

MINUTES
TRANSPORTATION RESEARCH BOARD
Business Meeting – ADC30
Committee on Ecology and Transportation (ADC30)
Business Meeting
January 23, 2012
8:00 a.m. – 12:00p.m.
Hilton – Cabinet
Minutes

Prepared and Submitted by:

Marcia Bowen
Secretary ADC30

Marcia Bowen

Marcia Bowen

January 2012

TRB ADC 30
Committee on Ecology and Transportation
Annual Business Meeting

1. **Introduction:** The meeting was called to order at 8:10. Introductions were made. The attendance roster was circulated.
2. **Recognition of Milestones & A Moment of Reflection:** Alex mentioned the record attendance at ICOET/mid year meeting. He acknowledged the family-like aspect of the committee, meeting over past 10 years. He acknowledged Carol Cutshall's passing soon after the annual meeting last year. Many members are not here due to conflicts and funding cuts. Right before Thanksgiving we heard that member, personal friend and animal advocate Susan Hagood of the Humane Society had lost a ferocious battle with cancer. Personal reminiscences were shared.
3. **TRB Update:** Bob O'Loughlin (FHWA), Environment and Planning Section Chair, thanked Alex for his leadership and excellent ICOET conference and the good work that we have done. The committee has progressed quickly. He will support Alex in helping the committee become what it wants to be. He will try to make as many meetings as possible. He acknowledged the good work that the committee had done and the article citing the Committee. Attendance this year is on par with last year (10,800), which is encouraging given the budget situation. There are 600 sessions and 500 committee meetings. The Spotlight theme is :Transportation: Putting innovation and people to work. There are 4300 papers, an increase over the 3900 last year; because of this, more papers were placed in poster sessions and poster sessions are shorter. Attendees are 1/3 are committee participants, but 1/3 are new attendees; we should keep this in mind during presentations. Many committees have research subcommittee chairs and encouraged us to continue to do so. A new/young member session was held, with a great turn out at our table including both new and young. Young members council is doing a good job orienting . New leadership guidelines require justification for member expansion beyond the 25 members. This will allow committees to appoint vice chairs. Transportation Research Record is becoming more influential in what people are doing in their jobs; TRB getting good feedback in this regard. Next year's annual meeting will be held from January 13-17, with the theme "Deploying transportation research-doing things smarter, better, faster". He will be asking the committee for input on this. TRB is working on making the annual meeting webpage more informative. He asked the committee for volunteer to help define terms for users.
Christy Gerencher, Senior Program Officer & Staff Representative provided TRB updates as well. Christy was asked about the feasibility of getting a theme or article into TR News. TRB is scheduling theme issues of TR News into 2014; however, an article could be put in earlier and they would be happy to accept it at any time. An article timed with ICOET would be ideal. Christy is responsible for resource center websites and will be following up with our volunteer.
4. **Subcommittee Reports**
 - 4.1 **Annual Meeting Program** – Alex Levy acknowledged some extraordinary help from committee members on this annual meeting. Alex was called away for a field project and had limited communication. Bethany Williams, a new and young member, worked to help the co-sponsored workshop on environmental management of low volume roads. Dale Youngin, who was not present, was thanked for pulling together the session with Landscape and Environmental Design on Best of ICOET. Joe Burns was

commended for helping Dale organize the speakers and the session. Marcia Bowen was acknowledged for preparing the newsletter and assisting Alex.

Four papers were submitted, three were selected, all presented as posters. The Committee held a workshop yesterday on Environmental Management of Low Volume Roads. This afternoon, the Committee co-sponsored a session “Enabling planning level ecological decision making”, which Joe Burns and Mary Gray organized, based on SHRP tools. The Animal Vehicle Subcommittee meeting is Monday 3:30. The Environmental Analysis committee meeting tomorrow afternoon and the Committee is sponsoring a Best of ICOET session.

4.2 Communication - Marcia Bowen reported the progress of the communication committee, which published two newsletters and maintained the friends email list. There was discussion and approval of minutes of the ADC30 2011 Summer Business Meeting: these were not distributed. The mid-year meeting included a lively discussion about university transportation centers, only a few include ecology considerations. The funding for these centers is threatened with some political aspects; TRB does not get involved in political debates. The newsletter could focus on the value that transportation research centers provide and how DOTs use this effectively. Marcia offered to do a special newsletter edition if a timely article is needed. Alex said that research funding will always be a problem and never will be sufficient to answer all the questions. FY11 \$ results announced. FY 12 funding will be affected by whether reauthorization takes place or continuing resolutions continue to be passed. Mark Kross reported on a session on streamlining, where there was lack of agreement on root causes of delays.

Web Site – Chris Gesing, webmaster, provided a website report. He continues to update the Home Page with announcements, registrations and preliminary program information for TRB Annual Meeting and ADC30 Summer Workshop. *Special thanks to Nancy Bailey at CTE for promptly posting the website updates.* He has modified/added member profiles and updated Membership Guide. He continues to post Committee-sponsored workshop and session presentations to the “Conferences” page as well as Committee business meeting minutes, Subcommittee Goals and Objectives as they are developed and approved, links and information of interest to the Committee, and a listserve.

4.3 Liaison – Lars Carlson provided an update on the liaison subcommittee. He asked members and friends to report on highlights of other committee members and send to him. Alex said that liaising with other committees and leveraging common interests is of paramount importance to our committee and gets our message out.

4.4 Research – Patricia Cramer provided an update on the research subcommittee. She said that she had promised to provide the top 10 research ideas for this meeting. Bridget Donaldson put together this, which she will send to Marcia for posting on the website so that it can be shared with others. She said that there was an NCHRP proposal for research on culvert liners; many of these have environmental effects including composition (leaching of styrene has caused fish kills) of the liners and curing methods, which affect longevity. Bridget has been doing similar research at VaDOT. CalTrans has already banned several types of curing methods. Deb Nelson emphasized that it is important to mention other benefits beyond simply ecological, which also would increase funding probability. Patty acknowledged the importance of people like Bridget, who has been carrying the torch for this, and quoted Margaret Mead (“Never underestimate the power of a few people to change the world...”). The newsletter is one way to get our research news out, but could we also approach TR News for an edition or

article. This is read by engineers and would help get our message out to a broader audience. Alex thought in concert with other committees this could be possible, perhaps simultaneous with ICOET in Scottsdale next year.

4.5 Steering Subcommittee – Mary Gray and Deb Nelson gave the steering committee update. Mary and Deb indicated that there was not much that was needed of the steering committee. A Triannual Report is required as part of the subcommittee's responsibility. Deb said that the Triannual Report is usually done at the last minute but could more effectively be done annually. Milestones, research grants, papers, presentations are important input for the report. The newsletter could prompt people to contribute this information. Next year will be the Triannual Update.

5. Agency Updates

5.1 **USFWS:** Catherine Liller submitted a report to Lars, which is included below.

- FWS's Ecos Database and FHWA's ESA Webtool Integration are almost complete;
- FWS is developing Range-wide Indiana Bat Survey Protocols;
- FWS and FHWA are working together on a National MOU for addressing impacts to migratory birds;
- Improving Endangered Species Implementation
http://www.fws.gov/endangered/improving_ESA/reg_reform.html. Focus areas include:
 - improving the efficiency and effectiveness of designation of critical habitat http://www.fws.gov/endangered/improving_ESA/CH_Text.html
 - clarifying the scope and content of incidental take statements
 - providing a consistent and uniform standard for interpretation of the phrase "significant portion of its range" by both the FWS and NOAA , using a map-based approach.
http://www.fws.gov/endangered/improving_ESA/SPR.html
- EPA and FWS entering into Formal ESA Section 7 consultation on EPA's Construction General Permit
- Many DOTs have entered into programmatic consultations with USFWS for concurrence on transportation projects and could be a template for other DOTs.
- USFWS Transportation Environmental Stewardship Excellence Award (2013)
- FWS's Web Portal to Transportation (updates)
- <http://www.fws.gov/habitatconservation/transportation.html>
- Upcoming Events:
 - National LCC Workshop; Denver (March 27-28, 2012)
<http://nationallcc2012.com/>
 - Conservation Banking Course; NCTC (April 2-6, 2012); Texas (May 2012)
http://www.conservationfund.org/course/conservation_banking_training_course
 - National Mitigation and Ecosystem Banking Conference (May 8-11, 2012) <http://www.mitigationbankingconference.com/>

5.2 **FHWA:** Mary Gray indicated that FHWA is loading ESA consultations onto their ESA webmapping. Eco-Logical webinars are being held monthly, funded by EPA. A new crossings handbook was just published written by Tony Clavenger. Also newly published noise effects on pile driving, a web-based hydro-acoustic handbook. The STEPS research program is under review based on feedback; the research plan will be

developed for coming year based on that feedback. Environmental excellence awards and exemplary ecosystem awards are on the FHWA website. Deb Nelson mentioned national performance measures for environment/natural resources and sustainability and how more development needed, Tier 3 still need work. Mary said that this is an area that is on the forefront and would welcome input, especially on stormwater. Deb said that even doesn't make the national level, other state examples could help facilitate for other states. Center for Environmental Excellence submitted a proposal to SHRP with a similar focus. Would be granted in March. Patty Cramer also applied for a grant for environmental performance metrics. Joe Burns mentioned the NCHRP 708 report on sustainability measures and is a very user friendly, but more is needed on natural resources. For example, Joe indicated that cost cutting measures (such as maintenance measures) have unmeasured ecological benefits.

5.3 Corps: Lauren Diaz has just come on board in January. She said that Corps' reauthorization of nationwide permits, which expire in March, is in process to allow for a seamless transition. The Corps is working on programmatic measures to make more permitting more efficient. The Federal Register has been published and extended for a retrospective review of streamlining Corps regulations. Clean Water Act jurisdiction draft guidance is still in draft form but there has been no rulemaking as they are still going through the comments received.

5.4 USEPA- Connell Dunning said they will provide some information as Laura has left and Susan Burgess will be starting soon. Region 9 has developed a sustainability MOU with Caltrans, to advance sustainability measures to go above and beyond wildlife crossings. Other areas of EPA interest are renewable energy and advance mitigation Region 4 (southeast) has developed an ecological framework to develop conservation priorities; this is being transformed into a national ecological framework that will be helpful tool to integrate land use and transportation planning. Alex will send a weblink. (<http://www.geoplan.ufl.edu/epa/>). There is a Presidential memo on efficiencies in permitting highway projects. Six DOT projects have been put forward, including the Tappan Zee and Whittier (MA) bridges, which now have national attention on the www.whitehouse.org. The website posts status updates, while <http://permits.performance.gov> tracks permit progress. This may be a trend followed in the future. EPA is pursuing advance mitigation, programmatic approaches, including ones for migratory birds and Indiana bats. FHWA will be hosting a series of practitioner workshops getting out word on environmental initiatives this year, including conservation banking and Every Day Counts. On a policy level, they released a policy paper on 4f for review/comment. Waters of US, effluents, and construction permits are current areas of focus. They are anticipating the release of the stormwater SELDOM model; they are also working with an international database of Best Management Practices and will be holding workshops on BMP development. On the ecological front, the second round of STARS (Science To Achieve Results) workshops will continue, as they were successful. They will be holding a workshop on concepts to advance ecological principles, funded by SHRP2; these include advancing data integration, ecological principals.

5.5 USFS: Joe Burns is focusing on making their roadways permeable. The mission is to protect soil, grasslands, etc. They are developing better assessment tools, including ones for water and trust, so that they can build with the environment. The Wildlife Crossings Toolkit is online for practitioners, with the hope that it will link with FHWA.

5.6 USGS: Ed Little said that transportation is an area of expansion for USGS. Deb Nelson mentioned that their interface with transportation has included technology, climate change, sustainability, and stormwater.

6. Organization Updates

6.1 CTE James Martin said that they had an outstanding ICOET meeting this year with 575 attendees. He has done some for 2013 ICOET in Arizona. AZ DOT is very excited about hosting; they had hoped to host in Flagstaff, which has nearby wildlife crossings and close to Grand Canyon but the venue is too small, so instead it will be hosted at the Weston in Scottsdale from June 23-27. Prices of most rooms will be close to the federal per diem rate. The Committee has worked very hard to meet all needs, balancing having conference in a really wonderful locale, an excellent field trip, good conference facilities and the need to have an affordable rate. A post-conference field trip may be organized for northern locations.

CTE held a Southeastern air quality conference in Raleigh NC; and have come out with a "Complete streets" guidelines and training program. They are working with NCDOT to create a sustainability blueprint and with FHWA to develop livability indices and measurement. They will be rolling out the next edition of Context Sensitive National Dialogue and have a steering committee in place, and will issue a solicitation for a webinar. A UTC competition for FY11 was recently held; it did not seem logical to recomplete all centers for one year. There were ten Tier 1 center slots and 48 proposals for them; CTE was not successful in securing a slot but was on a regional team that was selected. They will continue to do technology transfers but will not have direct DOT funding. CTE is having discussions about what a regional center would look like with or without reauthorization. Proposals for 2012 could be issued this fall.

Virginia Center for Transportation Innovation and Research: VTRC now includes two environmental and civil engineers. They hope to institute wildlife crossings on I-64 in the Blue Ridge mountains. Road kill counting and disposal continues, with demonstration that composting is an efficient disposal method.

NGOs: Defenders of Wildlife: Trish White, formerly of Defenders of Wildlife, reported that new leadership at the Defenders of Wildlife decided they did not want to continue their highway program. Economic conditions have hindered membership and funding. However, field offices still thinking about highways. Trish continues to talk to Humane Society about their transportation program now that Susan is gone.

TransWild Alliance: Trish continues to assist this organization and is available to help support small jobs until she finds her next job.

Center for Environmental Excellence: Katie Kurgin reported that CEE is releasing a report and webinar "Leaner and Greener Sustainability at work in transportation". AASHTO is also competing for funding and awaiting results. CEE recently lost two able staff members and thus will have staff openings. Eco-related projects are water quality and stormwater-focused (Stormwater and Air Quality Communities of Practice). The third stormwater practitioners' conference will be held in Raleigh in the May/June time frame. The third stormwater webinar about post-construction BMPs will be held soon.

10 Minute Break

7. **Presentations** – Alex invited two folks that have posters in tomorrow's poster session to give more detailed presentations.

Determining Location and Design of Cost-effective Wildlife Crossing Structures along US-64 in North Carolina Daniel J Smith - University of Central Florida

Dan mentioned Ann Burroughs had provided an article for the newsletter. This is a four lane highway from Raleigh to Woodley, that then drops to 2 lanes. There is a planned expansion to four lanes through a rural area, then an area of silviculture, across the Alligator River. The road passes through two national

wildlife refuges, state conservation lands and black bear and endangered red wolf plus other wildlife habitat. The objective: evaluate wildlife habitat and landscape attributes; understand how the highway and adjacent area are used by wildlife, identify locations for structure placement, and then refine crossing locations. Field methods include road kill monitoring, camera traps, tracking beds, and camera traps. Parallel canals have been formed when the road was created, with crossings created for access by humans but of course are used by wildlife. Va. Tech study focused on black bears and red wolves, while Dan and the UCF team are doing the rest of the wildlife. The dominant road kill by numbers was herps, including 25,000+ frogs and other species. They analyzed road kill patterns and found no statistically significant pattern for mammals; birds showed more kills near Alligator River, mainly migratory and coastal birds; water snakes and turtles were killed near forested wetlands and aquatic areas but few lizards. Frog kills were concentrated near the marsh breeding area during the short breeding season. Their research focused on managed species and those with high volume (black bears, river otter, mink; snakes and turtles are species of special concern or listed). They examined historical road kill data for larger species. Deer counts are likely low because carcasses are picked up by maintenance crew without reporting, or by picked up by passers-by. Five clusters were identified for red wolves and black bears. Tracking studies with cameras were conducted at key habitat locations; deer dominated (>60%) tracks, canids were second (17%); and black bear had 4%. In terms of habitats, hardwood swamps in middle of silviculture areas and forested wetlands/wetlands were highest wildlife use areas. One location at an ecotone break for forested wetland/marsh had high crossings for all carnivores. White tailed deer showed no significant spatial distribution, but the data are likely under-reported. They also radio-tracked herps to identify presence/absence in habitat types, inside and outside of the right of way and at reference areas. They used the NC GIS database for landscape features (landcover, water resources), focal species occurrences, road kill locations (abundance and rarity), biodiversity and wildlife habitat assessment, conservation/farmlands, forestry land assessments (intensity of management), land ownership, and then added field data. They scored categories, which can be altered to suit differing needs. Kill data and landscape data matched up quite nicely. They identified candidates for wildlife crossing area for larger mammals and smaller herp crossings. Results were reviewed by a multiagency task force in terms of locations and types of crossings (structure design and approach parameters that are important to get animals to crossings) as well as habitat preferences and spacing. NCDOT wants to examine this on a system level and interaction with existing structures (such as access road crossings). They recommended two types of structures, a large type measuring 10 feet high 45 feet wide in areas of high activity or near an access road. Small crossings need minimum of 3-5 feet high and 5-8 feet wide. Fencing size/mesh/materials were reviewed. Sea level rise will be important for this area, since entire area may be inundated, so structures must allow westward movement as area transforms from estuarine to fresh.

Evaluating Retrofit Opportunities for Wildlife Passage at Existing Bridges and Culverts. Patricia C. Cramer - Utah State University, Sandra L. Jacobson - USDA Forest Service, Julia Kintsch - Restore the Rockies. The purpose of this project was to create an assessment process to evaluate permeability of existing structures for terrestrial wildlife. WashDOT does a great job of this for aquatic species, esp. salmonids, but they wanted to expand this to terrestrial species. There will be a lot of bridge/culvert replacements as well as retrofits, so the study is timely. First, they developed a structure/functional classification system for underpasses and bridges, based on the NCHRP project. There is a natural break at 8-10 feet height, above which deer can pass. Then they evaluated how species use the structures and created species movement guilds (low motility like frogs and toads) that are divided based on size, openness, motility, and arboreal/aerial. Then they evaluated existing structures based on structure, roadway, and adjacent landscape. WashDOT has a roadway connectivity study that was just published, and are examining their five- year transportation plan to see if they can focus on key linkages. Cameras were set up to verify wildlife use. Elk are the animals least likely to use bridges and culverts, but did pass under the nine foot bridge. Some recommendations to be included in handbook/tool box: remove rip rap and make dry passage; do not block passageway or fencing for cows; and facilitate soil pathways. OR DOT installed logs, stumps and rocks along passageways to create cover for smaller animals; Utah DOT removed asphalt on passageway; add small mammal shelves over water passages; add fencing for guides and increased height to 8 feet to make them ungulate-proof. They used small-mesh fencing for tortoises; smooth concrete for herps; and added flashing on existing culverts. They recommend that maintenance staff should visit twice per year. They recommend enhancing approaches so there is not too much vegetation that deters movement but enough to provide cover. Graffiti may deter animals. They recommend separating people from wildlife by burying or trenching pipes and constructing, large overpasses. They are field testing these various methods and investigating putting in PDA format, with potential use in smart phones in the future. Full report at <http://www.wsdot.wa.gov/research/reports/fullreports/777.1.pdf>

8. **Future Meetings:** the 2012 TRB Summer Meeting will be Little Rock, Arkansas from June 24-27: Alex will be looking for volunteers to help work with other committees. Not expecting huge attendance perhaps 150 vs 450 in Raleigh.

2012 IENE – Potsdam- Berlin, Germany – October 21-24, 2012 ,Call for contributions ends March 30, 2012

Also Brazil road ecology journal call for papers.

2013 TRB 92nd Annual Meeting will be held January 13-17, 2013

ICOET June 23-27, 2013 – Westin Kierland, Scottsdale, Arizona

9. **Closing thoughts:** Alex reminded the committee of various meetings and sessions. He said that the Year of the Dragon begins today and wished that “prosperity be with you all”.

TRB TRANSPORTATION RESEARCH BOARD

OF THE NATIONAL ACADEMIES

Attendance Roster

Committee: ECOLOGY AND TRANSPORTATION (ADC30)
 Committee Chair: ALEXANDER LEVY, ARCADIS
 Date/Time/Location: JANUARY 23, 2012 8:00 - NOON, HILTON CABINET

Name	Deb Nelson	member
Organization	NYS DOT	
Email	dnelson@dot.state.ny.us	
Phone/Fax	518-485-5479	
Name	Bethany Williams	member
Organization	USGS	
Email	bkwilliams@usgs.gov	
Phone/Fax	573-441-2998	
Name	Bridget Donaldson	member
Organization	VDOT Research Center	
Email	bridget.donaldson@vdot.virginia.gov	
Phone/Fax	434-293-1922	
Name	LARS CARLSON	
Organization	JACOBS ENGINEERING	
Email	LARS.CARLSON@JACOBS.COM	
Phone/Fax	617-532-4387	
Name	Daniel Smith	
Organization	UNIV of Central FL Dept of Biology	
Email	daniel.smith@ucf.edu	
Phone/Fax		
Name	BRIAN SAYRE	
Organization	DEWBERRY	
Email	BSAYRE@DEWBERRY.COM	
Phone/Fax	973-576-9637	
Name	Joseph Burns	
Organization	U.S.F.S. NFS	
Email	ja burns@fs.fed.us	
Phone/Fax	202 631-0815	

member?

Name	Marcia Bowen	member
Organization	Normandeau Associates	member
Email	mbowen@normandeau.com	
Phone/Fax	207 518 6766 (767 7761)	
Name	Lauren Diaz	
Organization	US Army Corps of Engineers	
Email	Lauren.B.Diaz@usace.army.mil	
Phone/Fax	202-761-41663 202-761-5096	
Name	Natalie Boyd	
Organization	Ministry of Transportation	
Email	natalie.boyd@ontario.ca	
Phone/Fax	(905) 704-2727	
Name	Patty Cramer	
Organization	Utah State Univ.	
Email	Patricia.cramer@usu.edu	
Phone/Fax	(435) 764-1945	
Name	Catherine Liller	
Organization	USFWS	
Email	catherine_liller@fws.gov	
Phone/Fax	303-236-4318	
Name	Michael Roth	
Organization	HTWA-HQ	
Email	mike.roth@dot.gov	
Phone/Fax	202-366-9509	
Name	Brooke Stanberry	
Organization	USFWS	
Email	Brooke.Stanberry@fws.gov	
Phone/Fax	308-382-6468 ext 16	
Name	Shahram Misaghi	
Organization	Nichols Consulting Engineerings	
Email	smisaghi@nceneq.com	
Phone/Fax	510.215.3620-206	

Name	Rosana Barkawi
Organization	USDA Forest Service
Email	rosanabarkawi@fs.fed.us
Phone/Fax	(703) 605-4509
Name	Edward Little
Organization	USGS
Email	elittle@usgs.gov
Phone/Fax	573-876-1817
Name	Xia Jin
Organization	Florida International University
Email	xjini@fiu.edu
Phone/Fax	305-348-2825
Name	Trisha White
Organization	
Email	trisha@transwildalliance.org
Phone/Fax	
Name	Keith Knapp
Organization	IOWA LTAP
Email	kknapp@iastate.edu
Phone/Fax	515-294-8817
Name	LANA LAU
Organization	FHWA - EFLHD
Email	LANA.LAU@DOT.GOV
Phone/Fax	703-464-6314
Name	Marlys Osterhues
Organization	FHWA, Office of Project Development and Environmental Review
Email	marlys.osterhues@dot.gov
Phone/Fax	202-366-2052
Name	Kate Kurgan - member
Organization	AASHTO
Email	kkurgan@aaashto.org
Phone/Fax	202-624-3635

Name	Sarah Barnum	
Organization	Normandeau Associates	
Email	sbarnum@normandeau.com	
Phone/Fax	603-637-1157	
Name	Connell Dunning	
Organization	US EPA REGION 9	
Email	dunning.connell@epa.gov	
Phone/Fax	415-947-4161	
Name	Susan Sturges	not here yet, but please add to email list.
Organization	US EPA REGION 9	
Email	Sturges.susan@epa.gov	
Phone/Fax	415 947 4188	
Name	Mark Kross	
Organization	retired DOT	
Email	mark.kross@embargo.com	
Phone/Fax	(573) 636-5145	Friend of the committee
Name	Julia Campbell	
Organization	UCLA	
Email	jrcampbell@ucla.edu	
Phone/Fax	510-495-5051	
Name	JAMES MARTIN	
Organization	NC State Univ	
Email	jbm@ncsu.edu	
Phone/Fax	919-515-8620	
Name	MARY GRAY	
Organization	Federal Highway Administration	
Email	mary.gray@dot.gov	
Phone/Fax	360-5753-9497	
Name	Bob O'Loughlin	
Organization	FHWA RESOURCE CENTER	
Email	Robert.O'Loughlin@dot.gov	
Phone/Fax	(415) 744-3823	(415) 744-2620

Name	Peter Dodd	Friend
Organization	A.D. Marble & Company	
Email	pdodd@admarble.com	
Phone/Fax	717-731-9588 / 717-731-1170	
Name	CHRIS GESING	Friend & Webmaster.
Organization	MICHAEL BAKER JR., INC.	
Email	cgesing@mbakercorp.com	
Phone/Fax	412-269-4636 / 412-375-3995	
Name	Jeffrey Lidicker	
Organization	UC Berkeley	
Email	JLidicker@Berkeley.Edu	
Phone/Fax	510-776-4818	
Name	Jim Heeren	WANT TO SIGN UP AS FRIEND /
Organization	Dewberry / ADC60 - WASTE MGT & RESOURCE EFFICIENCY COMMITTEE / LIASON	
Email	jheeren@dewberry.com	
Phone/Fax	973-576-0149	
Name		
Organization		
Email		
Phone/Fax		
Name		
Organization		
Email		
Phone/Fax		
Name		
Organization		
Email		
Phone/Fax		

