherty gave a copy of final product of the MDM and HDG to four officers of the Task Force
3. Chair Raja Veeramachaneni indicated that this meeting will focus on planning Task Force activities pertaining to the MDM and HDG
  - Indicated that after decades of hard work, excellent guidance has been put together
  - Highlighted a lack of marketing of the MDM and HDG and difficulties to use -- slightly behind the state-of-the-art
  - Task force should explore alternate ways to increase its use
  - HDG – seems more like guidelines and design considerations; MDM is a how to do it sort of manual for designers
  - Should it evolve into a “Green Book”?
  - Should the Task Force work towards eliminating the double parenthesis? What would be the consequence of doing this?
  - How current are the MDM and HDG when compare with other publications (e.g., HECs, HDS, other publications)?
  - How best to improve the MDM and HDS?
    - Are we using the right format, media (electronic versus paper)?
    - Copyright issues for AASHTO?
    - How to improve use of these manuals?
    - Can they be referenced to by agencies in internet specifications?
    - How these publications be to help one in his/her own agency?
    - Where should these publications be in 10 years from now?
    - Are there any liability concerns?
    - Can State DOTs take exceptions (I.e., deviate from recommendations)?
4. Vice-Chair Barry Newman indicated that PA is looking into developing a drainage design manual – suggested to turn the MDM and HDG into publications that would be similar to the AASHTO Green Book.
5. Mark Miles indicated that these manuals are more like specifications and probable we don't need to have both.
6. Rick Renna indicated that the HECs are fulfilling their purpose – provide strong guidance and are updated more frequently than the MDM and HDG.
7. Lockwit Reese suggested that we develop a listing of alternatives to be studied by the Task Force.
8. Alternatives discussed:
  - When there is a redundancy, one should refer to the HECs
  - Keep as they are
  - Combine the MDM and HDG
  - Eliminate double parenthesis and make it policy
  - The MDM and HDG should become primary policy or design specification publications
  - HDG should be a policy manual
  - Both should focus on hydrology/hydraulics activities
9. Mark Miles suggested that a lot can be done to reduce the volume of the MDM – it may not need to get into so many methods
10. Rick Renna suggested that policy and procedures should be separated – policy book reduced and the procedures become a “hard book”.

11. Further discussion continued about the HDG – this should contain policy – be updated every 10 years; MDM should contain the procedures – update every 5-10 years based on the updated to the HECs.
12. Mark Miles suggested that the TF should consider taking most of the methods and repetitions out of the MDM and put them on the HDG.
13. Lockwit Reese suggested to combine both the MDM and the HDG
14. Mark Milers indicated that he liked Rick Renna’s approach – policy and criteria for design – this is actually what an agency wants to do – it is guidance that has been adopted. He also indicated that the policy should be consistent with the CFR’s and should have room for regional differences and local government differences.
15. A general consensus was reached for proposed changes to the HDG and MDM as follows:
  - HDG
    - Leave it in its current form
    - Make minor updates to keep the document reasonably current.
    - Allow for regional differences and local government differences
    - Update in a lesser frequency (every 10 years)
    - Need to check with AASHTO regarding copyright issues
  - MDM
    - Remove policy and formulate a methods manual.
    - Split MDM into a 3-level document (policy, procedure, and evolving technology).
      - Level 1: “A Policy on Drainage Design of Transportation Facilities”.
      - Level 2: “Recommended Procedures for Drainage Design of Transportation Facilities”.
      - Level 3 (On web only): “List of additional procedures for Drainage Design of Transportation Facilities”.
      - In addition, a Level 4 (Unlisted) was discussed to cover experimental practices, evolving ideas and research outcomes.
16. Proposed guidelines for the recommended Level 1, 2, & 3 separation are:
  - The TF chapter chairs should start identifying what is policy and what are procedures in their corresponding chapters of the MDM.
  - Eliminate number of examples and refer to the referenced publications for them – this approach will get the TF to be more focus on what is policy and procedures.
  - AASHTO will send chapters to each Chapter Chair to start working in separating policy and procedures
    - Level 1: “A Policy on Drainage Design of Transportation Facilities”
      - Overtopping frequencies & freeboard
      - Spread Criteria
      - Required minimum methodology, required considerations and required values
      - Selected design criteria
      - Minimum/maximum values for parameters such as Manning’s “n”
      - Evaluate policy sections and policy statements for the adjectives that imply requirements or preceded by “should” or “must”
      - Definitions
      - List considerations (i.e., size of debris) that may lead to change policy or bridge design exceptions.
      - Compliance with specific laws
      - State legal people don’t want to override AASHTO -- policy should be similar in philosophy to AASHTO Green Book.
      - Double parents should be evaluated for Level 1 & 2
      - Maintenance should be discussed in this level.

- Level 2: “Recommended Procedures for Drainage Design of Transportation Facilities”
  - Recommended methods and procedures for specific application
  - Examples should be reviewed and evaluated by each chapter chair for appropriateness
  - Examples already available in HEC and HDS publications should be evaluated for removal from the AASHTO manual
- Level 3: List of Additional Procedures for Drainage Design of Transportation Facilities
  - This level should contain usable information endorsed by the TF such as the FHWA HECs and HDS’, NCHRP Research publications
  - It should contain products being developed

### **General Presentations and Comments:**

1. Dave Henderson gave a briefing on the effects of Hurricane Isabel
  - DOT did not get a big hit on the inland highway system
  - Biggest problems were on the barrier islands and coastal highways
  - New inlet opened at the Southern tip of the Hateras Island. This new inlet was called Isabel. Governor promised to re-open road. The temporary solution will be to plug the new Inlet opened by the hurricane. The permanent solution will be to build a bridge.
  - 70% of the dunes were wiped out by the force of the storm surge
  - Most of recovery work was to remove sand.
  - Environmental concerns have been raised about filling in the inlet – permit to fill up the new island was going very easy until DOT was notified by the regulatory agency that a 404 Permit cannot be authorized because the DOT was not the property owner. In addition, the Department of Fish and Wildlife not interested in doing anything that could interfere with Mother Nature’s natural process of opening islands. NC DOT accepted ownership on bridging the island. Inlet Isabel is expected to be closed by November 1, 2003. Pavement will be placed and traffic will be restored – this will be a temporary solution. NCDOT will then begin a design phase for a new bridge
2. Dave Henderson reported that as far as inland damages is concerned that few sites were washed out.
  - There was a fairly new bridge whose approach was washed out. The biggest lost was a barrier island used to protect the highway. He indicated that they were lucky that the Hurricane entered through a rural section, which is not heavily populated – most damage was due to wind damage.
  - Dave Henderson reported that the navigational channel of the Bonner Bridge moved. Scour depths on the bridge reached below critical elevations. The bridge has 6-10 years left of service life. The bridge will be replaced with a longer one -- 17 miles long.
3. NCHRP updates (Tim Hess)
  - Tim Hess made a power point presentation on NCHRP project activities and provided a hand-out of his presentation
  - NCHRP 24-14, Scour at Contracted Bridge Sites – Dr. Art Parola, Jr.
  - NCHRP 24-15, Bridge Scour in Cohesive Soils -- Dr. Jean-Louis Briaud
    - Project is completed and publication is in process
    - Panel asked for an additional \$400 K to investigate prediction of abutment scour on cohesive soils.
  - NCHRP 24-16, Methodology for Predicting Channel Migration -- Ayres Associates
    - Project completed and publication is in progress.

- NCHRP 21-07, Development of Portable Scour Monitoring Equipment – Ayres Associates
    - Project just completed and publication is in progress
  - NCHRP 15-23, Technical Support for Conversion of the AASHTO MDG to Dual Units – project completed.
  - NCHRP 24-18, Countermeasures to Protect Bridge Abutments from Scour University of Mississippi/Michigan Tech
    - Completion in 2005
  - NCHRP 24-20, Prediction of Scour at Bridge Abutments – University of Iowa
    - Needed \$200K
    - Completion in 2005
  - NCHRP 24-7(2), Countermeasures to Protect Bridge Piers from Scour, Ayres Associates
    - Added \$450K
    - Completion scheduled for October 2004
  - NCHRP 15-24, Hydraulic Loss Coefficients for Culverts
    - Finished Phase I
    - Panel will meet in November 2003 in Utah.
  - NCHRP 24-26, Effects of Debris on Pier Scour at Bridges
    - Funding increased from \$300K to \$600K to cover for research test at laboratory and report
  - NCHRP 20-07(178), Evaluation and Update of NCHRP 24-08: Scour at Bridge Foundations- Research Needs Study
    - Funded at \$25K
    - Intended to update NCHRP 24-08
    - NCHRP 24-08 contractor compiled scour research from all over the World. The contractor identified 39 problem statements, which were then prioritized. Priorities have been pretty much followed during the last several years to conduct research on stream stability and scour at highway bridges.
    - Phase I of NCHRP 20-07(178) will consist on assessing the current knowledge in the areas of stream stability and scour technology through the conduct of a literature review, identify gaps in these areas, assess where research has taken us this far. An expert panel will be assembled to work in this scope. Funds approved for Phase I were \$25K.
    - Phase II of NCHRP 20-07(178) will consist of identifying needs to fill the gaps and advance current technology on stream stability and scour and make recommendations to AASHTO Task Force.
  - Comments on Problem Statements for research on Time-Rate of Scour
    - There is limited data available
    - Florida has done quite an extensive research –over 12 years of information on this topic, which includes tidal scenarios
    - Task Force is considering increasing NCHRP project up to \$600K
  - Effect of Fractured or Degradable Rock on Pier Scour at Bridges
    - Funded at \$350K
    - Rick Renna is concerned that funding level is too low
    - TF voted to increase it funding level to \$600K
4. National Hydraulics Conference
- Dr. Larry Arneson announced that the FHWA/NCDOT sponsored conference will be held in Asheville, NC from August 31 to September 3, 2004
  - This conference will be open to all State DOTs
  - Consultant participation in the conference will be up to the State DOT
  - Cynthia Nurmi of the FHWA National Resource Center in Atlanta, GA will be sending out a conference announcement.

5. General discussion about software
  - State DOTs would like to have input on what their needs are on software (i.e., what additions are needed, what needs to be updated)
  - Vice-chair Barry Newman indicated that WMS is a huge strive to integrate H&H engineering environment
  - Dr. Larry Arneson indicated that FHWA will be doing a web-based survey
    - Find-out how things are going at DOTs in hydraulics
    - Idea of software survey to be part of it
    - Will include questions on training needs
    - There is limited data available
    - Florida has done quite an extensive research, which includes tidal scenarios
  - Bill Bailey commented about his reservations on using HEC-RAS for bridge hydraulics – prefers WSPRO. He recommended that WSPRO engine should be improved.
6. Jim McDonell indicated that 40 State DOTs are currently using the U.S. Customary system of units and that another 6 will be shifting back to it.
7. On the subject of tidal hydraulics the following comment was offered:
  - Coastal engineers are the leaders in this technical discipline. There should be a policy statement in the MDM on this regard stating that the hydraulics engineer will consult with a coastal engineer when dealing with tidal hydraulics.
8. NPDES – How is this applied and delegated to States?
  - Guidance on NPDES should be added to chapters on Erosion and Sediment control, and on Storm Water Management.
9. Additional Chapters may be needed on the following areas:
  - Ground Water Hydraulics – this has a potential in our mission as a TF.
  - Wetlands in the Highway Environment
  - The TF needs to be in touch with the AASHTO Task Force on Environmental Design.

### **General Discussion on MDM Chapters Review:**

1. Chair Raja Veeramachaneni facilitated a discussion on various Chapters of the MDM
  - Chapter 1 -- Introduction of each chapter will change according with new set of manuals
  - Use of double parenthesis will be revisited
  - There is a need to revisit use of Metric System versus the U.S. Customary System of Units (English)
  - Chapter 2 (Jim Richardson)
    - More discussion needed on NPDES (Section 2.5.11)
  - Chapter 3 – Policy (Francis Nishioka) – no more updates
  - Chapter 4 – Documentation (Glen DeCou)
    - Recognize that documentation for H&H is needed and that recommended procedures should be shown in a Level 2 manual.
  - Chapter 5 – Planning and Location (Mike Fazio)
    - Rick Renna commented that there are problems related to choosing a location for a storm water management and then later on having to change the location of it.
    - Is there a need to do advanced right-of-way?
  - Chapter 6 – Data Collection (Lockwit Reese)
    - This is generally a procedure chapter; however, a small portion would be on policy.
    - Rick Renna brought to the attention the importance that it is to anticipate what data collection is needed early in a project to address issues pertaining of the type of soil and its effect on scour issues (rock versus clay).

- Should data collection issues be part of an EIS? Would data collection help to identify a need for early permits on a project?
- The subject of environmental streamlining was discussed – every state is doing this; therefore, we need to address the RAM. This should be address but not dictating the process.
- There is an overlap between Chapters 5 (Location) and 6 (Data Collection) that needs to be looked at to avoid duplication.
- Chapter 7 – (John Boynton)
  - Need to raise standard for emergency routes (for the design storm)
- Chapter 8 – Channels (Brooks Booher)
  - Move channel classification from MDM to HDG.
  - Recommends a chapter on roadside channels, which follows HEC-15 and another on natural channels and channel restoration.
  - It was proposed to rename this chapter to “Open Channel Flow for Roadside Channels and Natural Channels”.
- Chapter 9 – Culverts (Te Ngo)
  - “n” values – theoretical values are shown in this chapter
  - Some guidance on actual roughness conditions will come from the current NCHRP project.
  - Mark Miles suggested that the guidance contained in Chapter 15 (Design of Fish Passage) should be addressed in this chapter.
  - Vice-chair Barry Newman indicated that there is a big gap in the area of resistance in culverts with baffles.
  - In addition, information is needed on stability of bed materials in culverts to make it look natural.
  - Richard Phillips indicated that a reference on culvert outlet protection or scour at culvert outlets is needed in Chapter 11.

### **Field Trip:**

#### 1. Demonstrate Road Project

- Channel impact
  - River situated in Canyon
    - Formed by volcano
- First Buffalo Bill Reservoir
  - Raised to increase capacity]
  - Highway had to be increased
  - Used riprap protection due to high winds based on fetch.
  - Low water elevation due to drought for the last 3-5 years. Dikes keep soil saturated on northern part of the reservoir to prevent sand clouds during high winds.
- Roadway Encroachment at Hanging Rock
  - This is an unstable braided reach in a sensitive area due to longitudinal encroachment
  - Got a qualified geomorphologist to study the site –recommended Rosgen for countermeasures to protect the highway – Rosgen recommended to convert the river -- from braided to meander using rock weirs and barbs.
- Ranger Station Site
  - River in this site is unstable by nature. The goal was to make it stable by establishing controls.

- Grinnell’s Creek

- The road at this site crosses over many alluvial fan – extremely unstable. Rosgen’s team members failed to properly identify the type of channel.
- Bridge over Shosholhe River
  - Almost lost during construction as a result of an extreme flood event ( $Q = 18,000$  cfs)
- Hanging Creek Project
  - Used concrete dikes along the highway to limit abrasion. Their design allows these dikes to be covered (inundated) at low flows ( $Q_2$ ). This area is characterized by Breccia, a soupy mixture of rock and ash resulting from a volcanic eruption in this area. The Breccia has been eroding thru the years by the active melting of snow action and wind action.
- Yellowstone National Park
  - Yellowstone Lake
    - Largest mountain lake in the World
    - It has 110 miles of shore.
    - Average depth is 300 feet.
  - A 1988 fire in Yellowstone Park burned one million acres of its 2.1 million acres. Another fire burned 50,000 acres in 2003.

### **AASHTO Updates (Jim McDonnell)**

1. Informed that the AASHTO Task Forces will be called Technical Committees.
2. Meeting will be limited to 6 days per year. If there is a need to go longer on a meeting, the TF can request it to the Subcommittee on Design.
3. A member can be substituted if he/she misses 2 or more meetings. On this subject, the TF will be proposing to remove a TF member from Quebec with some other member from the North East. Richard Murphy, of the Massachusetts DOT, was mentioned as a possible candidate.
4. With regards to member’s representative designation – if a member is promoted to a higher level, he/she can designate another person who works for him/her as the member’s representative; however, other person on the same region can compete for that position
5. A work plan is needed from the TF (see 5-year work plan in next section)
6. TF should look at publications that have to be updated – do this every couple of years.
7. Next two meetings:
  - Standing committee on Design, June 8-11 in conjunction with the standing committee in Environment, Salt Lake City, Utah, June 8-11, 2004.
  - TRB Symposium in Geometric Design, Chicago, Illinois, June 2005.
8. Research topics – Subcommittee on Design wants to have the opportunity to prioritize. The advantage is to have their co-sponsorship – more sponsorship means a higher possibility of get voted higher.

**TF Work Plan for the Next 5 Years**

1. Spring 2004 – Complete review and initial separations of Level 1, 2 & 3. Table Reading of outlines and preliminary content – Chair Raja will check with AASHTO to see if they can set a system to have each chapter chair and team members go in and download/upload chapters as they are reviewed. FHWA can help in setting up a similar system, too.
2. Fall 2004 - Table Reading of Policy Chapters & Presentation of Software NCHRP Project.
3. & Spring 2005 – Table Reading of Policy Chapters & presentation from Scour Research.
4. Request 20-07 funding for a consultant in Spring 2005 for Fall of 2006 to assist on Level 1 & Level 2.
5. Fall 2005 & Spring 2006 – Table reading of Procedures
6. Fall 2006 – Follow up table reading of Procedures
7. Spring 2007 – Table reading of HDG Updates
8. Spring 2007 – Intermediate review of consultant product
9. Fall 2007 – Final review of HDG and the consultant product
10. Spring 2008 - Level 3 development
11. Ballot Spring 2008
12. Fall 2008 – Develop a five year work plan for updates of HDG, Level 1, 2 & 3.
13. Go to publication Fall 2008
14. Review NCHRP Research Needs every Spring meeting.

A key point was made with regards to communication – the TF needs to improve its communication between Chapter Chairs and Committee Members. Everybody's help is welcomed and appreciated.

**Business Meeting**

- |  |   |             |
|--|---|-------------|
| 1. Total funds available for this meeting:   | + | \$ 2,706.73 |
| • Admission fee to Yellowstone park:   | - | \$ 240.00   |
| • Transportation fee by Bus to Yellowstone Park:   | - | \$ 430.00   |
| • Conference Snacks:   | - | \$ 908.34   |
| • Other funds (from other registrations):  | + | \$ 326.00   |
| 2. Funds carried to Spring Meeting in Little Rock, Arkansas:   | + | \$ 1,453.39 |
| 3. Registration fee for Spring 2004 meeting will be \$95   |   |             |
| 4. A brief discussion took place with regards to a location for the Fall 2005 TF meeting. The TF would like to explore the possibility to hold its Fall meeting in Lake Tahoe, NV. |   |             |

**AASHTO TASK FORCE MEMBERS/MEMBER'S REPRESENTATIVES (April 25, 2004)**  
**[Please Review Your Address, Make Corrections, & Initial]**

<b>MEMBER</b>	<b>ADDRESS</b>	<b>TELEPHONE</b>
Mr. Bill Bailey Hydraulics Engineer	Wyoming Transportation Department 5300 Bishop Blvd., Cheyenne, WY 82009	(307) 777-4045, FAX 777-4279 <i>william.bailey@dot.state.wy.us</i>
Mr. Brooks Booher Staff Hydraulics Engineer	AR State Highway & Transportation Dept. 10324 I-30, Little Rock, AR, 72209 PO Box 2261, Little Rock, 72203-2261	(501) 569-2589 FAX 569-2057 brooks.booher@ahtd.state.ar.us
Ms. Andrea Hendricks State Hydraulics Engineer Office of Bridges and Structures	Minnesota Department of Transportation 3485 Hadley Avenue North Oakdale, MN 55128	(651) 747-2162 FAX 747-2108 andrea.hendricks@dot.state.mn.us
Dr. Hani Farghaly Senior Hydrotechnical Engineer Highway Design Office	Ontario Ministry of Transportation 301 St. Paul St, 2nd Floor North St. Catherines, Ontario L2R 7R4	(905) 704-2244 FAX 704-2051 hani.farghaly@mto.gov.on.ca
Mr. Glenn DeCou Headquarters Hydraulic Engineer State Highway Drainage Design	CALTRANS, 1120 N Street, Room 2206, Sacramento, CA 95814, P.O. Box 942874 Sacramento, CA 94274-0001	(916) 653-1302 FAX 653-1446 Glenn_S_DeCou@dot.ca.gov
Mr. Merrill E. Dougherty Hydraulics Engineer Supervisor (Past Chair)	Indiana Department of Transportation 100 North Senate Avenue, Rm N642 Indianapolis, IN 46204-2228	(317) 232-6776 FAX 233-4929 mdougherty@indot.state.in.us
Mr. Mike Fazio Hydraulic Engineer	Utah Department of Transportation 4501 South 2700 West Salt Lake City, Utah 84119	(801) 957-8556 FAX 965-4564 mfazio@utah.gov
Mr. Preston Helms Hydraulics Engineer	SC Department of Transportation P.O. Box 191, Columbia, SC 29202 955 Park Street, Columbia, SC 29201	(803) 737-1723 FAX 737-9868 helmspw@dot.state.sc.us
Mr. David Henderson State Hydraulics Engineer	NC DOT, 1590 Mail Service Center Raleigh, North Carolina 27699 1020 Birch Ridge Rd., 27610 (deliveries)	(919) 250-4100 FAX 250-4108 dhenderson@dot.state.nc.us
Mr. Mark D. Miles State Hydraulic Engineer D&ES/Bridge	Alaska DOT and Public Facilities 3132 Channel Drive, Rm 100 Juneau, Alaska 99801	(907) 465-8893 FAX 465-6947 mark_miles@dot.state.ak.us
Mr. Roy T. Mills State Hydraulics Engineer	VA Dept. of Transportation 1401 East Broad St. Richmond, Virginia 23219	(804) 786-9013 FAX 225-3686 roy.mills@virginiadot.org
Mr. Barry A. Newman Chief, Hydrology and Hydraulics Section (Vice Chair)	Bureau of Design, PADOT 400 North St, 7th Floor, P.O. Box 3560 Harrisburg, PA 17105-3560	(717) 787-5024 FAX 787-2882 <i>banewman@state.pa.us</i>
Mr. Te Anh Ngo Roadway Drainage Engineer Roadway Design Division	Oklahoma Dept. of Transportation 200 N.E. 21st Street Oklahoma City, Oklahoma 73105	(405) 521-6772 FAX 522-4519 tngo@odot.org
Mr. Francis H. Nishioka Hydraulic Engineer	Department of Transportation 601 Kamokila Boulevard, Rm 636 Kapolei, Hawaii 96707	(808) 692-7561 FAX 692-7617 <i>francis.nishioka@hawaii.gov</i>
Mr. Matt O'Connor Hydraulics Engineer or Mr. Bob Dawe (785-2917)	Illinois Department of Transportation 2300 S. Dirksen Parkway Springfield, Illinois 62764	(217) 782-2714 FAX 782-7960 oconnormr@nt.dot.state.il.us dawerl@nt.dot.state.il.us
Mr. Richard Phillips Bridge Hydraulics Engineer	South Dakota Department of Transportation 700 East Broadway	(605) 773-3285 FAX 773-2614

**AASHTO TASK FORCE MEMBERS/MEMBER'S REPRESENTATIVES (April 25, 2004)**  
**[Please Review Your Address, Make Corrections, & Initial]**

<b>MEMBER</b>	<b>ADDRESS</b>	<b>TELEPHONE</b>
Office of Bridge Design	Pierre, South Dakota 57501	rich.phillips@state.sd.us
Mr. Lotwick I. Reese Hydraulics Engineer (Retired from DOT)	Idaho Transportation Department P.O. Box 7129, Boise, Idaho 83703 3311 West State Street Boise, Idaho 83707-1129	(208) 334-8491 FAX 334-8040 lreese@itd.state.id.us
Mr. Rick Renna State Drainage Engineer	Florida Department of Transportation 605 Suwannee Street M.S. 32 Tallahassee, Florida 32399-0450	(850) 414-4351 FAX 922-9293 rick.renna@dot.state.fl.us
Mr. James R. Richardson Road Design Leader	Kansas Department of Transportation Bureau of Design, 9th Floor Docking State Office Bldg. Topeka, Kansas 66612-1568	(785) 368-8292 FAX 296-6946 jimr@ksdot.org
Mr. Norman P. Schips Senior Civil Engineer	NY State Department of Transportation 1220 Washington Avenue State Campus, Building 5, Rm 408 Albany, NY 12232	(518) 485-8611 FAX 457-6477 nschips@gw.dot.state.ny.us
Mr. David Stolpa Manager, Hydraulics Branch	TX DOT, 125 E. 11th Street (for mail) 118 E. Riverside (for overnight) Austin, Texas 78701-2483	(512) 416-2271 FAX 416-2354 dstolpa@dot.state.tx.us
Mr. Jorge E. Pagán-Ortiz Senior Hydraulics Engineer (Secretary)	FHWA, HIBT-20 400 7th Street, SW., Room 3203 Washington, D.C. 20590	(202) 366-4604 FAX 366-3077 jorge.pagan@fhwa.dot.gov
Dr. Duc minh Tran	Ministère des Transports du Québec 930 Chemin Sainte-Foy 7è étage Ville Québec Province Québec, Canada G1S 4X9	(418) 644-0894 FAX 646-5415 <a href="mailto:mdtran@mtq.gouv.qc.ca">mdtran@mtq.gouv.qc.ca</a>
Mr. Raja Veeramachaneni Chief, Highway Hydraulics Division (Chair)	Maryland State Highway Adm. 707 N. Calvert St, C-201 Baltimore, Maryland 21202	(410) 545-8390 FAX 209-5031 rveeramachaneni@sha.state.md.us

**AASHTO HIGHWAY SUBCOMMITTEE ON DESIGN OFFICERS**

Dr. Kam K. Movassaghi (Chair) Secretary, LA DOT & Development	P.O. Box 94245 1201 Capitol Access Road Baton Rouge, LA 70804-9245	(225) 379-1200 FAX 379-1851 kammovassaghi@dotd.state.la.us
Mr. Dwight Horne (Secretary) Director, Office of Program Administration	FHWA, (HIPA-1) 400 7th Street, SW., Room 3134 Washington, D.C. 20590	(202) 366-5530 FAX 366-7298 dwright.horne@fhwa.dot.gov
Mr. Jim McDonnell, Associate Program Director for Engineering	AASHTO, Suite 249 444 North Capitol Street, NW. Washington, D.C. 20001	(202) 624-5448 FAX 624-5469 <a href="mailto:jimm@ashto.org">jimm@ashto.org</a>