BORDER 2020 MASTER ACTION PLAN - Final

This Action Plan integrates actions for all Border 2020 Goals for Arizona/Sonora

Goal 1- Air	Goal 2- Water	Goal 3 - Materials Management	Goal 4- Environmental Response	Goal 5- Enforcement and Compliance
Arizona/Sonora	Arizona/Sonora	Arizona/Sonora	Arizona/Sonora	Arizona/Sonora

Description of Action (with commitment of resources)	Collaborating Organizations	Cost	Sources of Funding	Lead Points of Contact	2014 Target Output
Goal 1: Reduce Air Pollution					
Objective 1: By 2020, in accordance with the NAFTA, promote the reduction of the number of vehicles operating in the border region that do not comply with the respective vehicle emissions standards, and reduce vehicle emissions at ports-of-entry through anti-idling and other feasible reduction measures.					
Initiate a Vehicle Emissions Verification Program in Sonora.	Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora (CEDES), Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT)	Staff time	CEDES	Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx)	Establish a regulatory framework for Vehicle Emissions Verification Program in the state of Sonora.
Objective 2: By 2020, reduce pollutant emissions in order to approach attainment of respective national ambient air quality standards in the following airsheds: **• Ambos Nogales (PM 2.5 and PM 10)**					
Complete and apply a PM-10 State Implementation Plan (SIP) for Nogales, AZ	Arizona Department of Environmental Quality (ADEQ) and Local Partners	Staff time	ADEQ and Local Partners	Edna A. Mendoza- ADEQ (Mendoza.Edna@azdeq.gov)	Complete PM-10 Plan
Complete and apply a $PM_{2.5}$ SIP for Nogales, AZ (based on applicable data findings).	ADEQ and Local Partners	Staff time	ADEQ and Local Partners	Edna A. Mendoza- ADEQ (Mendoza.Edna@azdeq.gov)	Complete PM-2.5 Plan
Develop outreach, (e.g., binational clean air calendar) transition and expand outreach through social media tools.	US EPA, ADEQ	$50,000	US EPA, ADEQ	Edna A. Mendoza- ADEQ (Mendoza.Edna@azdeq.gov)	Annual web-based Air Quality Calendar
Partner with Arizona State University to compile border air quality studies that have been completed and published for posting on an electronic library website	ADEQ, Arizona State University (ASU)	$49,729	ADEQ	Edna A. Mendoza- ADEQ (Mendoza.Edna@azdeq.gov)	Final document that captures border air quality studies posted on electronic library website.
Develop and implement Air Quality Improvement Management Programs (ProAire) in Nogales, Sonora. The programs will address strategies and measures to effectively reduce air emissions.	CEDES, SEMARNAT, City of Nogales	TBD	SEMARNAT	SEMARNAT Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx)	Final document with strategy to reduce air emissions in Nogales, Sonora developed by 2014.
Objective 3: By 2018, maintain effective air monitoring networks and provide real-time access to air quality data in: Arizona/Sonora					
Develop and implement a strategy for enhanced coordination of air monitoring and related activities in Sonora/Arizona border communities.	CEDES, ADEQ, US EPA, SEMARNAT	$90,000 and Staff time	US EPA, SEMARNAT, CEDES, ADEQ	Idalia Perez- US EPA perez.idalia@epa.gov Joaquin Marruffo- CEDES joaquinmarruffo@cedes.gob.mx Edna A. Mendoza- ADEQ (Mendoza.Edna@azdeq.gov)	Complete strategy for enhanced coordination of air monitoring and related activities in Agua Prieta and Nogales, Sonora by December 2013
Upgrade four air quality monitors currently used in the Arizona border region	ADEQ, US EPA	$60,000	US EPA, ADEQ	Edna A. Mendoza- ADEQ (Mendoza.Edna@azdeq.gov)	Upgrade air quality monitors (one each in Nogales and Yuma; two in Douglas).
Objective 4: By 2015, support completion of climate action plans in each of the six northern Mexican Border States (as appropriate), and build the necessary capacity to guarantee sustained implementation.					
Objective 5: By 2020, reduce emissions and associated impacts through energy efficiency and/or alternative/renewable energy projects.					
Promote and disseminate manuals and guidelines for sustainable development of housing, rehabilitation of school buildings and hospital infrastructure	CEDES, SEMARNAT	Staff time costs of manual dissemination	CEDES, SEMARNAT	Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx)	Promote program along the Sonoran border

Construction of a 16 megawatt (DC) solar park at Davis-Monthan Air Force Base (DMAFB)	Davis-Monthan Air Force Base (DMAFB), North Aamerican Development Bank (NADB), BECC, SunEdison LLC	$35,000,000	NADB, BECC	Juan Antonio Flores- BECC (jaflores@nadb.org)	Construction of a 16 megawatt (DC) solar park at Davis-Monthan Air Force Base (DMAFB) The electricity produced by the plant will be purchased by DMAFB under a 25-year Power Purchase Agreement. Tucson Electric Power Company (TEP) will acquire the Renewable Energy Credits (RECs) generated by the plant pursuant to a 20-year Master REC Agreement, aiding TEP in its compliance with Arizona's Renewable Energy Standard. Expected to generate sufficient energy to offset about 50% of DMAFB's electrical needs in its first year of operation. The project is scheduled to come online in the fourth quarter of 2013. Estimated avoidance of almost 17,000 metric tons of CO_2, 11 metric tons of nitrogen oxides and 17 metric tons of sulfur dioxide per year
Goal 2: Improve Access to Clean and Safe Water					
Objective 1: Promote the increase in the number of homes connected to safe drinking water and adequate wastewater treatment.					
Sub-objective 1a: By 2015, promote access to safe drinking water to at least 5,000 households. Revise targets every two years.					
Sub-objective 1b: By 2015, promote access to adequate wastewater sanitation to 42,000 households. Revise targets every two years.					
Nogales, Sonora wastewater project for Southwest zone of Nogales	Comisión Nacional del Agua (CONAGUA), US EPA, Border Environment Cooperation Commission (BECC), North American Development Bank (NADB)	$12,000,000 total construction	PDAP	Thomas Konner, EPA (konner.thomas@epa.gov)	BECC certification of wastewater collection project
Objective 2: Help drinking water and wastewater utilities in the border region to implement sustainable infrastructure practices to reduce operating costs, improve energy efficiency, use water efficiently and adapt to climate change.					
Sub-objective 2a: Incorporate sustainable infrastructure elements, as feasible and appropriate, into U.S.-Mexico Border Water Infrastructure Program-supported BECC-certified projects, which, in Mexico, are implemented through the EPA-CONAGUA Memorandum of Understanding Concerning the Joint Grant Contributions for Drinking Water Supply.					
EPA Region 9 will incorporate Sustainable infrastructure components in the development phase of US-Mexico border after infrastructure program projects.	US EPA, CONAGUA, BECC	TDB	Local, state and federal partners	Hector Aguirre, EPA (aguirre.hector@epa.gov)	Sustainable infrastructure component will be incorporated into two project based on the results from energy audits
Sub-objective 2b: Improve energy efficiency and efficient water use at border drinking water and wastewater utilities.					
Installation of solar panels for the generation of power at the Los Alisos Wastewater Treatment Plant.	US EPA, BECC	$700,000	US EPA	Thomas Konner, EPA (Konner.thomas@epa.gov)	Design and construction of a 902 KW photovoltaic plant with peak capacity of 1572 MWh/year, preventing up to 1.76M pounds of CO_2/year from entering the atmosphere.
Perform energy audits in the final design of eight US-Mexico Border Water Infrastructure Program projects.	US EPA, CONAGUA, BECC	TBD	PDAP	Roberto Molina (BECC)	Water audit reports in at least three (3) selected utilities.
Objective 2c: Build operational, managerial and financial capacity through training of drinking water and wastewater service providers in the border region.					
Wastewater operations training in seven (7) Mexican border communities including Matamoros, and Reynosa, Tamaulipas, Ciduad Juarez,Chihuhua, Sonoyta and San Luis Rio Colorado, Sonora, Tecate and Playas de Rosarito, Baja California.	US EPA, NADB	$40,000	BECC, US EPA Border 2012 funds	Salvador Gandara- US EPA, Region 6 (Gandara.salvador@epa.gov)	50 people trained, 288 hours of training over 18 courses
Objective 3: Work binationally to identify and reduce surface water contamination in specific high priority water bodies or watersheds.					

X?	Create two (2) regional nurseries for the production of flora to be used in the reforestation of the Rio Altar Region.	Rio de Altar, Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora (CEDES), Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Comisión Nacional Forestal	$334,000	SEMARNAT	CEDES, SEMARNAT	Two regional nurseries created for production of flora for reforestation of Rio Altar Region
	The Borderlands Habitat Restoration Initiative aims to help local citizens restore degraded land and improve wildlife habitat. USGS is helping to model watershed at Sonoita and Patagonia to find best location for gully plugs.	Borderlands Habitat Initiative, US Fish and Wildlife Service (US FWS), US Geological Survey (US GS)	$200,000	Borderlands Restoration, L3C	H Ronald Pulliam- UGA (pulliam2@uga.edu)	Identify best areas and detention structure technology to positively impact local surface runoff, infiltration, erosion and sediment yield. Design and install the combination of loose-rock trincheras, wire basket gabions, and earthen berms to reduce erosion and increase infiltration. Evaluate changes in ground cover, infiltration, runoff, sediment yield, and discharge and estimate recharge associated with the detention structures. Incorporate the monitoring data into the groundwater model to simulate the long-term effects of the recharge changes. Revegetate disturbed areas with native grasses to minimize erosion.
	Sub-objective 3b: Every two years, identify and implement at least one project to reduce the level of heavy metals, sediment, and/or bacteria entering the Santa Cruz River and/or the Nogales Wash					
	Sampling and testing equipment and supplies to support Nogales, Sonora pretreatment program.	International Boundary and Water Commission (IBWC)	Est $10,000	IBWC	Carlos Pena- IBWC (carlos.pena@ibwc.gov)	Prepare joint agreement, provide sampling and testing equipment and supplies to support Nogales, Sonora pretreatment program.
	Facilitate stormwater control trainings and rainwater harvesting projects in the border region for non-point source pollution control.	Arizona Department of Environmental Quality (ADEQ), US EPA	Approx. $6000 Staff time	ADEQ and US EPA	Hans Huth- ADEQ (huth.hans@azdeq.gov)	Stormwater training workshop on March 14, 2013.
	Facilitate binational technology and expertise exchange for pretreatment of metals in wastewater.	ADEQ, US EPA, Partnering Organizations or Industries	Staff Time	ADEQ, US EPA, Partnering Organizations or Industries	Hans Huth- ADEQ (huth.hans@azdeq.gov)	Peer-to-peer industry outreach to improve management of metals in wastewater discharges. (field trips - one metal plater, work with APSA environmental groups, set up laboratory in Nogales, Sonora for quicker testing of water samples.)
	Develop and support decision-making tools to improve the management of wastewater in binational watersheds.	Arizona Department of Environmental Quality (ADEQ), USGS, US EPA, Partnering Organizations	Staff Time	ADEQ, USGS, US EPA, Partnering Organizations	Hans Huth- ADEQ (huth.hans@azdeq.gov)	Dataset development in support of the USGS Source Water Assessment Tool (SWAT) for assessing the impacts of Los Alisos WWTP on the water quantity and quality on the Santa Cruz Presents results of modeling at least one Arizona-Mexico Commission meeting.
	Install additional stream gauges and update rainfall-runoff modeling for improved stormwater management and land-use planning.	Lead: USGS Partners: US Northern Command (NORTHCOM), City of Nogales Sonora/ Comisión Internacional de Límites y Aguas (CILA), JE Fuller Consultants, US National Weather Service (NWS), and US Department of Agriculture- Agricultural Research Service (USDA-ARS)	$400,000	NORTHCOM	Floyd Gray-USGS (fgray@usgs.gov)	Stream gauges installed and will be reporting real-time data.
	Digitize aerial photos and processing Landsat imagery to show changes in vegetation and potential ecosystem services around 9 flood detention structures in Nogales, Sonora.	USGS , University of Arizona (ASU)	$10,000	USGS	Laura Norman- USGS (lnorman@usgs.gov)	Analyze 4 time periods for changes in vegetation, land use/land cover from before/after gabion construction & present at Santa Cruz River Researcher's Day.
new (3/4)	**Goal 3: Promote Materials Management and Waste Management and Clean Sites**					
	Objective 1: By 2020, increase local and state-level institutional knowledge and experience in the area of sustainable material management practices.					

Increase capacity to develop and comply with special waste management plans in Sonora, based on MX Norm 161. Use existing Sonora border region waste inventory to identify waste stream priorities for development of waste management plans and target strategic industry material/waste streams (focus on end-of-life vehicles).	Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora (CEDES), Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT)	Staff time	CEDES, SEMARNAT	Emily Pimentel- US EPA (pimentel.emily@epa.gov) Amanda Stone- ADEQ (as3@azdeq.gov) Sergio Gasca- Alvarez- SEMARNAT (sergio.gasca@semarnat.gob.mx) Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx)	Develop waste management plan template and guidance on applying Mx Norm 161.
Conduct outreach to local officials and the regulated community on compliance requirements with Arizona's waste tire regulations. Register used/waste tire collection sites in the border region as necessary.	Arizona Department of Environmental Quality (ADEQ), US EPA	Staff time	ADEQ, US EPA	Amanda Stone- ADEQ (as3@azdeq.gov)	In Year 1 , initiate outreach to local officials and the regulated community on compliance requirements with Arizona's waste tire regulations. Register used/waste tire collection sites in the border region as necessary.
Conduct outreach to local officials and the regulated community on compliance requirements with solid waste and hazardous waste regulations that apply to auto/commercial truck repair shops.	ADEQ, US EPA	Staff time	ADEQ, US EPA	Amanda Stone- ADEQ (as3@azdeq.gov)	Initiate in Year 2, initiate outreach to local officials and the regulated community on compliance requirements with solid waste and hazardous waste regulations that apply to auto/commercial truck repair shops.
Increase public and private sector knowledge on sound management of electronic waste (E-waste) through outreach campaign and training program on two, distinct E-waste recycling certification programs - Responsible Recycling (R2) and E-stewards.	R2-Solutions and E-Stewards	$20,000	US EPA, BECC	Emily Pimentel- US EPA (pimentel.emily@epa.gov) Amanda Stone- ADEQ (as3@azdeq.gov) Sergio Gasca- Alvarez- SEMARNAT (sergio.gasca@semarnat.gob.mx) Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx)	Complete at least one training event in AZ/Sonora border region (e.g. webinar/workshop). Measure number of individuals and business/institutions that participate in the training.
Objective 2: By 2014, identify priority waste streams and by 2020 develop sustainable material management practices that strengthen their respective market value.					
Acquire trash collection trucks for Magdalena, Sonora to enhance sustainable management practices of municipal waste.	Municipo de Magdalena, CEDES, SEMARNAT	$189,000	SEMARNAT- Dirección General de Fomento Ambiental Urbano y Turístico (DGFAUT)	Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx) Cesar Rafael Chávez Ortiz- SEMARNAT (cesar.chavez@semarnat.gob.mx)	Acquisition of a solid waste trash collection vehicles for the municipality of Magdalena, Sonora.
Acquire a tire shredder to reduce the volume of scrap tires accumulated in border region.	CEDES, SEMARNAT	$246,500	SEMARNAT- DGFAUT	Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx) Cesar Rafael Chávez Ortiz- SEMARNAT (cesar.chavez@semarnat.gob.mx)	Acquisition of a scrap tire shredder. Initiate a strategy for municipalities on its use and implement.
Train interested "recyclers" operating in border region, on E-waste certification requirements (based on Responsible Recyclers (R2) and e-Stewards certification programs).	US EPA, SEMARNAT, ADEQ, CEDES, and non-profit "recycling" certification program organizations	$40,000	US EPA	Emily Pimentel- US EPA (pimentel.emily@epa.gov) Renata Manning- BECC (rmanning@cocef.org)	Complete training of at least five firms in AZ/Sonora Measure number of participants and business/institutions reached and individuals that participate in training and number of new firms taking steps to get certified by 2020 in border states.
Objective 3: By 2020, improve knowledge at every level of government (federal, state, local) to characterize and remediate contaminated sites.					
Improve remediation knowledge associated with specific chemical waste streams (e.g. pesticides, mine tailings) and industry waste categories (e.g. metal smelters) by providing training (via webinar or half-day workshop) in coordination with EPA's Clean-up Information Program (www.clu-in.org).	US EPA, SEMARNAT/ INE (coordinate with US EPA's CLU-IN and University of AZ Dean Carter Binational Center.)	$5,000	US EPA, SEMARNAT, ADEQ, CEDES	Emily Pimentel- US EPA (pimentel.emily@epa.gov) Amanda Stone- ADEQ (as3@azdeq.gov) Gerardo Mayoral0 ADEQ (mayoral.gerardo@azdeq.gov) SEMARNAT Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx)	One training that applies to border in AZ/Sonora. Measure number of individuals and business/ institutions that participate in the training
Objective 4: On an annual basis, implement the Binational Consultative Mechanism on sharing information on border area hazardous waste facilities.					
Coordinate with EPA-HQ and SEMARNAT-HQ to implement Consultative Mechanism in coordination with the border states of AZ/Sonora.	ADEQ, CEDES, US EPA, SEMARNAT	Staff time and funding (TBD)	US EPA, SEMARNAT, and State Program Funding	Rick Picardi- US EPA (Picardi.Rick@epa.gov) Eduardo Gonzalez Hernandez- SEMARNAT (eduardo.gonzalezh@semarnat.gob.mx)	Annually report, unless there are proposed new facilities in which case the respective countries should be notified within 30 days of a petition for a facility permit.
Goal 4: Enhance Joint Preparedness for Environmental Response					
Objective 1: Update as necessary, the current Mexico-US Joint Contingency Plan and on an annual basis, continue to evaluate and update the emergency notification mechanism between Mexico and the United States.					
Table top exercises in Rio Rico and Nogales, Sonora	Procuraduria Federal de Protección al Ambiente (PROPEPA), Protección Civil de Sonora, Local Responders	$100,000	US EPA Superfund	Lida Tan- US EPA (tan.lida@epa.gov)	Table top exercise in Rio Rico and Nogales, Sonora. Identify recommendations for improvements

	Objective 2: By 2020, at least eight (8) of the sister city joint contingency plans will be supplemented with preparedness and prevention related activities such as certified training, risk analysis, and/or capacity building.					
New (3/4)	Trinational Contingency Plan for Tohono O'odham, Yuma, and San Luis Rio Colorado	Tohono O'odham/ City of Yuma/ City of San Luis Rio Colorado	$80,000	US EPA Superfund	Lida Tan- US EPA (tan.lida@epa.gov)	Finalization of the plan
	Objective 3: By 2016, the US-Mexico JRT will make available technical outreach and training materials for distribution and dissemination along the border.					
	Distribution of Department of Transportation (DOT) Emergency Response Guide	Arizona Emergency Management	$2,500	US EPA Superfund	Lida Tan- US EPA (tan.lida@epa.gov)	750 Spanish copies of DOT emergency response guide distributed
	Distribution of Incident Command System, Personal Protective Equipment, Fire Safety, Radiation Safety, Mercury Response, First Responder Awareness	Arizona Emergency Management	$10,000	US EPA Superfund	Lida Tan- US EPA (tan.lida@epa.gov)	Distribute emergency response materials in Spanish
	Objective 4: By 2016, the US-Mexico JRT will analyze existing agreements (including sister city plans) that allow trans-boundary movement of equipment and personnel for comparison purposes.					
	Goal 5: Enhance Compliance Assurance and Environmental Stewardship					
	Objective 1: By 2020, strengthen effective information sharing between U.S. and Mexican agencies regarding the movement of hazardous waste across the border and its ultimate treatment or disposal. In addition, ensure that land ports-of-entry have sufficient inspection capacity to police hazardous waste shipments.					
	Conduct compliance assistance and inspections in border region facilities and at ports of entry regarding hazardous waste, as access is available.	Arizona Department of Environmental Quality (ADEQ)	$100,000/yr and 1 FTE	ADEQ, US EPA	Emily Pimentel- US EPA (pimentel.emily@epa.gov) Ivan Lieben- US EPA (lieben.ivan@epa.gov) Amanda Stone- ADEQ (as3@azdeq.gov) Randy Matas- ADEQ (rgm@azdeq.gov)	Inspections performed through ADEQ's hazardous waste compliance program. Metric: Number of inspections performed.
	Conduct inspections of a representative sample of auto/commercial truck shops in the border region to ensure compliance with hazardous waste and solid waste regulatory requirements.	ADEQ	Staff Time	ADEQ, US EPA	Amanda Stone- ADEQ (as3@azdeq.gov) Randy Matas- ADEQ (rgm@azdeq.gov)	Inspections performed through ADEQ's solid waste and hazardous waste compliance programs. Metric: Number of inspections performed.
	Objective 2: By 2020, in Mexico, increase by 25 percent the number of businesses in the border region enrolled in the National Program for Environmental Auditing (PNAA) and/or similar programs at the state level for facilities not regulated by the federal government, using 2012 as a baseline.					
	Procuraduria Federal de Protección al Ambiente (PROPEPA) (Sonora) to complete this section.	Procuraduria Federal de Protección al Ambiente (PROPEPA)		PROFEPA (Sonora)		This field will be updated in 2013 and 2014
	Objective 3: Using the U.S. Toxic Release Inventory (TRI) and the Mexican Registry of Emissions and Transfers of Pollutants (RETC), along with other sources of environmental information, share information regarding activities contributing pollution to transboundary air and/or water basins along the border					
	Increases public knowledge of industrial discharges/releases, using EPA's Toxic Release Inventory (TRI). Prepare TRI factsheets highlighting 2011 data in the Arizona Border Region.	US EPA- Region 9	Staff Time	US EPA	José García- US EPA (garcia.jose@epa.gov)	One factsheet covering TRI releases in Arizona border region
	Objective 4: By 2020, implement at least five (5) binational workshops targeted to environmental enforcement professionals, including port-of-entry customs professionals, to promote the exchange of information and improve understanding of each country's respective compliance and enforcement programs and tools, including field inspection and case studies.					
	Binational Enforcement /Case development Workshop with a focus on specific waste streams, such as E-waste, used solvents, and sham recycling.	US EPA, Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Procuraduria Federal de Protección al Ambiente (PROPEPA), Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora (CEDES), Arizona Department of Environmental Quality (ADEQ)	$18,000	US EPA	Emily Pimentel- US EPA (pimentel.emily@epa.gov) Ivan Lieben- US EPA (lieben.ivan@epa.gov) Amanda Stone- ADEQ (as3@azdeq.gov) Randy Matas- ADEQ (rgm@azdeq.gov) Joaquin Marruffo- CEDES (joaquinmarruffo@cedes.gob.mx) Francisco Maytorena (PROFEPA); Rodolfo Flores Hurtado (SEMARNAT);	Training to enhance improved intelligence and information on smart enforcement, binational case development, intelligence gathering/sharing,