Border Interoperability Demonstration Project Closeout Report

April 2017

Homeland Security

Office of Emergency Communications

Message from the Director

I am pleased to present the following "Border Interoperability Demonstration Project Closeout Report." The report was prepared by the Department of Homeland Security (DHS) Office of Emergency Communications (OEC) to document lessons learned and best practices from administering the grant program.

OEC leads the Nation's public safety, national security, and emergency preparedness communications efforts. In accordance with authorizing legislation, OEC established the Border Interoperability Demonstration Project (BIDP) in 2011. BIDP was a $25.5 million one-time, competitive grant program aimed at strengthening interoperable emergency communications along the United States borders. In announcing the program, then DHS Secretary Janet Napolitano stressed that "the grants provide our state, local, and tribal partners with resources to explore innovative, effective, and adaptable solutions for improving emergency communications."

Following a merit-based application review process, DHS selected seven communities to receive funding. Selected projects involved multiple communities with varying geography and population densities. Projects generally focused on expanding the coverage and capacity of existing communications infrastructure, often showcasing innovative cross border governance, planning, and training activities. BIDP recipients were encouraged to consider how their projects would be sustained in the long-term, and to that end, many have acquired and installed equipment and tested new capabilities during functional exercises. These projects serve as repeatable models to other U.S. border communities with similar communications needs in diverse environments.

As of December 31, 2015, the final period of performance ended. While the grant program has closed, OEC remains focused on transferring BIDP information and knowledge to all border communities and other interested parties. OEC has transitioned its BIDP Program Office to support the development of tools, templates, and studies to benefit emergency responders operating along and across U.S. borders. OEC continues to improve interoperable emergency communications through outreach with state, local, tribal, and territorial public safety agencies to resolve remaining barriers to border interoperability. OEC is also applying BIDP best practices to the Department's future grants, as well as coordinating with other federal agencies to act on recommendations. Please direct any questions to my office at OEC@hq.dhs.gov.

Sincerely,

Ronald Hewitt

Ronald Hewitt, Director
Office of Emergency Communications
Department of Homeland Security

Border Interoperability Demonstration Project Closeout Report

Table of Contents

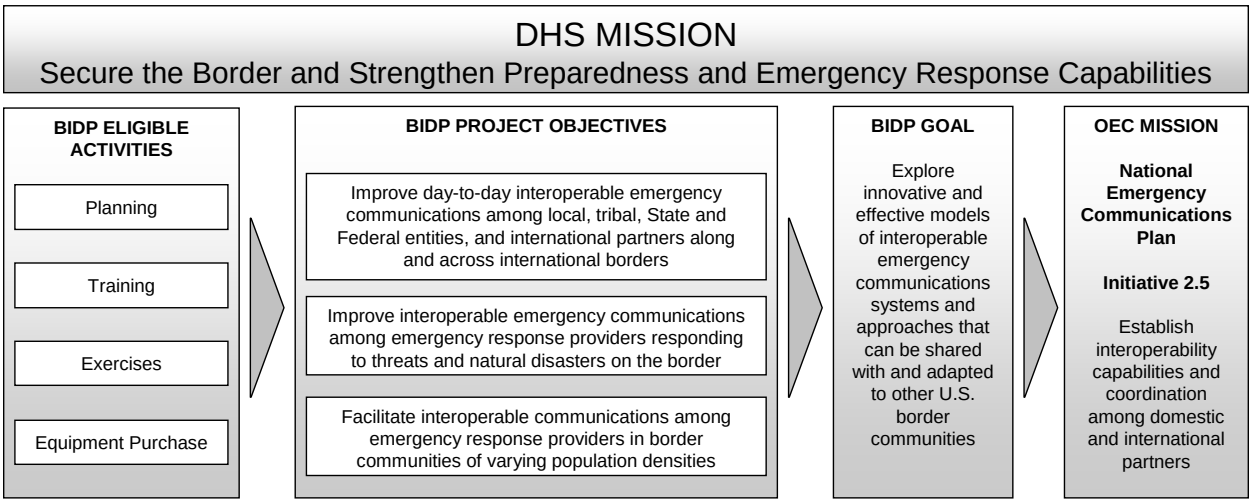
I. Background

The Department of Homeland Security (DHS) is charged with securing the international borders and strengthening preparedness and emergency response capabilities within the United States. In order to support this mission, emergency responders at all levels of government and disciplines must have the ability to communicate as needed, on demand, and as authorized, to coordinate critical security operations and to effectively respond to threats and natural disasters. Despite this mission critical requirement, many emergency responders cannot achieve interoperable emergency communications along and across the border.

To address this critical need, the *Implementing Recommendations of the 9/11 Commission Act of 2007* (Pub. L. No. 110-53) authorized the Office of Emergency Communications (OEC) to establish the Border Interoperability Demonstration Project (BIDP), a $25.5 million one-time, competitive program to provide funding and technical assistance to U.S. communities along the Canadian and Mexican borders.[1] The legislation authorized DHS to select no fewer than six communities (at least three along the U.S.-Canadian border and at least three along the U.S.-Mexican border) for participation in the demonstration project, to provide technical assistance to the selected communities, and to share information among BIDP participants and other interested parties.

OEC designed BIDP to align with the DHS mission to secure the border and strengthen preparedness and emergency response capabilities across the Nation. BIDP's eligible activities supported its project objectives, which in turn supported the overarching BIDP goal. BIDP also aligned with the OEC mission and implementation of the *National Emergency Communications Plan* (NECP).[2] Figure 1 provides an overview of BIDP alignment to the Department's and Office's missions.

Figure 1. BIDP Alignment to DHS and OEC Missions



[1] Statutory language is included in Appendix A of this report.

[2] The NECP serves as the Nation's strategic plan that promotes communications and sharing of information across all levels of government, jurisdictions, disciplines, and organizations for all hazards, as needed and when authorized. BIDP implemented NECP Initiative 2.5, to establish interoperability capabilities and coordination among domestic and international partners. Since the NECP's initial release in 2008, OEC has coordinated across the whole community to release an updated NECP in 2014. For more information on the NECP, see: http://www.dhs.gov/necp.

From February 25, 2010, through April 26, 2010, the *BIDP Funding Opportunity Announcement* (DHS-10-PD-120-001) was published at www.grants.gov, the governmental website that serves as the central storehouse for information on more than 1,000 grant and cooperative agreement programs. Thirteen applications representing 21 projects requesting more than $72 million were received in response to the solicitation.

All applications were subject to the evaluation process described in the *BIDP Funding Opportunity Announcement*. The evaluation included an initial review for completeness and compliance; a merit review to score projects based on pre-determined criteria; application of risk scores based on threat, vulnerability, miles of border, and other law enforcement intelligence; and federal findings by the Federal Communications Commission (FCC) to confirm availability of adequate spectrum in border areas, as well as Environmental Planning and Historic Preservation (EHP) analysis. Figure 2 summarizes BIDP requirements in accordance with the program's authorizing statute and guidance derived from national priorities in the NECP.

Figure 2. BIDP Statutory and Program Guidance Requirements

Statutory Requirements	Program Guidance Requirements
Conditions of Award DHS OEC Director must meet the following conditions— • Selection of no fewer than six communities, of which at least three along the U.S.-Canadian border and at least three along the U.S.-Mexican border • Coordination with the FCC and Secretary of Commerce to ensure that adequate spectrum is available and that projects will be developed in accordance with the 800 megahertz (MHz) rebanding process in border areas • Establishment of mechanisms to document and share knowledge gained with other border communities • Provision of technical assistance to enable emergency response providers to deal with threats and contingencies in a variety of environments **Use of Funds** • Distribution through the state to the selected community • Three-year period of performance • Activities determined to be integral to interoperable emergency communications **Project Objectives** • Improve day-to-day interoperable emergency communications among local, tribal, state, and federal entities, and international partners along and across international borders • Improve interoperable emergency communications among emergency response providers responding to threats and natural disasters on the border • Facilitate interoperable communications among emergency response providers in border communities of varying population densities	**Priorities** • Innovative approaches to border interoperability issues that may include governance, planning, coordination, training and exercises, the use of new technology, or novel use of existing technology • Comprehensive approach, including how the project addresses the different elements of the Interoperability Continuum to ensure stakeholders develop, manage, operate, and maintain communications interoperability • Strong alignment to the *Statewide Communication Interoperability Plan* (SCIP) or other emergency communications plans for the state, with letters of support from the Statewide Interoperability Coordinator (SWIC) or SCIP point of contact • Impact on cross border interoperable communications, including a baseline assessment of current cross border communications and expected improvements resulting from the BIDP project • High level of inclusiveness, including partnerships with various disciplines and jurisdictions, all levels of government, and cross-border participants • Effectiveness of the solution, including any efficiencies and technological considerations that make the proposed project better than other alternatives • Ability to apply the project to other U.S. border communities • Good use of existing resources (e.g., equipment, infrastructure, and spectrum) to avoid duplication, including agreements for joint-use equipment, public-private agreements, and shared resources **Reporting** • Quarterly progress reporting on performance and financials • Annual re-submission of budgets

OEC prioritized innovation as the key intent of the demonstration project. During the merit review, subject matter experts evaluated BIDP applications for their innovativeness in approach, including strategies for management, governance, operations, training and exercises, and how well the project utilized advanced and innovative technology solutions[3] to achieve interoperability along and across the border. Innovation in non-technology based activities was equally valued as technology solutions. Reviewers focused on how an existing interoperability solution was altered or enhanced to address the border communication issue, or how the applicant used a combination of solutions to address a unique border communications problem.

As a result, DHS selected seven projects that demonstrated innovative solutions and met both statutory and program guidance requirements. DHS announced BIDP award recipients on April 29, 2011, as listed in Figure 3.[4] Appendix B provides the program financial overview and expenditure information on each award recipient.

Figure 3. Selected Projects

State	Lead Sub-Recipient	Project Title	Funding Allocation*
Arizona	City of Yuma	Yuma Full Voice and Data Integration Demonstration Project	$3,994,443
California	San Diego Fire-Rescue	Regional Command and Control Communications Tactical Border Communications Project	$3,852,580
Maine	County of Washington	Enhanced Communications Infrastructure and Partnerships for Border Security Project	$3,963,163
Michigan	Wayne County	Southeast Michigan Border Interoperability Solution Project	$4,000,000
Montana	Interoperability Montana	Northern Tier Consortium Border Interoperability Demonstration Project	$3,895,425
Ohio	Lake County	Multi-Agency, Multi-Jurisdictional U.S. Regional & International Interoperable Communications Infrastructure and Maritime Domain Awareness Project	$3,998,200
Texas	City of McAllen	Rio Grande Valley Border Interoperability Regional Project	$1,940,000
			$25,643,811

**In accordance with the BIDP Funding Opportunity Announcement (page 2), OEC determined to provide approximately $145,000 more in BIDP awards, in addition to the $25.5 million.*

The selected projects tested approaches that involved new technologies or an innovative approach to governance, planning, coordination, training and exercises. The projects served as repeatable models for other border communities to achieve greater communications interoperability with domestic and international agencies. OEC worked with BIDP award recipients to document lessons learned, capture challenges and successes, and share information with the emergency response community throughout the process.

[3] The *BIDP Funding Opportunity Announcement* provided examples of innovative technology solutions that use Voice or Radio over Internet Protocol, broadband voice, data, or video applications, mobile public safety networks, multi-band/multi-mode software designed radios, network interconnect technologies, or satellite communications.
[4] https://www.dhs.gov/news/2011/04/29/secretary-napolitano-announces-funding-strengthen-interoperable-emergency.

II. Advancing Interoperable Emergency Communications

BIDP award recipients received no-cost technical assistance through the OEC Border Interoperability Demonstration Technical Assistance Program (BIDTAP). BIDTAP is an extension of OEC's ongoing Interoperable Communications Technical Assistance Program, which provides a catalog of technical assistance service offerings to all 56 states and territories.[5] These technical assistance offerings are designed to assist communities with improving communications interoperability. OEC made the catalog offerings available to the BIDP communities to assist with the successful completion of their projects. Figure 4 provides a high-level summary of BIDP project successes in each awarded state.

Figure 4. BIDP Successes

- Arizona launched data capabilities for the multi-agency Yuma Regional Communications System and prepared for future connectivity with Mexican counterparts
- California expanded its regional data network, deployed mobile command centers, and added helicopter downlink receiver sites to enhance data availability in rugged areas
- Maine formalized agreements and resource sharing practices, and built or leased towers to expand radio coverage to nearly 100 percent of its international border
- Michigan established cross border protocols, designated talkgroups, and installed Internet Protocol-based communications in the Detroit/Windsor tunnel with Canada
- Montana expanded a cross border interoperability radio channel for public safety use within 16 kilometers of border, laying groundwork for channel use across Canada
- Ohio consolidated four disparate radio systems into one network, improved portable radio coverage to 98 percent, and implemented a Vessel Tracking System in Lake Erie
- Texas connected disparate radio systems along the border, implemented a text alert system, and expanded coverage and site capacity of the regional radio system

Each community could request as many technical assistance services as needed. BIDTAP subject matter experts responded to each technical assistance request to provide a variety of different services, including engineering support, standard operating procedures (SOP) development, and exercise design. BIDTAP personnel designed all assessment activities to provide responders with the opportunity to improve their knowledge and ability to effectively deploy BIDP-funded solutions. Over the 4 years that OEC provided BIDTAP support, BIDP award recipients received 32 separate technical assistance services that engaged hundreds of public safety professionals from dozens of agencies across the United States, Canada, and Mexico.[6]

In recognition of training and exercise best practices, OEC required BIDP award recipients to execute a functional exercise to demonstrate the deployed technologies purchased with grant funding. BIDTAP personnel supported this requirement by providing exercise design experts and evaluators to each community, assisting with the design, planning, execution, and evaluation of these functional exercises. Appendix C provides individual grantee reports with detailed project descriptions, maps of impacted areas, and stakeholder participation lists for additional information.

When the final period of performance ended on December 31, 2015, BIDP-funded projects had resulted in numerous successes and solutions to common emergency communications challenges in border areas (e.g., international coordination, security, spectrum availability). They demonstrated innovation of day-to-day administrative activities, in addition to new innovative technologies. BIDP supported OEC's long-standing position that technology is only part of the larger challenges facing interoperable emergency communications. OEC and its public safety partners emphasize that interagency governance and planning are key priorities to resolving interoperability challenges.

[5] OEC's *Technical Assistance Catalog* is available at: http://publicsafetytools.info/.
[6] BIDP award recipients received a 5-month no-cost extension to the original period of performance of 3 years. OEC granted additional extensions to four recipients due to project delays, with all projects closed by December 31, 2015.

By sharing BIDP lessons learned and developing border-specific tools and technical assistance, OEC will ensure that other border communities benefit from the activities funded by this grant.

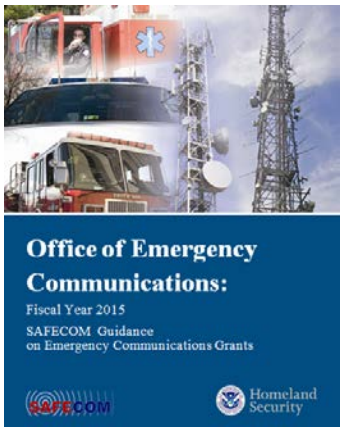
III. Lessons Learned

OEC facilitated information sharing throughout the BIDP period of performance. To achieve a substantial level of involvement with the award recipients, OEC established BIDP through cooperative agreements. BIDP award recipients submitted quarterly financial and performance reports, and participated in teleconferences with OEC Program Office personnel to discuss and validate quarterly reports. This comprehensive reporting and coordination allowed OEC to recognize problems early on, identify technical assistance needs, and provide support for project implementation. Through this coordination, OEC identified three overarching lessons learned:

Grant recipients should adhere to recommendations in the *SAFECOM Guidance on Emergency Communications Grants*

OEC, in close coordination with its public safety stakeholders and federal partners, develops the annual *SAFECOM Guidance on Emergency Communications Grants* (*SAFECOM Guidance*) for entities applying for federal financial assistance for emergency communications projects in coordination with state, local, tribal, and territorial practitioners, standards development organizations, and federal partners.[7] This guidance provides information on eligible activities, technical standards, and other terms and conditions that are common to most federal emergency communications grants. Recommendations within the *SAFECOM Guidance* are intended to help state, local, tribal, and territorial stakeholders develop projects that meet critical emergency communications needs defined in the NECP and their *Statewide Communication Interoperability Plan* (SCIP).[8]

Figure 5. SAFECOM Guidance Cover



BIDP award recipients implemented these recommendations in their projects, which impacted emergency communications capabilities across all lanes of the *Interoperability Continuum.*[9] Specifically, recipients found that interagency coordination and planning were the predominant reasons for successful projects, which are focal points in the *SAFECOM Guidance*. They noted that sustainment planning should be incorporated early in project planning and sustainment required more than operating equipment (e.g., governance, plans, training, and exercises). Recipients had to re-evaluate milestones during project management when dealing with technology, especially when merging older technology with new capabilities. They also planned additional time into their project timelines to compensate for unforeseen issues. Finally, training and exercises must be an ongoing effort when introducing new capabilities to ensure emergency responders are proficient in use. These represent just a few of the *SAFECOM Guidance* recommendations that assisted BIDP award recipients.

[7] The latest *SAFECOM Guidance on Emergency Communications Grants* is available at: https://www.dhs.gov/safecom/funding.
[8] For information on SCIPs, see the OEC website at: http://www.dhs.gov/statewide-communication-interoperability-plans.
[9] *Interoperability Continuum: A Tool for Improving Emergency Response Communications and Interoperability* is available at: https://www.dhs.gov/publication/interoperability.

Spectrum licensing is a major obstacle to achieving border interoperability[10]

The Department of State and the FCC are responsible for treaty and policy negotiations coordinating the shared use of border areas and wireless spectrum in the United States. These federal agencies work with counterparts in Canada and Mexico to reduce the occurrences and resolve interference of wireless spectrum channels used by public safety officials. Despite this ongoing coordination, BIDP award recipients reported that frequency coordination remains a major obstacle to interoperability along both northern and southern borders.

Along the northern border, current agreements require any U.S. or Canadian agency operating within 75 miles of the border to complete a special radio licensing process. This process is designed to ensure that radio users from one country do not interfere with existing radio users in the other country. Public safety radio systems that are constructed near the border must also comply with special restrictions that are designed to prevent these radio signals from broadcasting into the other country and causing interference. Because both countries share the same radio frequencies, there are conflicts in channel assignment in certain radio bands. The United States has allocated a series of nationwide public safety interoperability channels in all frequency bands. Many of these designated channels cannot be used near the U.S.-Canadian border because Canada has previously assigned that same frequency to a local user in their country. Compounding this issue, the current process designed to prevent interference by restricting radio signals from broadcasting into the other country also have the negative effect of preventing use of these designated interoperability channels, even if they were cleared from other users.

Along the southern border, Mexico regulates, licenses, and authorizes use of the very high frequency (VHF) and ultra-high frequency (UHF) spectrum in differing ways and for different uses, than does the United States. These regulatory efforts result in international treaties between both countries that have significant impacts upon how spectrum is allocated and used in the variety of systems found along each side of the international border. However, interference of spectrum resources caused by organizations operating along the border adds challenges to effective interference resolution. Gaining strict compliance from systems operators and users, combined with an international border and the inherent language barrier makes interference resolution and regulatory compliance a difficult and time-consuming effort.

Previously, most public safety agencies were not able to directly communicate with international agencies that they regularly assisted. This inability to directly communicate with other emergency responders placed both property and lives at risk. Following the completion of BIDP in selected communities, recipients reported that integrated governance and planning with international partners led to mutual aid agreements, joint SOPs, training, and functional exercises, which greatly increased their ability to directly communicate. However, BIDP recipients encountered project delays due to existing spectrum licensing processes and regulatory obstacles that continue to impact all border communities.

[10] For additional information on border spectrum licensing issues, see the *Cross Border Communications Report: Barriers, Opportunities, and Solutions for Border Area Emergency Responders*, published in March 2015 and available at: *http://npstc.org/download.jsp?tableId=37&column=217&id=3360&file=CrossBorder_Communications_FINAL_20150311.pdf*. This report is a joint effort by the Canadian Interoperability Technology Interest Group and the National Public Safety Telecommunications Council to study cross border public safety communications at the local first responder level.

Cooperative agreements allow flexibility for demonstration projects

Per the Office of Management and Budget (OMB) Circular No. A-102, a grant or cooperative agreement shall be used when the principal purpose of a transaction is to accomplish a public purpose of support or stimulation authorized by federal statute. The statutory criterion for choosing between grants and cooperative agreements is that for the [cooperative agreement], "*substantial involvement is expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement*."[11]

Recipients found that close partnerships with the BIDP Program Office and border area partners were necessary to achieve project goals. OEC's technical assistance offerings via BIDTAP ensured recipients had access to subject matter experts that were able to deliver on identified needs while saving jurisdictions funding for other project activities. Similarly, regional planning across all disciplines, jurisdictions, and levels of government—domestic and international—resulted in more successful projects. Furthermore, BIDP demonstrated that targeted federal financial assistance programs are necessary to resolve remaining gaps for interoperable emergency communications.

OEC worked closely with BIDP award recipients to identify specific lessons learned and best practices that would benefit other U.S. border communities. To accomplish this, OEC hosted several workshops to provide an opportunity for fellow recipients to present their projects and discuss any challenges, as other communities may be encountering similar obstacles. OEC found that these lessons learned would not only benefit future grantees, but also benefit other federal agencies that administer grants.

Figure 6 summarizes the BIDP award recipients' feedback for each workshop session topic. These included successes and areas for improvement in program administration and implementation of individual projects. The identified lessons learned may be applied to future demonstration projects and other federal financial assistance programs, especially those funding emergency communications in border regions.

[11] Circular A-102 is available at: https://www.whitehouse.gov/omb/circulars_a102.

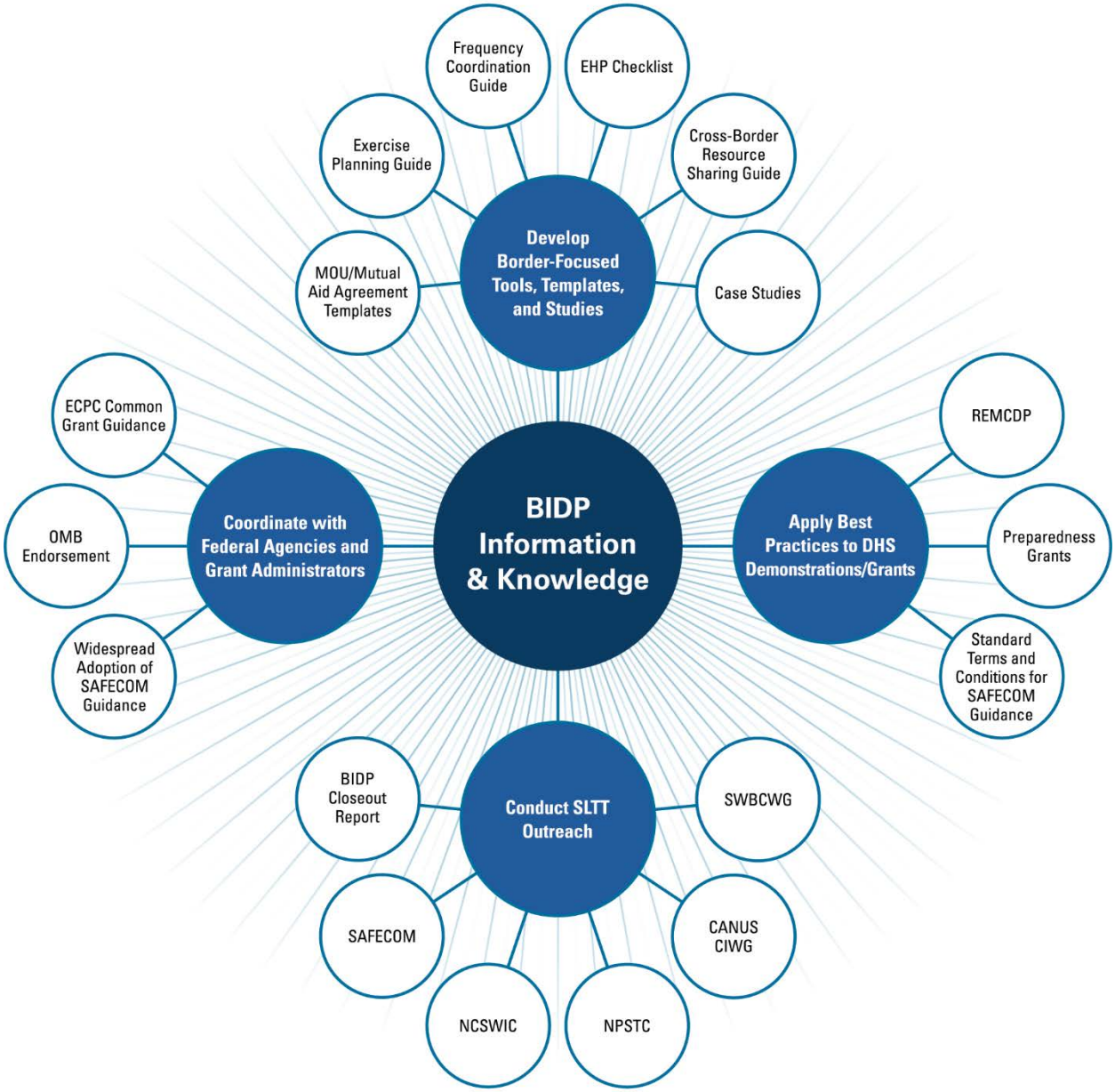
Figure 6. BIDP Award Recipients' Feedback

Topic	Successes and Areas for Improvement
Grants Management	Successes • Cooperative agreement structure provided recipients with beneficial Program Office support (e.g., OEC's substantial involvement helped to identify challenges and resolve through grantee assistance) • Flexible funding process allowed for necessary project adjustments from original proposals • Open-ended reporting promoted creativity and candidness by recipients Areas for Improvement • Additional time was needed to develop and coordinate applications with partners • More insight should be provided into the application review process • A standardized template to manage project milestones would help both recipients and the Program Office • Annual requirement to re-submit budgets was burdensome to recipients
Grantee Assistance	Successes • Many states had budgeted for exercise and plans development with external contractors; due to BIDTAP no-cost offerings, recipients redirected funding to other activities • Access to subject matter expertise helped recipients to accomplish all project objectives • BIDTAP request form was user-friendly and easy to follow Areas for Improvement • Additional guidance on the technical assistance process was needed at the outset to clarify there were no limits to the number of requests and what could be requested
Environmental Planning and Historic Preservation	Successes • EHP template included sample pictures that were helpful, along with assistance from EHP specialists to complete forms and answer questions during the review process • FCC has an established EHP process for consulting with Native American tribes • Best practice to contract EHP specialist to conduct tower analysis and mapping Areas for Improvement • Training on EHP and categorical exclusions (CATEX) was needed to complete forms and save time on review process (e.g., provide example CATEXs for planning) • Clarity of FCC's EHP process for consulting with Native American tribes (e.g., associated fees)
Program Office Roles	Successes • Greater Program Office engagement compared to larger grant programs, providing flexibility, approving project adjustments, and assisting to resolve issues • Fewer administrative burdens associated with BIDP compared to other grant programs • Three-year period of performance allowed for adequate time to carefully plan and execute projects • Targeted program objectives ensured specific communications challenges were addressed, as compared to larger grant programs that are too broad, making it challenging to implement unique projects Areas for Improvement • Regional-based, as compared to state or community-based, projects would further expand the scope • Future grants should encompass all emergency communications, including Next Generation 9-1-1 • OEC Regional Coordinators should have a more formal role in future grants • The Program Office of future grants should establish formal relationships with federal border agencies to ensure local jurisdictions not only have support at the local sector level, but also from headquarters

IV. Looking Forward

OEC continues to improve border interoperable emergency communications through various activities to transfer BIDP information and knowledge. This includes outreach with state, local, tribal, and territorial (SLTT) public safety agencies; development of border-focused tools, templates, and studies; application of best practices to the Department's future demonstration projects and grants; and coordination with federal agencies and grant administrators. Figure 7 depicts how OEC is transferring BIDP information and knowledge to U.S. border communities and beyond.

Figure 7. OEC Actions to Transfer BIDP Information and Knowledge



Conduct State, Local, Tribal, and Territorial Outreach

One of OEC's primary functions is to conduct outreach with its public safety stakeholders including SAFECOM, the National Council of Statewide Interoperability Coordinators (NCSWIC), the National Public Safety Telecommunications Council (NPSTC), and two border-focused working groups—the Canada–U.S. Communications Interoperability Working Group (CANUS CIWG) and the Southwest Border Communications Working Group (SWBCWG).[12] OEC is sharing BIDP best practices and lessons learned with these stakeholder bodies and continues to address interoperability issues that are unique to border communities.

Develop Border-Focused Tools, Templates, and Studies

In addition to information sharing, OEC is developing tools and templates to assist U.S. border communities. These include, but are not limited to, templates for memoranda of understanding and mutual aid agreements, guides for exercise planning and frequency coordination, and checklists on the EHP process and coordinating with international partners. OEC is also pursuing case studies with BIDP award recipients to examine the feasibility of tested interoperability solutions in other U.S. border communities. For example, OEC and Montana are considering how to expand use of the National Interoperability Channel, VLAW31 or "Blue" channel, by additional public safety officials spread across parts of the U.S.-Canadian border. OEC is also studying the similarities and disparities in interoperability solutions for urban and rural border areas. The intent is to assist border communities of varying sizes to plan and implement the appropriate interoperability solutions.

Apply Best Practices to DHS Demonstration Projects and Grants

OEC is applying BIDP best practices to new demonstration projects and grant programs it administers. For example, OEC designed the recently authorized Rural Emergency Medical Communications Demonstration Project (REMCDP) based on BIDP lessons learned.[13] Similar to BIDP, REMCDP required its applicants to demonstrate alignment to the NECP, support by statewide leaders and plans, and compliance with *SAFECOM Guidance*. REMCDP also focuses on innovation as the key component of a demonstration project, while also addressing all lanes of the *Interoperability Continuum*. OEC released the *REMCDP Notice of Funding Opportunity* and awarded grant funds in September 2016. As another example, OEC is coordinating with the Federal Emergency Management Agency, which administers the DHS preparedness grants. As a lesson learned during BIDP's implementation, the Department requires in Standard Terms and Conditions that grantees use and comply with the *SAFECOM Guidance*, as noted in its Appendix D. DHS will continue monitoring grantee compliance with the *SAFECOM Guidance* across all of its grants.

[12] For additional information on OEC's international cross border emergency communications efforts, see: https://www.dhs.gov/oec-international-cross-border-emergency-communications-efforts.

[13] Authorized in Division F within the Joint Explanatory Statement, P.L. 114-113, OEC established REMCDP to aid in the development of the NECP. This demonstration project shall leverage existing technologies and engage non-medical professionals to help establish or sustain statewide medical communications systems and utilize existing infrastructures to improve the delivery of rural medical care. For additional information on REMCDP, see: https://www.dhs.gov/remcdp.

Coordinate with Federal Agencies and Grant Administrators

Finally, OEC is sharing BIDP best practices with other federal agencies administering grants. OEC is engaging the Emergency Communications Preparedness Center (ECPC) as the federal interagency focal point for interoperable and operable emergency communications coordination.[14] The ECPC Grants Focus Group is composed of grants officers, program administrators, and communications experts with representation from eight federal departments and agencies. ECPC leadership charged this group to develop common guidance for federal programs that support emergency communications financial assistance programs, thus it's an appropriate interagency group for transferring BIDP information and knowledge. Federal agencies that choose to incorporate BIDP best practices into other grant programs would allow other U.S. border communities to benefit from the BIDP award recipients' experiences when they apply for and receive future funding.

V. Recommendations

OEC strives to improve emergency communications nationwide by promoting consistent national policies such as the NECP. Grants, including BIDP, are essential in implementing these national policies as they provide funding to state, local, tribal, and territorial public safety agencies with associated performance and reporting requirements to measure implementation. OEC will continue to share BIDP best practices and lessons learned and provide services that meet U.S. border communities' needs. To assist in this endeavor, OEC recommends the following congressional actions:

Implement and require grantee compliance with the *SAFECOM Guidance*

State, local, tribal, and territorial agencies have championed the *SAFECOM Guidance* and should use it as the all-inclusive guidance for grantees planning emergency communications projects. As a result, DHS requires its grantees to comply with *SAFECOM Guidance* when using federal funds for emergency communications projects.[15] DHS shared these adopted policies with federal partners, which were then incorporated as best practices into the *ECPC Federal Financial Assistance Reference Guide for Federal Program Managers* and voluntarily adopted by many federal agencies. However, voluntary adoption is only an initial step. The optimal approach is to mandate grantee compliance with *SAFECOM Guidance* for all federal funds to increase coordination efforts and impact across emergency communications nationwide. Congress should require this compliance via the OMB Circulars that govern federal grant funding.

Examine and update policies for international frequency coordination

While current spectrum licensing processes regulating the U.S.-Canada border and the signed protocol defining the U.S.-Mexico Sharing Zone have been somewhat effective in reducing interference, additional frequency coordination is needed. Challenges remain in obtaining spectrum licenses along the northern border for joint use of the U.S. designated nationwide public safety interoperability channels. Public safety radio interference continues to be a key issue along

[14] For additional information on the ECPC, see: https://www.dhs.gov/emergency-communications-preparedness-center.
[15] Grantee compliance with *SAFECOM Guidance* is also in accordance with the DHS Standard Terms and Conditions for preparedness grants, which fulfills statutory requirements to establish requirements for capabilities and equipment purchased with homeland security assistance.

the southern border. Congress should direct the Department of State and the FCC to work with Canadian and Mexican counterparts on improved policies, streamlined licensing request processes, and transparent reviews of spectrum requests and interference resolutions to address these frequency coordination challenges.

Authorize and appropriate similar demonstration projects to inform large grant programs

By establishing BIDP through cooperative agreements, OEC personnel had substantial involvement with projects to evaluate BIDP award recipients' needs through quarterly teleconferences directly with sub-recipients and provide customized technical assistance. As a result, recipients successfully completed their projects and tested innovative approaches to enhance interoperable emergency communications. Demonstration projects require substantial involvement by federal personnel and thus are not often feasible for large grant programs that administer hundreds of emergency communications projects. However, these demonstration projects generate lessons learned that will be applied to all grant programs and used to inform the type of large-scale grant programs that could be funded in the future. Congress should establish similar demonstration projects as small investments that impact billions in federal financial assistance programs.

VI. Conclusion

BIDP provided more than $25 million in grant funding and technical assistance to seven U.S. communities along the Canadian and Mexican borders. BIDP award recipients developed interagency agreements and operational protocols to improve readiness, expanded system coverage and capabilities into remote border areas, and provided training and exercises designed to enhance emergency responders' skills and proficiency. As a result, BIDP fulfilled the authorizing legislation's requirement to foster federal, state, local, and tribal interoperable emergency communications, as well as interoperable emergency communications with appropriate Canadian and Mexican authorities. Congress has funded a successful demonstration project that will continuously share lessons learned and best practices with other U.S. border communities, improve international policies and coordination for emergency communications, and influence other grant programs across the Department and Federal Government.

Appendix A. Statutory Language

Section 1810 of the *Homeland Security Act of 2002* (P.L. 107-296), as amended in 2007 by the *Post-Katrina Emergency Management Reform Act of 2006* (P.L. 109-295), 6 U.S.C. § 573 et. seq., sets forth the following provisions:

SEC. 1810. BORDER INTEROPERABILITY DEMONSTRATION PROJECT.

(a) In General—

(1) ESTABLISHMENT—The Secretary, acting through the Director of the Office of Emergency Communications (referred to in this section as the `Director'), and in coordination with the Federal Communications Commission and the Secretary of Commerce, shall establish an International Border Community Interoperable Communications Demonstration Project (referred to in this section as the `demonstration project').

(2) MINIMUM NUMBER OF COMMUNITIES—The Director shall select no fewer than 6 communities to participate in a demonstration project.

(3) LOCATION OF COMMUNITIES—No fewer than 3 of the communities selected under paragraph (2) shall be located on the northern border of the United States and no fewer than 3 of the communities selected under paragraph (2) shall be located on the southern border of the United States.

(b) Conditions—The Director, in coordination with the Federal Communications Commission and the Secretary of Commerce, shall ensure that the project is carried out as soon as adequate spectrum is available as a result of the 800 megahertz rebanding process in border areas, and shall ensure that the border projects do not impair or impede the rebanding process, but under no circumstances shall funds be distributed under this section unless the Federal Communications Commission and the Secretary of Commerce agree that these conditions have been met.

(c) Program Requirements—Consistent with the responsibilities of the Office of Emergency Communications under section 1801, the Director shall foster local, tribal, State, and Federal interoperable emergency communications, as well as interoperable emergency communications with appropriate Canadian and Mexican authorities in the communities selected for the demonstration project. The Director shall—

(1) Identify solutions to facilitate interoperable communications across national borders expeditiously;

(2) Help ensure that emergency response providers can communicate with each other in the event of natural disasters, acts of terrorism, and other man-made disasters;

(3) Provide technical assistance to enable emergency response providers to deal with threats and contingencies in a variety of environments;

(4) Identify appropriate joint-use equipment to ensure communications access;

(5) Identify solutions to facilitate communications between emergency response providers in communities of differing population densities; and

(6) Take other actions or provide equipment as the Director deems appropriate to foster interoperable emergency communications.

(d) Distribution of Funds—

(1) IN GENERAL—The Secretary shall distribute funds under this section to each community participating in the demonstration project through the State, or States, in which each community is located.

(2) OTHER PARTICIPANTS—A State shall make the funds available promptly to the local and tribal governments and emergency response providers selected by the Secretary to participate in the demonstration project.

(3) REPORT—Not later than 90 days after a State receives funds under this subsection the State shall report to the Director on the status of the distribution of such funds to local and tribal governments.

(e) Maximum Period of Grants—The Director may not fund any participant under the demonstration project for more than 3 years.

(f) Transfer of Information and Knowledge—The Director shall establish mechanisms to ensure that the information and knowledge gained by participants in the demonstration project are transferred among the participants and to other interested parties, including other communities that submitted applications to the participant in the project.

(g) Authorization of Appropriations—There is authorized to be appropriated for grants under this section such sums as may be necessary. (b) Clerical Amendment—The table of contents in section 1(b) of that Act is amended by inserting after the item relating to section 1809 the following: Sec. 1810. Border Interoperability Demonstration Project.

Appendix B. Program Financial Overview

The Department of Homeland Security (DHS) Grants and Financial Assistance Division (GFAD) served as the Border Interoperability Demonstration Project (BIDP) Grants Officer. DHS GFAD collected BIDP award recipients' financial reporting and maintained the official grant file. This appendix provides the financial information, including award recipients' cumulative awards, draw down amounts and percentages for each fiscal year, and deobligated funds, where applicable. California, Michigan, Montana, Ohio, and Texas completed their projects under proposed budgets; therefore, these states deobligated and returned funds to the U.S. Department of the Treasury as documented in deobligation memoranda. For specific project information, see the individual grantee reports in Appendix C of this report.

Figure B-1. BIDP Program Financials

BIDP Award Recipients	Arizona	California	Maine	Michigan	Montana	Ohio	Texas
Cumulative Award Amount	$3,994,443.00	$3,852,580.00	$3,963,163.00	$4,000,000.00	$3,895,425.00	$3,998,200.00	$1,940,000.00
FY 2012 Funds Drawn Down	$667,958.70	$117,835.60	$788,377.23	$656,362.58	$74,088.16	$2,015,217.62	$60,515.18
% of Total Award	17%	3%	20%	16%	2%	50%	3%
FY 2013 Funds Drawn Down	$2,042,840.93	$882,631.14	$1,309,175.71	$1,261,564.11	$1,479,481.79	$2,697,535.13	$1,605,666.18
% of Total Award	51%	23%	33%	32%	38%	67%	83%
FY 2014 Funds Drawn Down	$3,575,702.80	$1,784,431.35	$2,206,178.57	$3,304,267.89	$2,738,758.85	$3,964,597.32	$921,358.40
% of Total Award	90%	46%	56%	83%	70%	99%	47%
FY 2015 Funds Drawn Down	$3,992,803.00	$3,568,043.00	$2,211,227.53	$3,798,387.52	$3,590,884.00	$3,990,279.80	$1,926,354.08
% of Total Award	100%	93%	56%	98%	92%	99%	99%
FY 2016 Funds Drawn Down	N/A	N/A	$3,963,163.00	N/A	N/A	N/A	N/A
% of Total Award	N/A	N/A	100%	N/A	N/A	N/A	N/A
Deobligated Funds	N/A	$209,537.00	N/A	$84,084.30	$304,542.13	$7,920.20	$13,645.92

Appendix C. Individual Grantee Reports

The Department of Homeland Security (DHS) Office of Emergency Communications (OEC) served as the Border Interoperability Demonstration Project (BIDP) Program Office. DHS OEC reviewed BIDP award recipients' cumulative progress and financial reporting, along with the BIDP Program Office's technical assistance and monitoring reports, then summarized into individual grantee reports. This appendix provides these reports including the BIDP Program Office's project summary, outcomes, technical assistance, partnerships, financial reporting, sustainability of the project, and conclusion. These reports will be shared with BIDP participants, public safety stakeholders, and other interested parties to serve as repeatable models across border communities.

Table of Contents

Arizona

Grantee: Arizona State Administrative Agency
Sub-Recipient: City of Yuma, in partnership with the Yuma Regional Communications System Council
Project Title: Yuma Full Voice and Data Integration Demonstration Project
Award Amount: $3,994,443
Start Date: June 1, 2011
Closeout Date: May 30, 2015

Figure AZ-1. Project Highlights

- Expanded the Yuma Regional Communications System by increasing federal, state, local, and tribal participation and adding data capabilities
- Prepared for future connectivity with international partners through the U.S.-Mexico Cross Border Secure Communications Network
- Received ten technical assistance services
- Demonstrated new capabilities during four functional exercises

Project Summary

The City of Yuma, Arizona, in partnership with the Yuma Regional Communications System Council, implemented a project to provide voice and data communications interoperability across all levels of government. The Border Interoperability Demonstration Project (BIDP) further integrated federal, state, local, and tribal communications through common voice and data systems, and installed equipment to provide future international connectivity between the Arizona State Emergency Operations Center and the Sonora, Mexico Center for Control, Command, Communications, and Computers. Benefits to Yuma area public safety agencies include improved interoperable communications and the ability to share incident situation and criminal records information.

Outcomes

Arizona achieved three of its BIDP objectives and partially achieved the remaining two objectives:

- **Added public safety agencies to the Yuma Regional Communications System (YRCS).** The existing regional radio system provides Project 25-compliant voice capabilities across many public safety agencies in the Yuma area. During this project, Arizona expanded this system and integrated additional federal, state, local, and tribal public safety agencies into YRCS. Many of these added agencies transitioned to the system for all operations. Most notably, five tribes under the Colorado River Indian Tribes joined along with expanding existing local Quechan and Cocopah Tribes. The expansion to the radio system was installed, tested, exercised, and became operational. Arizona recognized that trusted relationships were critical to achieving interoperability. By establishing trusted relationships, YRCS agencies shared assets across traditional boundaries and used BIDP funds efficiently.

- **Expanded the YRCS data systems and remote accessibility.** The project upgraded the data infrastructure to increase capacity and encryption, and installed a Computer Aided Dispatch (CAD), Records Management System (RMS), and Jail Management System (JMS) to allow information sharing across multiple YRCS agencies. As part of the data system expansion, the project supplied many personnel with Mobile Dispatch Computers (MDC) to allow remote and instantaneous access to the YRCS CAD, RMS, and JMS systems. An issue arose regarding the sustainable funding of MDCs for Federal participants, resulting in the re-issue of equipment to other local participants. Yuma representatives cited the lesson learned to plan for federal integration with consideration of grant funding limitations for federal agencies. Since the project's completion, YRCS agencies have reported that the new data systems expedited processes and created enhanced situational awareness by accessing criminal history records during daily law enforcement activities. As a result, processing time and staffing needs have dramatically reduced, allowing public safety personnel to be reassigned to other critical areas.

- **Updated procedures following equipment installation.** Arizona hosted several workshops with partnering agencies to develop Standard Operating Procedures (SOPs) for the YRCS, including new data systems for CAD and the Geographic Information System (GIS). In addition, Arizona updated its

Tactical Interoperable Communications Plan (TICP) to reflect new capabilities from BIDP investments. Furthermore, Arizona trained federal, state, local, and tribal partners and held functional exercises to test the enhanced YRCS voice and data capabilities. Additional details on the SOPs, TICP, and functional exercises are provided in the following sections.

- **Prepared for integration of Arizona's Emergency Operations Center (EOC) to U.S. Customs and Border Protection (CBP) and the Cross Border Security Communications Network (CBSCN).** Arizona's original project plan included integration of its EOC to the forthcoming CBSCN, an international public safety network between the U.S. and Mexico to improve border security and combat border violence. Arizona purchased and installed the necessary equipment to connect with CBP and the CBSCN. However, after CBP completed the CBSCN, federal representatives decided to limit state and local users' access to the CBSCN until approved SOPs were in place. As a result, Arizona developed and submitted draft SOPs to CBP. Following the BIDP period of performance, CBP approved the SOPs and granted Arizona's access to the CBSCN. Arizona identified additional equipment to complete the CBSCN connection, which it plans to install and be operational in 2017.

- **Prepared for a direct interface to Mexican counterparts.** Building on the previous objective, Arizona's original project plan included a direct interface to Mexican counterparts through the CBSCN. Arizona purchased and installed microwave radio equipment and interfaces with CBP's Yuma Sector. Before this direct interface can be fully implemented, Arizona must install additional equipment for the shared use of the CBSCN connection between the U.S. and Mexico. Until then, this objective remains partially achieved.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported Arizona in achieving the program goal and its project objectives. BIDTAP fulfilled ten requests for technical assistance, with an additional three requests subsequently withdrawn, as follows:

- **Tactical Interoperable Communications-Field Operations Guide.** Based on the National Interoperability Field Operations Guide, this guide is a compendium of interoperable communications reference material for use by personnel responsible for establishing and maintaining interoperable communications during events. BIDTAP personnel facilitated two workshops in June 2012, one to update Yuma's 2009 TICP and the other to create a TICP for La Paz County. As a result, BIDTAP delivered a Tactical Interoperable Communications-Field Operations Guide designed for Yuma, Arizona in April 2013.

- **Functional Exercises (Conducted four exercises, three for Yuma and one for La Paz County).** The BIDP Program Office required recipients to execute a functional exercise to demonstrate the deployed technologies purchased through the grant. The exercise must align to the overall BIDP goal, include participation from at least 80 percent of project partners, involve the Statewide Interoperability Coordinator, test new capabilities across lanes of the Interoperability Continuum, and validate performance measures. BIDTAP personnel supported this requirement by providing exercise design experts to assist with the planning, execution, and evaluation of these functional exercises. Additional details are provided in the following section.

- **SOP Development (Supported three SOPs for YRCS, CAD, and GIS).** SOPs facilitate an orderly and efficient response to events ranging from routine incidents like traffic accidents and house fires to catastrophic events ranging from an active shooter near public venues to catastrophic natural disasters that occur with little or no warning. BIDTAP personnel assisted Arizona and partners in developing SOPs for use of the YRCS, CAD, and GIS capabilities, expanding on basic procedures already in use.

- **Radio Frequency (RF) Coverage Prediction and Propagation Testing.** This service provides requestors an assessment of RF system coverage for an area. BIDTAP personnel completed the Yuma coverage analysis using sophisticated radio frequency prediction software. The goal of these coverage studies was to gather preliminary data to properly identify the best routes for RF Coverage Drive Test Measurements.

- **RF Coverage Drive Test Measurements.** In this service offering, BIDTAP engineers collect measurements of system strength in order to assess the true performance of a radio system. BIDTAP personnel investigated options on how to execute the required drive tests including vendor support, purchasing new equipment, leveraging existing equipment, and adjusting the scope of the drive tests to better fit within budget and site expectations. Unfortunately, all of the identified solutions were too expensive to realistically complete the drive tests for the site. After discussions of possible alternatives, Arizona withdrew this technical assistance request.

- **TICP Update.** TICPs are designed to document an area's interoperable communications technology assets, usage policies, and procedures. BIDTAP personnel conducted two on-site workshops in January and February 2015 to update a TICP for La Paz County and the Colorado River Indian Tribes. BIDTAP delivered a draft TICP to participating agencies at the second workshop.

- **Governance Document Development and Governance Assessment.** Yuma County personnel requested two technical assistance services for the YRCS governance documents and La Paz County governance structure. However, only initial conversations took place for these efforts. Arizona's lead had conflicts in scheduling and resource availability. Subsequently, Arizona withdrew these technical assistance requests.

Functional Exercises

Arizona successfully demonstrated BIDP investments during four functional exercises, all of which included federal, state, local, and tribal participants using YRCS enhanced voice and data capabilities. The first exercise held at the Yuma County EOC in October 2013, involved 98 participants from 21 agencies. Arizona tested the regional radio system and CAD that was shared with the area's county dispatch communications centers, including at least four local centers and two at the federal level (i.e., the Marine Corps Air Station and CBP). BIDTAP evaluators commended participation and general knowledge of emergency responders, and recommended continued training on new capabilities.

In October 2014, Arizona held a second functional exercise with greater emphasis on the fire discipline and their associated mutual aid interoperability talkgroups. This exercise involved 86 participants from 21 agencies. Once again, BIDTAP evaluators highlighted successes similar to the first exercise that focused primarily on the law enforcement discipline and associated talkgroups.

In June 2015, Arizona held two additional exercises in La Paz County and in the Yuma region. The La Paz County exercise was held at the Buckskin Fire Department in Parker, Arizona, and involved 33 participants from 13 agencies. BIDTAP evaluators noted that this rural region did not have as much familiarity with the YRCS capabilities, thus the training and exercise provided valuable awareness to La Paz County dispatchers and emergency responders.

Arizona held the final exercise at the Yuma public safety training center, which involved 41 participants from 19 agencies. This exercise focused on interoperability between local and federal partners that regularly work together. In addition to this functional exercise, BIDTAP also supported the planning and execution of a mini tabletop exercise focused on Yuma Police and Fire Departments. As a result, the partners developed a joint SOP for incidents that require both agencies, especially active shooter and other highly dynamic incidents.

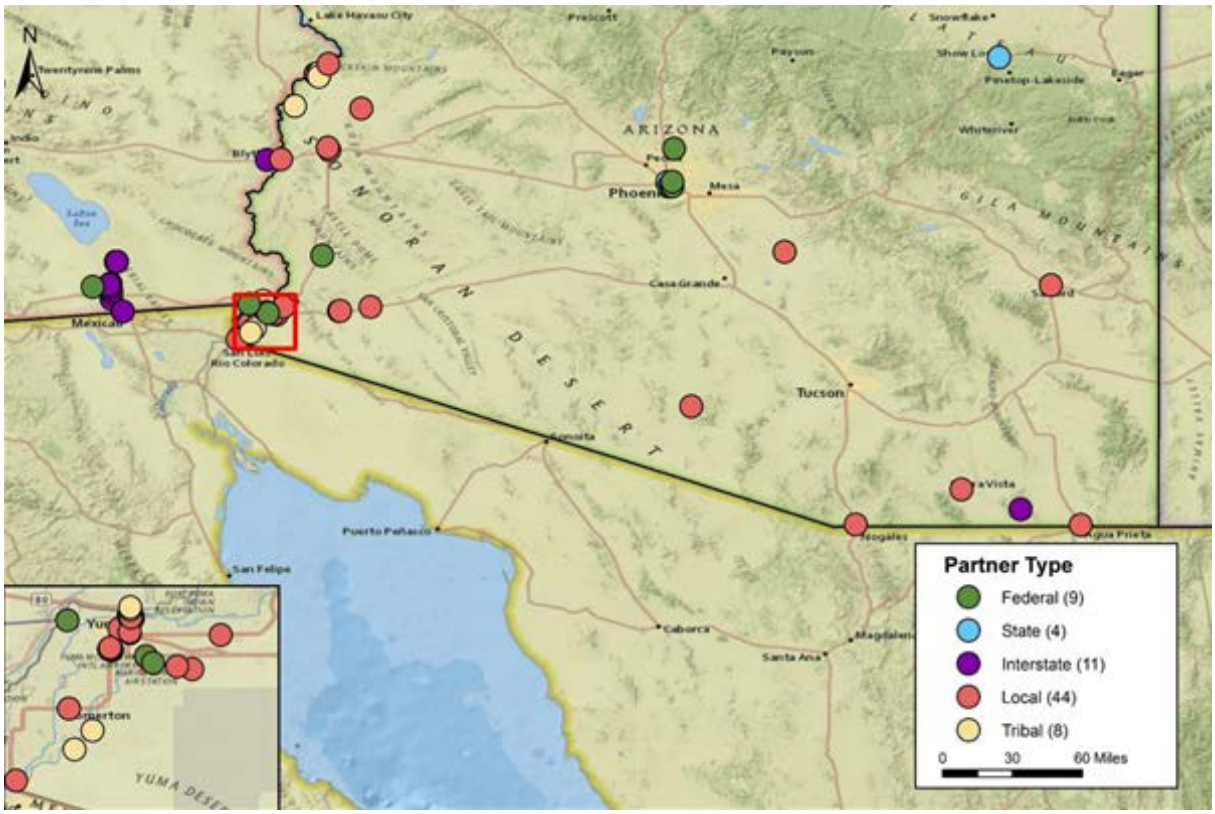
Partnerships

Arizona partnered with numerous public safety agencies, and others during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located along Arizona's international border.

Figure AZ-2. Arizona Partnerships Table

Local Partners	State Partners	Federal Partners
• City of Douglas • City of Nogales • City of San Luis • City of Sierra Vista • City of Somerton • City of Yuma • Cochise County • Graham County • La Paz County • Pinal County • Santa Cruz County • Town of Parker • Town of Quartzite • Town of Wellton • Yuma County	• Arizona Attorney General • Arizona Department of Corrections • Arizona Department of Public Safety • Arizona Department of Transportation **Inter-State Partners (California)** • City of Blythe • City of Brawley • City of Calexico • City of El Centro • City of Imperial • Imperial County • San Diego County **Educational Institutions** • Arizona Western College	• Bureau of Alcohol, Tobacco, Firearms, and Explosives • Bureau of Indian Affairs • Bureau of Land Management • Bureau of Reclamation • Drug Enforcement Administration • Federal Bureau of Investigation • U.S. Army – Yuma Proving Ground • U.S. Customs and Border Protection • U.S. Marine Corps – Air Station Yuma • U.S. Marshalls Service **Tribal Partners** • Cocopah Indian Tribe • Colorado River Indian Tribes • Quechan Indian Tribe

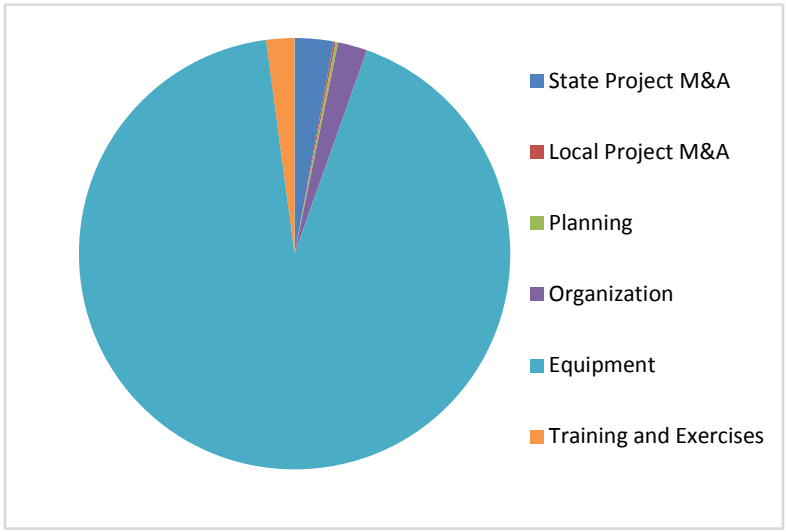
Figure AZ-3. Arizona Partnerships Map



Financial Reporting

Arizona spent all of its awarded BIDP funding on project activities. The graphic provides a visual of categorical spending for the following: $116,342.00 in State Project Management and Administration (M&A); $5,531.17 in Local Project M&A; $7,843.98 in Planning; $87,775.51 in Organization; $84,368.90 in Training and Exercises; and $3,692,580.44 in Equipment Purchase. Arizona also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Figure AZ-4. Arizona BIDP Spending



Sustainability of Project

The YRCS is sustained through user fees from participating agencies. BIDP-funded capabilities have been incorporated into the YRCS and will be maintained by the operations costs supported by the user fee structure. Arizona will conduct system lifecycle planning as larger investments become necessary for equipment upgrades or additional expansions.

Conclusion

The BIDP Program Office concluded that the City of Yuma, as the sub-recipient of BIDP funds from the Arizona State Administrative Agency, met the program goal and the majority of its individual project objectives. Arizona worked extensively with YCRS agencies to expand system users and data capabilities, and address planning, shared SOPs, training, and exercises. This regional approach allowed Arizona to address typical challenges in border communities.

California

Grantee: California State Administrative Agency
Sub-Recipient: San Diego Fire-Rescue
Project Title: Regional Command and Control Communications (3Cs) Tactical Border Communications Project
Award Amount: $3,852,580
Start Date: June 1, 2011
Closeout Date: August 31, 2015

Figure CA-1. Project Highlights

- Enhanced the Regional 3Cs network and added U.S. Customs and Border Protection
- Enabled the ability for mobile and temporary communications across the region
- Received five technical assistance services
- Demonstrated new capabilities via a functional exercise

Project Summary

California's sub-recipient, San Diego Fire-Rescue, in partnership with federal, state, and local agencies in San Diego County, improved on-site incident management, interoperability, and situational awareness through several network enhancements. The existing Regional 3Cs secure data network delivers critical information to first responder command staff and complements public safety land mobile radio (LMR) systems by freeing up valuable radio air time. The Border Interoperability Demonstration Project (BIDP) improved the Regional 3Cs network by extending capabilities to federal border security partners and incident command posts. The project added capacity to digital networks that are used by emergency responders across levels of government, including links between U.S. with Mexican partners. It also deployed new wireless broadband technologies to provide voice, video, and data to incident command posts. Emergency responders now have access to communications capabilities countywide, including the rugged border region.

Outcomes

California achieved all six of its BIDP objectives:

- **Added U.S. Customs and Border Protection (CBP) to the Regional 3Cs network.** The existing Regional 3Cs network provides a means for secure data transfer among first responders. BIDP activities built on past phases of the Regional 3Cs network by adding capabilities for federal partners and incident command posts in the field. To achieve this objective, California obtained licenses for new frequencies, added a new microwave site, and installed microwave equipment into the CBP communications facility, and CBP signed the Memorandum of Understanding for shared use of the network. The new frequencies and equipment established dedicated voice and data capabilities between CBP and the Regional 3Cs network's other 26 member agencies. The CBP connection also prepares San Diego agencies to connect to the forthcoming Cross Border Secure Communications Network (CBSCN), an international public safety network between the U.S. and Mexico to improve border security and combat border violence. California experienced several challenges and project delays due to lengthy lease negotiations between the city, a utility company, and a Federal agency to obtain the new microwave site. Additionally, California had difficulty maintaining project champions with local CBP officials due to staff changes. Despite these challenges, California completed this key objective to add CBP to the Regional 3Cs network, thus formalizing Federal coordination and paving the way for international coordination via the forthcoming CBSCN.

- **Expanded the mobile command center project to a countywide implementation with emphasis on the border region.** San Diego's mobile command capabilities connect to the Regional 3Cs network to provide temporary operational needs with enhanced data services in the field. The command vehicles are equipped with a generator to accommodate extended services during incidents. Through BIDP, California expanded beyond its initial prototype command trailer and constructed a second trailer, known as NOMAD 2, for joint use throughout the border region. The new trailer provides data network connectivity, cellular tower replication, and receiver video downlink capabilities from regional

helicopters. For simplicity of operation, the mobile command center's microwave radios are equipped with automated tracking systems to establish connections. California is evaluating improvements to allow the trailer to automatically connect to multiple sites without network personnel intervention.

- **Expanded the Regional 3Cs network to support mobile command centers in the region.** The project originally planned for up to five mobile command centers (e.g., vans, trailers). California revised its project based on the need for portability and the immediate need for network availability in the field. As a result, capabilities were added to three regional mobile command centers that are strategically located across the region at Chula Vista Police Department (South), Escondido Police Department (North), and California Fire Protection Services headquarters (East). Using these mobile command centers as a standard resource eliminated the need for an additional trailer, which would require a vehicle to tow and personnel with the expertise to deploy. To increase coverage and response within San Diego County, the project installed microwave radio repeaters at five sites to increase network coverage. California noted best practices to re-evaluate project milestones, especially when dealing with technology. New technologies or solutions may be discovered during the project's implementation, and while these should be considered, it is important to remain consistent with project goals.

- **Used commercial off-the-shelf (COTS) equipment to augment mobile command centers.** California installed COTS equipment into the three regional command centers as described above. Participants reported cost savings when using COTS equipment; however, there may be challenges merging old and new technologies. Several challenges arose with a conflict between firmware on the old equipment and the licensing purchased 4 years previously, and the firmware installed on the new equipment purchased with BIDP funds. California had to decide to either downgrade the firmware on the new equipment or upgrade the firmware on the old equipment; the technical team opted to upgrade all equipment to prevent the need to revisit sites. A lesson learned is to discuss possible firmware issues with the vendor before ordering or accepting delivery.

- **Developed subscriber kits to support field activities.** To better coordinate efforts during incident response, the project included the development of subscriber kits to provide immediate network connectivity through microwave radios. In areas not currently covered by San Diego's emergency communications system, microwave radios are used to create network access points. The subscriber kits offer several applications in both temporary and emergency network connections. These kits have proved useful for creating immediate network connectivity where critical infrastructure has been lost. California has since reported that subscriber kit connections have ranged from single-day incidents to prolonged use over several weeks. Other U.S. border communities may employ this solution for backup communications or to establish temporary communications in weak or underserved coverage areas of their networks.

- **Installed additional receiver sites to support helicopter video downlink.** California installed, demonstrated, and tested six downlink receiver sites, which improved network coverage and increased reception upwards of 75 percent. As a result, previous challenges such as loss of video during helicopter maneuvers and dead spots in the region have been effectively eliminated. The downlink system incorporates direct feeds to portable handheld devices including transmission into the Regional 3Cs network. Once video feeds are decoded, the video is multi-casted into the network where it is broadcasted to 27 federal, state, and local member agencies within San Diego County. In addition, California purchased and installed a media server enabling secure downlink feeds to personal computers and mobile devices.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported California in achieving the program goal and its project objectives. BIDTAP fulfilled the following five requests for technical assistance:

- **Operations Drill Support.** This service offering provides exercise planning and evaluation support for emergency communications drills. BIDTAP personnel assisted in the design and planning of an operations drill and evaluated participants on simulated activities to resolve communications-related issues and problems that arise during the drill.
- **Standard Operating Procedures (SOP) Development.** SOPs facilitate an orderly and efficient response to events ranging from routine incidents like traffic accidents and house fires to catastrophic events ranging from an active shooter near public venues to catastrophic natural disasters that occur with little or no warning. BIDTAP personnel assisted California and partners in developing SOPs for the Regional 3Cs network, including the new capabilities funded by this grant.
- **LMR System Analysis.** BIDTAP personnel serve as an independent third party to ensure that proposed system design documentation is objective and vendor-neutral, such as Requests for Proposals and Acceptance Test Plans, to determine whether proposed system purchases, changes, or upgrades meet user needs. BIDTAP delivered an assessment report to California to identify discrepancies between user requirements and existing system capabilities, and engineering recommendations designed to resolve those gaps.
- **LMR System Migration Support.** This service offering assists users in implementing a migration strategy to move from a legacy LMR system to a new standards-based system. BIDTAP personnel analyzed current use of the Regional 3Cs network, proposed plans for new capabilities, and user requirements to develop a switch-over strategy.
- **Functional Exercise.** The BIDP Program Office required recipients to execute a functional exercise to demonstrate the deployed technologies purchased via the grant. The exercise must align to the overall BIDP goal, include participation from at least 80 percent of project partners, involve the Statewide Interoperability Coordinator, test new capabilities across lanes of the Interoperability Continuum, and validate performance measures. BIDTAP personnel supported this requirement by providing exercise design experts to assist with the planning, execution, and evaluation of these functional exercises. Additional details are provided in the following section.

Functional Exercise

California successfully demonstrated BIDP-funded capabilities during a functional exercise held on July 8, 2015. Participants included the San Diego Office of Emergency Services, local fire and police departments, the U.S. Coast Guard, and CBP. The exercise goal and objectives were met through activities in six locations across the City of San Diego. Each location tested various aspects of the project such as the video downlink, mobile command centers, radio interoperability, and data transfer. At the after-action conference, participants recommended additional training on user operations to ensure full understanding of new capabilities. The recognized need for ongoing training confirms the best practice that interoperability requires more than equipment. Users must be aware of and understand the proper use of communications capabilities for them to be effective during an emergency.

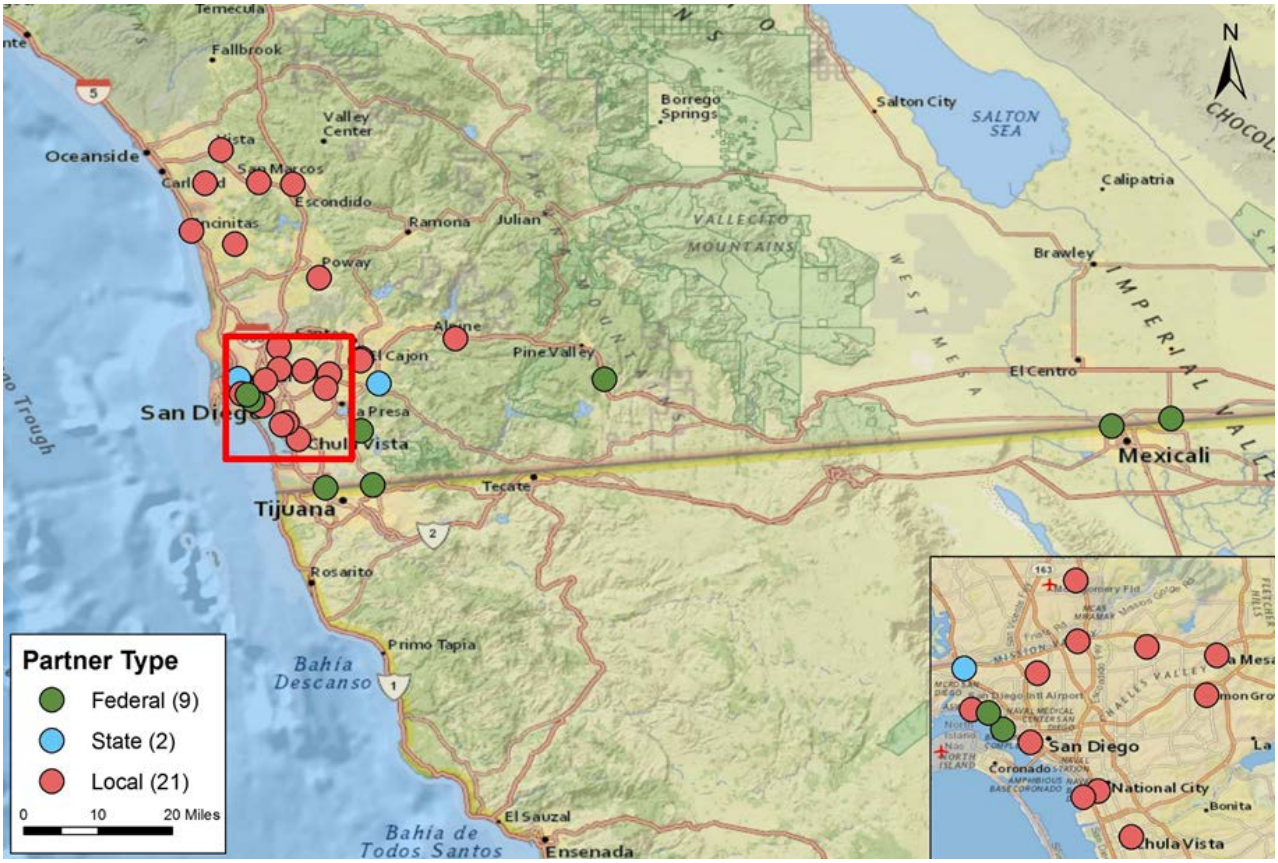
Partnerships

California partnered with numerous agencies during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located in the greater San Diego, California area.

Figure CA-2. California Partnerships Table

Local Partners		State Partners
• Alpine Fire • Carlsbad Police • City of El Cajon • City of Encinitas • City of La Mesa • City of Poway • City of Vista • Chula Vista Police • Escondido Police • Heartland Fire • Lemon Grove Fire • Metropolitan Transit System	• National City Police • North County Dispatch Joint Power Authority • San Diego Community College District Police • San Diego Harbor Police • San Diego Sheriff's Department • San Diego State University • San Diego Unified Port District • San Diego Unified School District Police • San Marcos Fire	• California Fire Protection Services • California Department of Transportation
		Federal Partners
		• Transportation Security Administration • U.S. Coast Guard • U.S. Customs and Border Protection • U.S. Navy

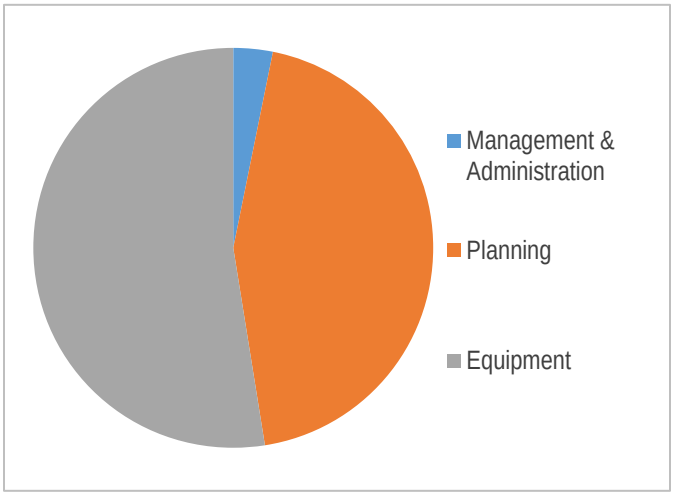
Figure CA-3. California Partnerships Map



Financial Reporting

California completed its project under its proposed budget. Due to cost savings of using services provided by the BIDP Program Office, California deobligated and returned $209,537 to the U.S. Department of the Treasury. The graphic provides a visual of categorical spending for the following: $113,328 in Project Management and Administration; $1,580,405 in Planning; and $1,874,310 in Equipment Purchase. California also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Figure CA-4. California BIDP Spending



Sustainability of Project

California recognized the need to plan for new capabilities and selected BIDP investments with long-term sustainability in mind. The Regional 3Cs network is maintained and operated by the City and County of San Diego. BIDP-funded equipment has been integrated with the network maintenance and life cycle plans. When the equipment requires updating, a regional governance body will determine whether to retire or upgrade equipment, with all maintenance costs covered by a dedicated funding account. The mobile command centers require routine maintenance and vehicle registration that are provided through the City of San Diego's Wireless Technology Services.

Specifically, the new microwave sites, subscriber kits, and helicopter downlink receiver sites require minimal maintenance due to the stability of installs and lack of moving parts. First installed in San Diego County in 2005, these types of devices have yet to show any malfunctions or performance failures, and are expected to remain in service beyond 2020. Any additional costs such as housing and electricity are handled by the respective agency maintaining the equipment in those particular sites. Finally, the media server is a physical device with software that requires a yearly maintenance service contract for software upgrades, which has been accounted for in planning.

Conclusion

The BIDP Program Office concluded that San Diego Fire-Rescue, as the sub-recipient of BIDP funds from the California State Administrative Agency, met the program goal and its individual project objectives. California's new data capabilities and user access serve as a repeatable model for other border communities.

Maine

Grantee: Maine State Administrative Agency
Sub-Recipient: County of Washington, Maine
Project Title: Enhanced Communications Infrastructure and Partnerships for Border Security Project
Award Amount: $3,963,163
Start Date: June 1, 2011
Closeout Date: December 31, 2015

Figure ME-1. Project Highlights

- Built and leased communications towers, installed radio equipment, and deployed mobile and portable radios to improve coverage to nearly 100% of border
- Coordinated use of national interoperability channel, formalized agreements, and established resource sharing practices with agencies on both sides of border
- Received two forms of technical assistance services
- Demonstrated capabilities in two functional exercises

Project Summary

The County of Washington, Maine, in coordination with three neighboring counties and other federal, state, local, tribal, and international public safety agencies, improved cooperation and provided critical communications along and across the U.S.–Canadian border. Through the Border Interoperability Demonstration Project (BIDP), Maine addressed significant coverage and capability gaps in multiple regions by building and leasing communications towers, programming a designated interoperability channel into emergency responders' radios, and deploying mobile and portable radio caches. Maine's most impactful project aspect was the formalization of mutual aid agreements, shared standard operating procedures, and overall collaborative planning across both domestic and international partners.

Outcomes

Maine achieved its two primary objectives for BIDP:

- **Explored innovative and effective models of interoperable communications that improve emergency response along the U.S. border.** To address communications gaps spanning the 611 miles of international border, Maine built a communications tower, installed multimodal equipment on towers for voice and data interoperability, and linked towers to one another and Regional Communications Centers. These enhancements resulted in nearly 100 percent radio coverage along the U.S.-Canadian border, and in some areas, across the border. Maine had to overcome many challenges throughout the project. Challenges included long delays coordinating frequencies with Industry Canada (now Innovation, Science and Economic Development Canada), a short building season to install equipment, and lengthy process of conducting Environmental Planning and Historic Preservation reviews. Maine also cited administrative challenges including a project management team that had been contracted and subsequently fired due to low productivity, and prolonged negotiations with infrastructure and land owners regarding tower lease agreements. Maine recognized its Statewide Interoperability Coordinator (SWIC) as an instrumental player to its project's successful completion, as the SWIC led planning and negotiations following the dismissal of the contracted project management team. Maine obtained the necessary frequencies and Industry Canada's approval with assistance from the Federal Communications Commission and the Office of Emergency Communications' Regional Coordinator. As a result, Maine programmed a national public safety interoperability channel, VCALL10, into participating agencies' mobile and portable radios and trained users on appropriate use of the channel.

- **Established interoperability capabilities and coordination between domestic and international partners.** In an effort to elevate "handshake" agreements, Maine formalized mutual aid across emergency response providers by signing Memoranda of Understanding (MOU) and establishing Standard Operating Procedures. Maine purchased mobile and portable radio caches to connect with regional communications systems and programmed these radios with designated interoperability channels, including VCALL10. Maine deployed radios at border crossings, regional dispatch centers, and in emergency response vehicles. Additionally, Maine enhanced statewide capabilities by installing

the Record Management System and radios into several of Maine's aircrafts. The aircrafts are able to communicate with local emergency responders during an incident or act as a repeater for responders in remote regions that are still without coverage. As a result of formalized mutual aid agreements and distribution of programmed radios, Maine established reliable, interoperable communications across domestic and international partners.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported Maine in achieving the program goal and its project objectives. BIDTAP fulfilled two forms of technical assistance as follows:

- **Land Mobile Radio (LMR) System Analysis.** To assist jurisdictions in procuring the proper design of an LMR system, the BIDTAP team acts as an independent third party to ensure that system design documentation is objective and vendor-neutral. BIDTAP personnel analyzed a vendor Request for Bid (RFB) for a turn-key radio system upgrade in Aroostook and Washington Counties. Following interviews with state, county, and vendor representatives, BIDTAP personnel provided reports to Maine detailing recommendations and next steps for the draft RFBs.

- **Full Scale Exercise Support and Functional Exercises.** The BIDP Program Office required award recipients to execute a functional exercise to demonstrate the deployed technologies purchased via the grant. The required exercise must align to the overall BIDP goal, include participation from at least 80 percent of project partners, involve the Statewide Interoperability Coordinator, test new capabilities across lanes of the Interoperability Continuum, and validate performance measures. BIDTAP personnel supported this requirement by providing exercise design experts and evaluators to each community, assisting with the design, planning, execution, and evaluation of these functional exercises. BIDTAP personnel completed 10 on-site visits in Maine, starting in June 2013 to November 2015, to support exercise planning and implementation. Additional details are provided in the following section.

Functional Exercises

Maine held two exercises, each focused on different regions, to demonstrate BIDP capabilities with participating agencies. The first functional exercise was held in western Maine on September 26, 2015, with 29 participants from 12 agencies. This exercise evaluated expanded coverage and newly installed communications equipment including the air-to-ground technologies in Maine's aircrafts. Maine demonstrated enhanced use of VCALL10 and improved interoperability among local and state emergency responders. Maine also demonstrated significantly improved coverage into Canada enabling reliable communications during international mutual aid response. Following the exercise, participants recommended expanding the statewide and regional radio systems, increasing use of VCALL10, and continuing to train users on new mobile and portable radios.

During the second exercise, Maine participated in Exercise Intrepid 2015, which focused on a scenario involving a Canadian nuclear power plant, held on November 17–18, 2015. The exercise consisted of approximately 1,500 participants from more than 30 agencies. Maine demonstrated exceptional interoperability among domestic and international partners, with redundancy and reliability of communications throughout the border area. Following the exercise, participants and BIDTAP personnel met to discuss recommendations. Participants reiterated recommendations from the first functional exercise, and also recommended identifying a viable radio frequency talkpath for Aroostook and Washington Counties.

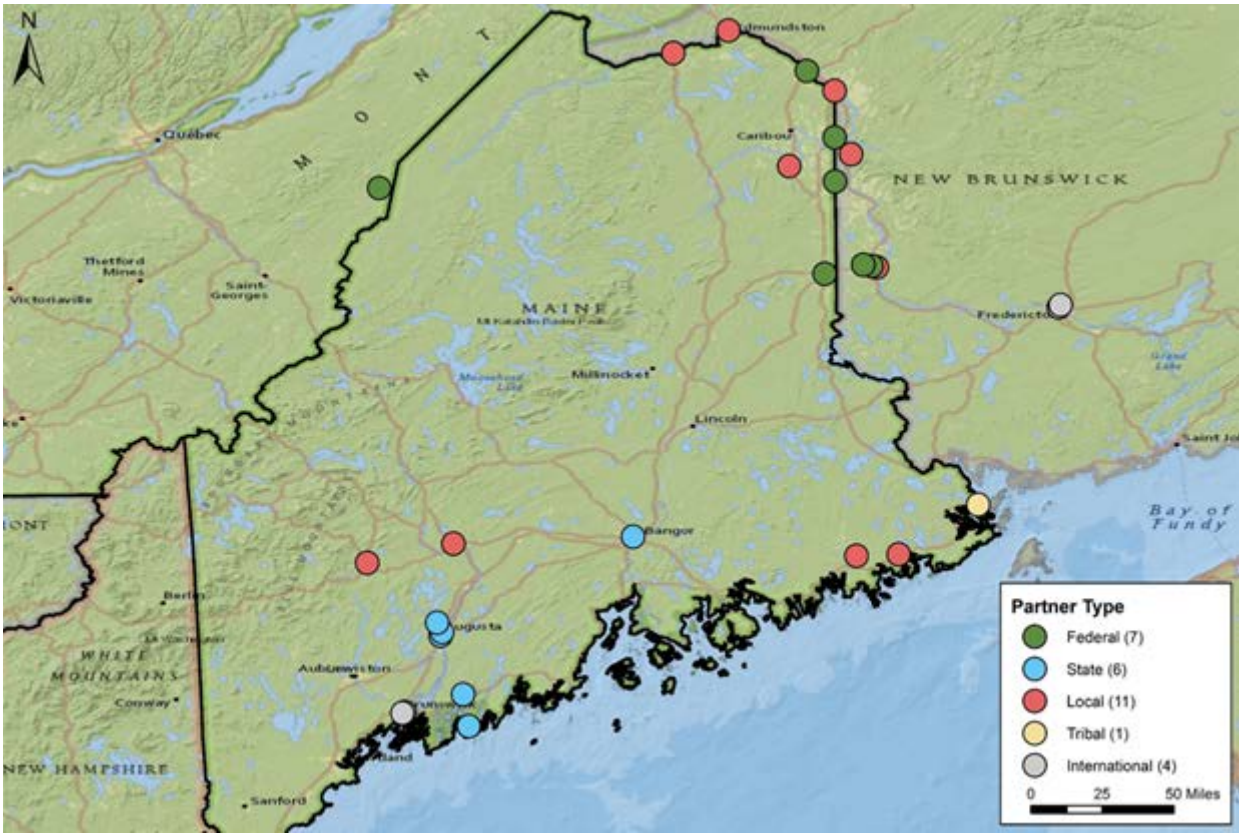
Partnerships

Maine partnered with numerous public safety agencies during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located along and across Maine's international border.

Figure ME-2. Maine Partnerships Table

Local Partners	State Partners	Federal Partners	International Partners
• Aroostook County (including 2 cities, 55 towns, 11 plantations, 110 unorganized townships) • Franklin County (including 19 towns, 3 plantations, numerous unorganized territories) • Somerset County (including 27 towns, 6 plantations, 4 unorganized territories, 3 villages) • Washington County (including 2 cities, 40 towns, 3 plantations, 2 tribal areas)	• Maine Emergency Management Agency • Maine Forestry Service • Maine Marine Patrol • Maine Office of Information Technology • Maine State Police • Maine Warden Service	• U.S. Customs and Border Protection (located at multiple border crossings) • U.S. Department of Homeland Security **Tribal Partners** • Passamaquoddy Tribe	• Canada Border Services Agency • New Brunswick Province emergency organizations and encompassing towns • Royal Canadian Mounted Police

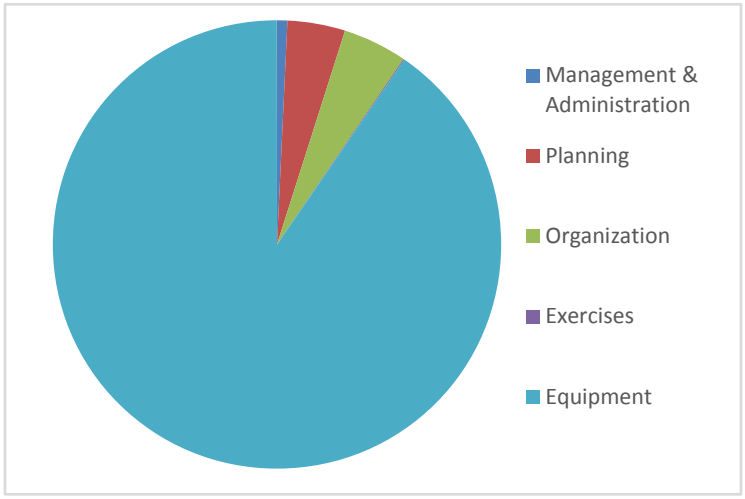
Figure ME-3. Maine Partnerships Map



Financial Reporting

Maine spent all of its awarded BIDP funding on project activities. The graphic provides a visual of categorical spending for the following: $29,576.82 in Project Management and Administration; $164,916.49 in Planning; $183,116.68 in Organization; $3,234.68 in Exercises; and $3,582,318.33 in Equipment Purchase. Maine also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Figure ME-4. Maine BIDP Spending



Sustainability of Project

Maine established relationships and formal agreements through MOUs with participating agencies—both domestic and international. This coordination enables mutual aid to continue beyond specific personnel or "champions" and resulted in most radios programmed with the designated interoperability channel, VCALL10. Local jurisdictions have incorporated BIDP-funded equipment into maintenance and operations planning. Participating agencies will provide any required service, maintenance, or upgrades for radio equipment. Maine noted that some project aspects pose long-term risks. For example, while Maine secured a 20-year lease for certain communications towers, the lease does not provide a permanent solution for network coverage. Another aspect is New Brunswick Province's implementation of a 700 megahertz system, which will require Maine's public safety agencies to purchase or upgrade equipment to maintain interoperable communications with Canadian counterparts. Maine plans to continue collaborating with partners and addressing sustainability of BIDP-funded investments.

Conclusion

The BIDP Program Office concluded that the County of Washington, as the sub-recipient of BIDP funds from the Maine State Administrative Agency, met the program goal and its individual project objectives. Maine demonstrated greater regional and international coordination, as well as improved communications coverage and shared procedures during incident response.

Michigan

Grantee: Michigan State Administrative Agency
Sub-Recipient: Wayne County Homeland Security and Emergency Management
Project Title: Southeast Michigan Border Interoperability Solution Project
Award Amount: $4,000,000
Start Date: June 1, 2011
Closeout Date: September 30, 2015

Figure MI-1. Project Highlights

- Upgraded existing radio infrastructure to improve coverage across the U.S. and into Canada
- Installed Internet Protocol-based communications infrastructure in the Detroit–Windsor tunnel
- Improved cross border protocols by creating standard operating procedures and designated talkgroups
- Received two technical assistance services
- Demonstrated new capabilities in a functional exercise

Project Summary

Wayne County, in partnership with federal, state, local, and international agencies, improved interoperable communications by addressing several issues. Previous communications challenges in the southern Detroit River area included inadequate radio system coverage, a lack of standard operating procedures (SOP), and limited interoperability channels or talkgroups. Through the Border Interoperability Demonstration Project (BIDP), Michigan built and upgraded communications infrastructure, collaborated extensively with U.S. and Canadian counterparts on cross border protocols and mutual aid agreements, and deployed radio caches and designated talkgroups for interoperability. Emergency responders now have access to communications capabilities along and across the Detroit, Michigan, border region.

Outcomes

Michigan achieved three major objectives for its BIDP:

- **Improved interoperable communications among U.S. public safety partners.** Prior to BIDP, counties in the southern Detroit River area lacked reliable access to the state's interoperability solution, the Michigan Public Safety Communications System (MPSCS). Michigan's original project plan included upgrading two communications towers to access MPSCS and installing Internet Protocol-based communications within the passenger and rail Detroit–Windsor tunnel. Due to financial constraints and delays waiting for necessary approvals, Michigan reduced the project scope to upgrade one communications tower and expand coverage within only the passenger portion of the tunnel. These improvements addressed a significant gap to interoperable communications and now responders in several counties have reliable access to MPSCS.

- **Facilitated interoperable communications with Canadian emergency responders.** The MPSCS communications tower and Detroit–Windsor tunnel upgrades described above also expanded coverage and capabilities with public safety agencies in Canada. To achieve this international coordination, Michigan faced numerous administrative challenges including negotiations with infrastructure owners, personnel changes, vendor procurement, and regulatory approvals such as compliance with Environmental Planning and Historic Preservation laws and frequency licensing with the Federal Communications Commission. Despite these challenges, Michigan completed the tower and tunnel upgrades enabling greater mutual aid coordination with Canada. Michigan cited the genuine broad support by all partners, especially international, for the successful project completion.

- **Improved communications for emergency responders during large-scale threats and disasters.** The international border near Detroit, Michigan contains lakes and several connecting waterways, in addition to high-risk locations like the Enrico Fermi II Nuclear Power Plant located on Lake Erie. MPSCS did not previously provide radio coverage in the Lake Erie region. Michigan addressed these coverage gaps through the communications infrastructure as described above. In addition, Michigan deployed dual-band radio caches to participating agencies for use during large-scale events. Michigan

also established BIDP talkgroups with agencies on both sides of the border. Michigan trained participants with Mutualink Interoperability Workstations (IWS) gateway devices. These devices enable dispatchers or incident managers to communicate with other dispatch personnel and field units, including the use of audio and video streams within a secure network. Through these new capabilities, Michigan is better prepared to coordinate multiple agencies—domestic and international—responding to a large-scale event.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported Michigan in achieving the program goal and its project objectives. BIDTAP fulfilled two requests for technical assistance as follows:

- **Standard Operating Procedures Development.** SOPs are formal written guidelines or instructions that usually contain both operational and technical components. SOPs facilitate an orderly and efficient response to multi-agency incidents, events as routine as dial calls for services, and events as catastrophic as large scale disasters. In August 2013, BIDTAP personnel facilitated a workshop focused on exercise design and development, with the goal of identifying the material necessary to develop a draft SOP after the workshop. The workshop also addressed governance fundamentals and documentation for SOP development. BIDTAP delivered drafts of a mutual-aid SOP, memorandum of understanding, regional group charter, and interoperability committee by-laws to Michigan, which then led development of SOPs. Prior to August 2015 functional exercise, Michigan finalized the SOPs with the assistance of the Office of Emergency Communications' Coordinator to test during the exercise.

- **Functional Exercise.** The BIDP Program Office required award recipients to execute a functional exercise to demonstrate the deployed technologies purchased via the grant. The required exercise must align to the overall BIDP goal, include participation from at least 80 percent of project partners, involve the Statewide Interoperability Coordinator, test new capabilities across lanes of the Interoperability Continuum, and validate performance measures. BIDTAP personnel supported this requirement by providing exercise design experts and evaluators to each community, assisting with the design, planning, execution, and evaluation of these functional exercises. Additional details are provided in the following section.

Functional Exercise

Michigan successfully demonstrated BIDP-funded capabilities during a functional exercise held on August 12, 2015, which included 52 participants from 18 U.S. and Canadian agencies. The exercise tested for coverage in the Detroit–Windsor tunnel with adequate redundancy, as well as interoperability between all levels of emergency responders. Following the exercise, participants met to discuss results and recommend next steps. The after-action report encouraged the expansion of the BIDP talkgroups and use of the IWS gateway devices. Participants also identified opportunities for additional governance and planning activities to ensure effective coordination and use of BIDP-funded technologies.

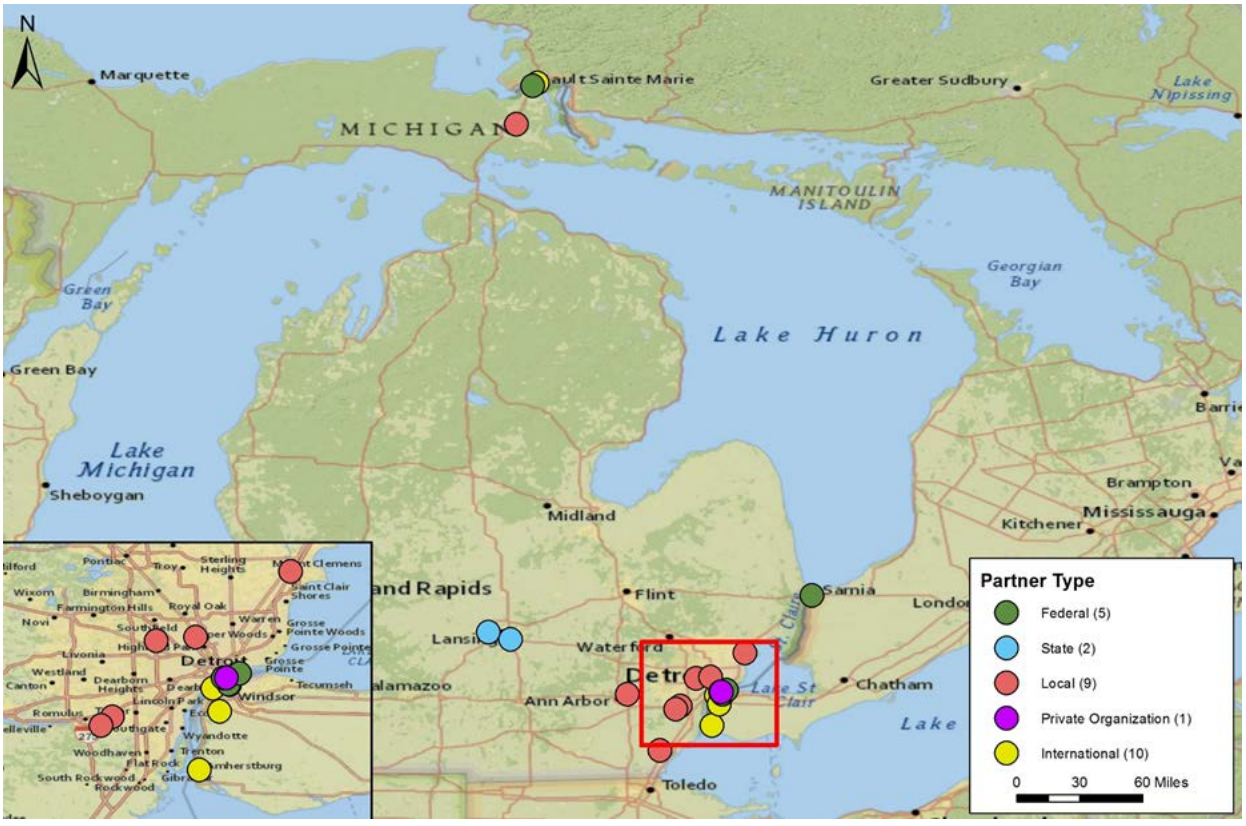
Partnerships

Michigan partnered with numerous agencies during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located along and across Michigan's international border.

Figure MI-2. Michigan Partnerships Table

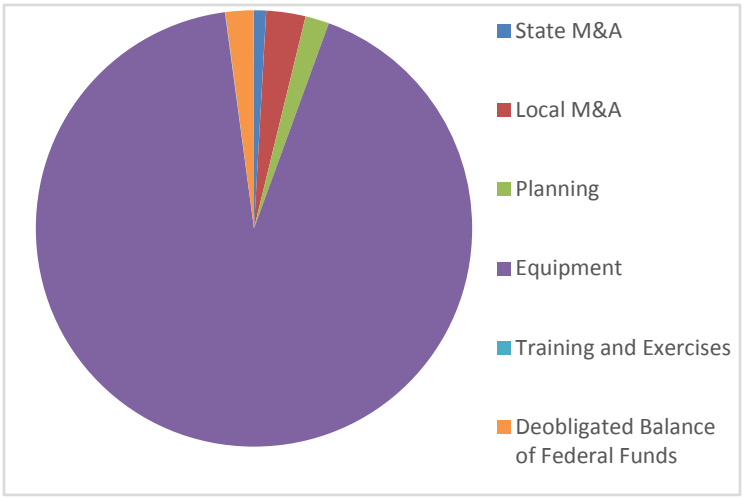
Local Partners	State Partners	Federal Partners	International Partners
• Chippewa County • City of Detroit • Detroit-Windsor Tunnel Authority • Macomb County • Monroe County • Wayne County • Wayne County Airport Authority	• Michigan Emergency Management and Homeland Security • MPSCS	• U.S. Customs and Border Protection • U.S. Coast Guard	• Canadian Border Services Agency • City of Windsor • Essex County • Port of Windsor • Town of Amherstburg • Town of LaSalle • Sault St Marie

Figure MI-3. Michigan Partnerships Map



Financial Reporting

Figure MI-4. Michigan BIDP Spending



While financial considerations required Michigan to alter the original scope, Michigan completed its project under its proposed budget. Michigan deobligated and returned $84,084.00 to the U.S. Department of the Treasury. The graphic provides a visual of categorical spending for the following: $35,985.67 in State Project Management and Administration (M&A); $116,227.32 in Local Project M&A; $69,997.36 in Planning; $3,692,627.68 in Equipment; and $1,077.77 in Training and Exercises. Michigan also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Sustainability of Project

Michigan planned for sustainability of its BIDP-enabled technologies. Specifically, the Detroit Windsor Tunnel Authority, a private authority, will maintain communications equipment in the Detroit–Windsor tunnel throughout its lifecycle. Participating agencies will provide any required service or maintenance for the IWS gateways and individual radios. Michigan will continue to conduct bi-monthly radio checks, hold regular exercises with partners, and update SOPs annually. Michigan plans to build on the project's efforts to expand the BIDP talkgroups and deploy additional IWS gateway devices to increase use and incident response.

Conclusion

The BIDP Program Office concluded that Wayne County, as the sub-recipient of BIDP funds from the Michigan State Administrative Agency, met the program goal and its individual project objectives. Michigan demonstrated greater regional and international collaboration, which led to enhanced interoperable solutions that provide a repeatable model for other border communities.

Montana

Grantee: Montana State Administrative Agency
Sub-Recipient: Interoperability Montana (original applicant) transferred responsibilities to Flathead County upon its dissolution in April 2011
Project Title: Northern Tier Consortium Border Interoperability Demonstration Project
Award Amount: $3,895,425
Start Date: June 1, 2011
Closeout Date: May 31, 2015

Figure MT-1. Project Highlights

- Expanded a cross border interoperability channel for public safety use within 16 kilometers of the border
- Provided a framework for international mutual aid agreements and frequency coordination
- Enhanced voice and data capabilities at border crossing stations and incorporated Automatic Vehicle Location within select vehicles to provide situational awareness in rural areas
- Received five technical assistance services
- Demonstrated new capabilities during a functional exercise

Project Summary

Montana, in partnership with federal, state, local, tribal, and international public safety agencies, led a project to improve interoperable emergency communications and cooperation along the U.S.–Canadian border. Through the Border Interoperability Demonstration Project (BIDP), Montana addressed several communication gaps that previously existed. To address the lack of a shared radio frequency for use along and across the border, Montana expanded a designated interoperability channel to allow direct communications, regardless of jurisdiction, responder discipline, level of government, or country. The project also enhanced data capabilities for mobile units to provide service to vast rural border areas. Finally, Montana established a cooperative framework between domestic and international public safety agencies, allowing for effective collaboration and shared use of resources.

Outcomes

Montana achieved its four BIDP objectives:

- **Expanded an interoperability channel for use along and across the U.S.–Canada border.** Montana designated a radio frequency for interoperable communications in the region. Montana, in coordination with other agencies and Industry Canada (now Innovation, Science and Economic Development Canada), the Canadian counterpart to the Federal Communications Commission (FCC), implemented a National Law radio frequency known as VLAW31 (155.475 megahertz) or the "Blue" channel. Through collaboration with Industry Canada, any public safety agency operating in British Columbia, Saskatchewan, Alberta, and Manitoba Provinces that border the United States may now use the Blue channel for cross border communications. To achieve this, Montana overcame international policies and legal definition of two-way communications that had been in place since 1952. With assistance from the U.S. Department of State, Industry Canada and the FCC established a joint statement of intent that redefined terminology and made it legal to use handheld radios in cross border communications, as mobile radios had been previously allowed. To further promote the impact of this project, the BIDP Program Office is working to implement this international coordination and designated interoperability channel in other norther border communities.

- **Provided a framework for cross border cooperation with Canada.** Prior to this project, cross border cooperation was limited to area agreements between Canadian and U.S. public safety agencies with virtually no framework in place for common cooperation. In coordination with the U.S. Department of Homeland Security, the FCC, and Canadian representatives, Montana hosted four meetings to discuss a cooperative framework that would support joint use of the Blue channel. As a result of these meetings, Industry Canada established a licensing process so that Canadian agencies could use the frequency within 16 kilometers (10 miles) of the border. In addition, attendance at these international meetings supported mutual cooperation between Federal agencies—both domestic and foreign—that previously had limited mutual aid plans. Federal attendees included the U.S. Customs and Border Protection, U.S. Department of State, U.S. Forest Service, the FCC, Industry Canada, the

Royal Canadian Mounted Police, and many others. This cooperative framework supports continued planning and may be expanded and applied in other border communities.

- **Provided wireless voice and data services to border crossing stations and mobile units.** Montana's existing statewide communications network was connected with hardwiring between border crossing checkpoint stations. This project built on those capabilities by implementing wireless connections between stations, providing interoperability for public safety users that were on previously incompatible systems. Montana purchased and installed consolettes at border crossing stations to provide low-speed data to users that had no cellular service. While the solution expanded data capabilities, Montana reported that the existing statewide system is not robust enough to operate at optimal transmission speeds. Montana recommends the solution for a radio system with higher bandwidth, such as a standalone or wide channel 700–800 megahertz system. In addition to the consolettes, the technical team installed data terminals in emergency responder vehicles to provide mobile connection to the Criminal Justice Information Network (CJIN) through the radio system. Montana cited a best practice to develop a partnership with the data services vendor, which provides CJIN information services to a variety of Montana customers.

- **Implemented the Automatic Vehicle Location system in mobile units.** With new infrastructure and radio equipment in place, Montana installed the Automatic Vehicle Location (AVL) system and computer interfaces into emergency responder vehicles. Montana contracted with a vendor that provided training and manuals on the AVL system. Initially, Montana users reported vague mapping features, ineffective tracking, and system bottlenecks when transmitting polling data. The vendor responded by installing an additional server to meet mapping requirements, and the AVL system now allows each user to set individual polling times to resolve bottlenecks. As a result, the AVL system has become a valuable tool for fleet management and monitoring individual emergency responders' location.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported Montana in achieving the program goal and its project objectives. BIDTAP fulfilled five requests for technical assistance, with a sixth request subsequently withdrawn, as follows:

- **Blue Channel Standard Operating Procedures (SOP) Development.** SOPs facilitate an orderly and efficient response to events ranging from routine incidents like traffic accidents and house fires to catastrophic events ranging from an active shooter near public venues to catastrophic natural disasters that occur with little or no warning. BIDTAP personnel assisted Montana and partners in developing SOPs for use of VLAW31 or Blue channel, expanding on basic procedures already in use.

- **Functional Exercise.** The BIDP Program Office required recipients to execute a functional exercise to demonstrate the deployed technologies purchased via the grant. The exercise must align to the overall BIDP goal, include participation from at least 80 percent of project partners, involve the Statewide Interoperability Coordinator, test new capabilities across lanes of the Interoperability Continuum, and validate performance measures. BIDTAP personnel supported this requirement by providing exercise design experts to assist with the planning, execution, and evaluation of these functional exercises. Additional details are provided in the following section.

- **Mutual Aid and Radio Use SOP Development.** Montana requested a second SOP Development offering to address needs identified in the March 2014 functional exercise. BIDTAP personnel supported two workshops in July and August 2014 and delivered a comprehensive SOP for mutual aid and radio use in Flathead County.

- **Tactical Interoperable Communications Plan (TICP) Workshop.** In response to recommendations resulting from the March 2014 functional exercise, Montana requested assistance to develop a Flathead Region TICP. BIDTAP personnel supported two workshops in December 2014 and February 2015 and delivered a draft TICP for the region.

- **Radio Frequency Coverage Prediction and Propagation Testing.** Coverage studies are the calculated representation of a radio system's performance. BIDTAP personnel analyzed and created coverage studies for 24 radio sites along the U.S.-Canada border.

- **Tribal Engagement.** Montana requested assistance to engage border-proximal tribal entities with a public safety interest in joining the regional radio system. Two of the tribes included the Kootenai Salish Confederation and the Blackfeet Nation. BIDTAP personnel attempted contacting tribal representatives who initially responded that legal representation was required. Despite additional attempts to contact these tribes, BIDTAP personnel did not receive further communication. Subsequently, Montana withdrew the technical assistance request.

Functional Exercise

Montana successfully demonstrated BIDP-funded capabilities during a functional exercise held on March 19, 2014. Sixty-five emergency responders from 16 agencies participated in the exercise from various locations throughout northern Montana. The exercise tested interoperable emergency communications among project partners across all levels of government—both domestic and international. As a result of the exercise, participants recommended an additional communications site along John Stevens Canyon, development of a Flathead Region Tactical Interoperable Communications Plan, and continuous standardized training to ensure users understood new capabilities and followed SOPs. Participants also recommended expanding AVL software installation to more vehicles and increasing dispatcher engagement for future exercises. Montana incorporated these recommendations into its BIDP project as described in this report.

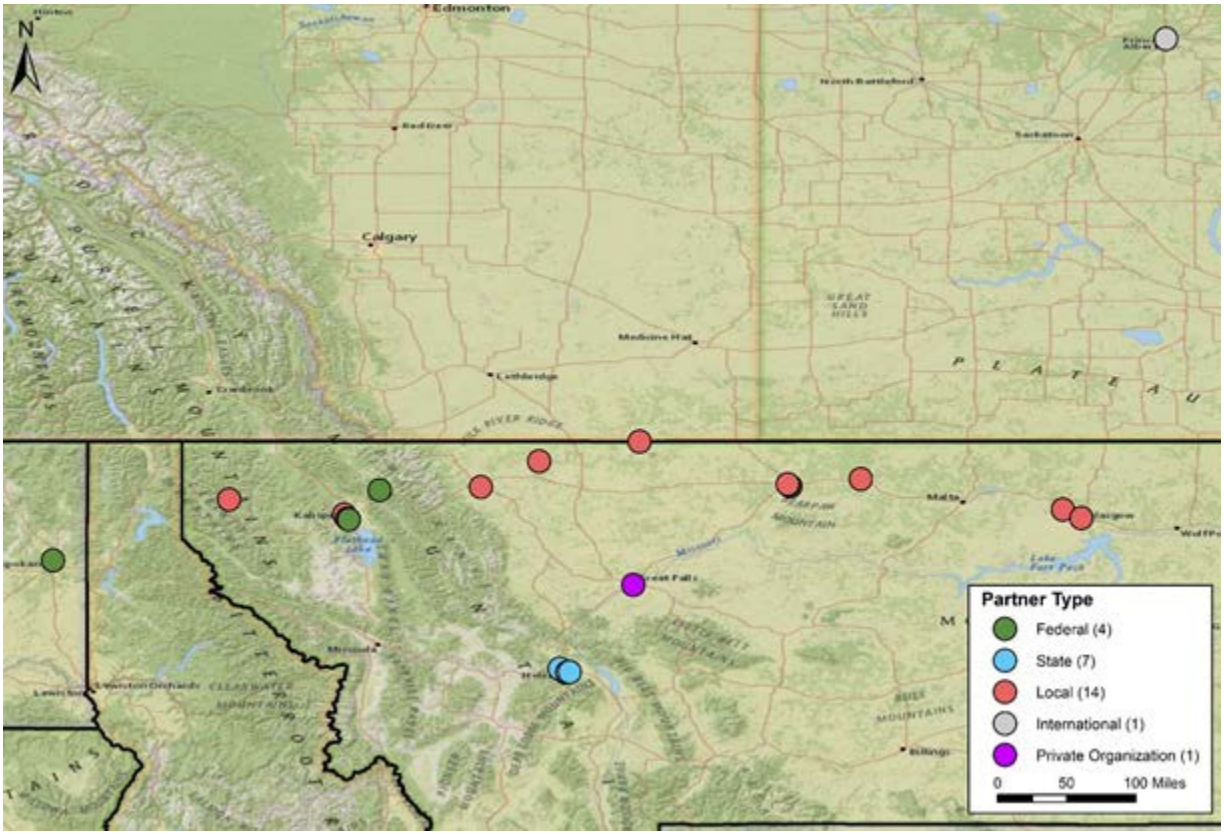
Partnerships

Montana partnered with numerous agencies and public safety associations during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located across Montana's international border.

Figure MT-2. Montana Partnerships Table

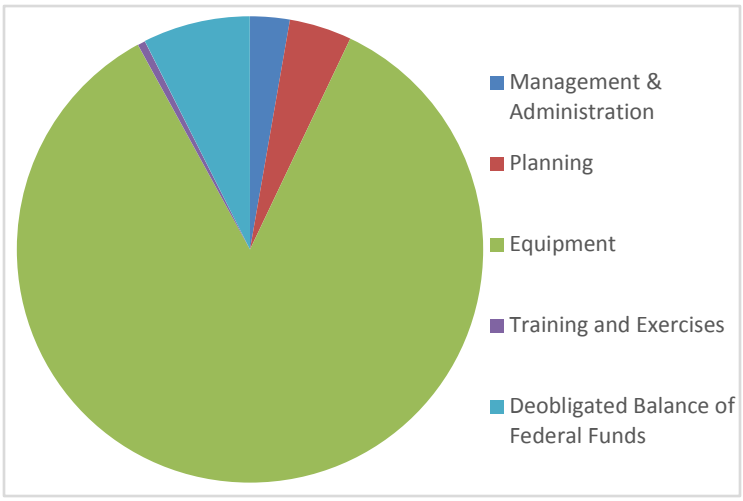
Local Partners	State Partners	Federal Partners	International Partners
• Blaine County • Flathead County • Glacier County • Hill County • Valley County • Lewis and Clark County • Lincoln County	• Montana Department of Emergency Services • Montana Highway Patrol • Montana National Guard • Montana Public Safety Communications Bureau • State Information Technology Services • State Interoperability Governing Board	• Federal Communications Commission • U.S. Customs and Border Protection • U.S. Department of Homeland Security • U.S. Department of State • U.S. Forest Service	• Industry Canada **Associations** • Association of Public-Safety Communications Officials, Intl • Canada–U.S. Communications Interoperability Working Group • Canadian Interoperability Technology Interest Group • National Public Safety Telecommunications Council • Northern Tier Interoperability Project

Figure MT-3. Montana Partnerships Map



Financial Reporting

Figure MT-4. Montana BIDP Spending



Montana completed its project under its proposed budget. Due to cost savings of using local installers and services provided by the BIDP Program Office, Montana purchased equipment for five additional communications sites, eight sites total compared to the three sites originally planned in its application. Even with additional equipment purchased, Montana deobligated and returned $304,542.13 to the U.S. Department of the Treasury. The graphic provides a visual of categorical spending for the following: $112,227.11 in combined state and local Project Management and Administration; $177,020.00 in Planning; $3,473,299.00 in Equipment Purchase; and $21,500.00 in Training and Exercises. Montana also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Sustainability of Project

Montana has incorporated equipment purchased by this grant into its maintenance and operations planning. The radio infrastructure, consolettes at border crossing stations, AVL servers, and vehicle computers are fully installed and will continue to be used daily for law enforcement actions. Montana is considering an improvement to obtain low-speed data to perform transfers to mobile radios via the area's Project 25 digital trunking system utilizing a single radio. This and other improvements will be integrated into the Montana's sustainability plans.

Conclusion

The BIDP Program Office concluded that Flathead County, as the sub-recipient of BIDP funds from the Montana State Administrative Agency, met the program goal and its individual project objectives. Of the many repeatable project successes, Montana's collaboration with the FCC, U.S. Department of State, and Industry Canada on an international treaty for the designated interoperability channel, impacted all northern border communities.

Ohio

Grantee: Ohio State Administrative Agency
Sub-Recipient: Lake County, Ohio
Project Title: Multi-Agency, Multi-Jurisdictional U.S. Regional & International Interoperable Communications Infrastructure and Maritime Domain Awareness Project
Award Amount: $3,998,200
Start Date: June 1, 2011
Closeout Date: June 30, 2015

Figure OH-1. Project Highlights

- Consolidated four disparate radio systems into one system capable of interoperable voice and data communications
- Upgraded infrastructure and achieved portable radio coverage nearing 98% across Ohio's international border
- Implemented a Vessel Tracking System in Lake Erie to enhance maritime situational awareness
- Received four technical assistance services
- Conducted a functional exercise to demonstrate new capabilities

Project Summary

Lake County, Ohio, in partnership with federal, state, and local public safety agencies and other institutions, improved cross border communications and cooperation while providing critical data services to neighboring states and Canadian counterparts. Through the Border Interoperability Demonstration Project (BIDP), Ohio addressed communications gaps by upgrading infrastructure, adding channels, and consolidating four disparate radio systems into one interoperable, standards-based voice and data network. Ohio also purchased and distributed 300 portable radios to 23 local law enforcement agencies. In addition, Ohio implemented a Vessel Tracking System (VTS) to improve maritime awareness in surrounding bodies of water, particularly for tracking and preventing transnational threats such as drug and human trafficking. As a result, these improvements have led to 98 percent portable radio coverage along Ohio's international border.

Outcomes

Ohio achieved both of its objectives for BIDP:

- **Consolidated disparate radio systems, upgraded existing infrastructure, and increased portable radio coverage in maritime regions across Ohio's northern border with Lake Erie, Pennsylvania, and Michigan.** Ohio implemented a project to interlink several radio systems in the northern Ohio region that borders Lake Erie, to include neighboring states of Michigan and Pennsylvania's statewide systems, and the systems for the two large urban areas in Ohio bordering Lake Erie, Toledo and Cleveland. Using radio frequency inter-subsystem interface (ISSI) technologies, Ohio created a "system of systems" that provides interoperable voice and data communications between numerous agencies. In addition, Ohio added three radio channels to Lake County's existing radio system and the Ohio Multi-Agency Radio Communication System (MARCS). Ohio also purchased and distributed portable radios and control station interfaces to the area's law enforcement agencies, and installed dual-band radios in Lake Erie's law enforcement watercraft. These improvements enabled interoperable communications among public safety agencies, with 98 percent portable radio coverage in maritime regions.

- **Implemented a Vessel Tracking System capable of tracking non-commercial small watercraft.** Prior to the VTS implementation, Ohio was unable to effectively monitor the 172-mile border with Canada. In coordination with the U.S. Customs and Border Protection (CBP) to share radar data, Ohio deployed VTS capabilities to track non-commercial small vessels that did not have Automated Identification System (AIS) transponders. Ohio established agreements with three Internet Service Providers and installed four VTS antenna sites co-located on the Ohio MARCS communications towers. The VTS equipment and computer software installed in law enforcement watercraft and communications centers track vessels, creating a common operating picture of the individual feeds. This capability allowed emergency responders to report movement in real-time and increase maritime domain awareness. Ohio encountered one challenge with a "dead spot" in VTS coverage, which it corrected by moving antennas to an alternate communications tower. The resulting VTS has significantly improved border security with neighboring states and Canada.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported Ohio in achieving the program goal and its project objectives. BIDTAP fulfilled four requests for technical assistance, as follows:

- **Full-Scale Exercise Support.** BIDTAP personnel attended three planning meetings with Ohio and its partners in July and August 2013 to design a full-scale exercise to test the VTS capabilities. BIDTAP evaluators attended this exercise in September 2013. Additional details are provided in the following section.

- **Standard Operating Procedures (SOP) Development.** SOPs facilitate an orderly and efficient response to events ranging from routine incidents like traffic accidents and house fires to catastrophic events ranging from an active shooter near public venues to catastrophic natural disasters that occur with little or no warning. BIDTAP personnel assisted Ohio and partners develop SOPs for the VTS.

- **Functional Exercise.** The BIDP Program Office required award recipients to execute a functional exercise to demonstrate the deployed technologies purchased through the grant. The required exercise must align to the overall BIDP goal, include participation from at least 80 percent of project partners, involve the Statewide Interoperability Coordinator, test new capabilities across lanes of the Interoperability Continuum, and validate performance measures. BIDTAP personnel supported this requirement by providing exercise design experts and evaluators to each community, assisting with the design, planning, execution, and evaluation of these functional exercises. Ohio conducted three exercises associated with this project. Additional details are provided in the following section.

- **Operational Assessment.** Following one of its exercises, Ohio requested BIDTAP to conduct an operational and engineering assessment on the VTS software. BIDTAP personnel conducted the assessment during on-site interviews and engineering analysis between March and July 2015. BIDTAP confirmed the solution and identified several opportunities to improve VTS proficiency, recommending additional training and SOPs supporting use of the VTS.

Functional Exercises

Ohio successfully demonstrated BIDP-funded investments during two full-scale functional exercises and one smaller exercise. The first exercise held in September 2013 at the Sandusky Bay Station CBP Facility, involved 47 participants from 40 agencies. Ohio's exercise goal was to evaluate users' ability to demonstrate the new vessel tracking software. Following the exercise, participants met to discuss results and recommend any actions. Participants recommended continuous training and exercises for boat crews, equipment upgrades for better usability, and the creation of SOPs to outline VTS functions. As a result, Ohio contracted for additional training to law enforcement boat crews on the VTS.

Ohio held a second exercise in September 2014 to gauge improvements in operational capabilities following additional training. BIDTAP evaluators noted challenges with boat operators' ability to manipulate the VTS software and mark targets for identification. Ohio requested BIDTAP assistance to assess the project and determine whether it was equipment-based or operator error.

Following BIDTAP's assessment, Ohio conducted a third waterborne exercise in July 2015. The third exercise clearly demonstrated the functioning and viable VTS. BIDTAP evaluators recommended continued training for boat operators to ensure familiarity with VTS implementation protocols.

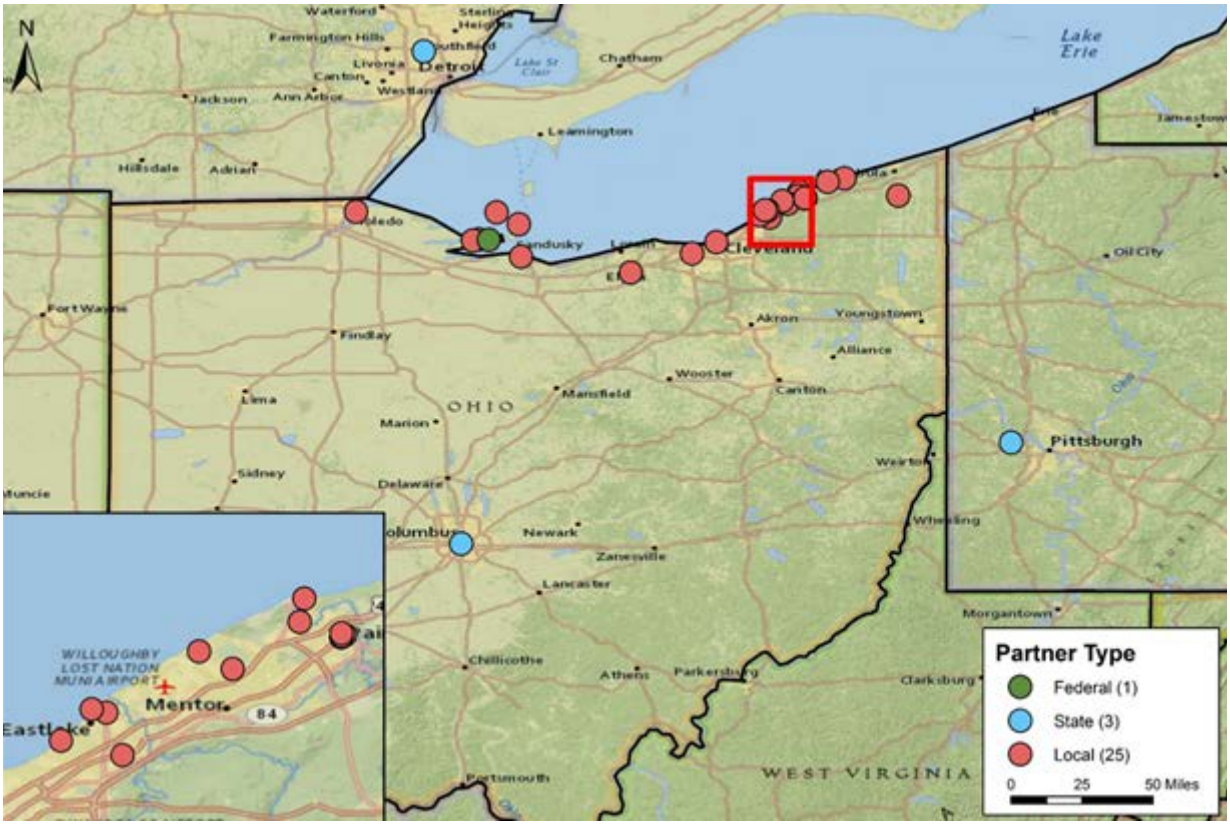
Partnerships

Ohio partnered with numerous public safety agencies during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located along Ohio's international border.

Figure OH-2. Ohio Partnerships Table

Local Partners		State and Inter-State Partners	Federal Partners
• Ashtabula County	• Madison Township	• Michigan State Police	• U.S. Customs and Border Protection
• Cleveland	• Mentor	• Ohio MARCS	
• Cuyahoga County	• Mentor-on-the-Lake	• Pennsylvania State Police	
• Eastlake	• North Perry		
• Erie County	• Ottawa County		
• Fairport Harbor	• Painesville		
• Grand River	• Port Clinton		
• Kelly's Island	• Put-In-Bay		
• Lake County	• Timberlake		
• Lorain County	• Willoughby		
• Lucas County	• Willowick		

Figure OH-3. Ohio Partnerships Map



Financial Reporting

Ohio completed its project under its proposed budget. Due to cost savings of using services provided by the BIDP Program Office, Ohio deobligated and returned $7,920.20 to the U.S. Department of the Treasury. The graphic provides a visual of categorical spending for the following: $3,555.19 in Project Management and Administration; $165,159.75 in Planning; $3,772,506.68 in Equipment Purchase; $21,610.00 in Training; and $27,448.18 in Exercises. Ohio also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Figure OH-4. Ohio BIDP Spending

Sustainability of Project

Ohio has taken the necessary steps to ensure sustainability of core BIDP-funded investments. Ohio MARCS will maintain the backbone communications infrastructure associated with the six tower sites upgraded during this project. Ohio MARCS will also maintain the T-1 connections between Michigan and Lake County through the ISSI network gateways. Looking ahead, Ohio will need to upgrade computer software for the gateway equipment in order to retain ISSI interoperability.

Ohio has planned to sustain some components through local grant funding by Ohio's State Homeland Security Grant Program (SHSGP). For example, SHSGP funding has paid the radar-data license cost and Internet Service Provider fees for the VTS antenna receivers through 2015. Since then, law enforcement agencies began paying fees to Ohio MARCS to use radios on the system. These agencies will also pay for future VTS computer software maintenance and upgrades for the law enforcement watercraft. Coordination among partnering law enforcement agencies will continue in the Northern Border Initiative as part of the Operation Stonegarden Program.

Conclusion

The BIDP Program Office concluded that Lake County, Ohio, as the sub-recipient of BIDP funds from the Ohio State Administrative Agency, met the program goal and its individual project objectives. Ohio's VTS capabilities especially serve as a repeatable model for other communities with maritime borders.

Texas

Grantee: Texas State Administrative Agency
Sub-Recipient: City of McAllen
Project Title: Rio Grande Valley Border Interoperability Regional Project
Award Amount: $1,990,000
Start Date: June 1, 2011
Closeout Date: May 31, 2015

Figure TX-1. Project Highlights

- Connected disparate radio systems link capability using Motorola's "Smart X" technology
- Implemented a border Point of Entry text alert system
- Expanded coverage and capacity of regional radio system
- Received two technical assistance services
- Demonstrated regional improvements through a functional exercise with 42 participants from 27 agencies

Project Summary

The City of McAllen, in partnership with the Lower Rio Grande Valley Development Council, led a project to improve interoperable emergency communications among federal, state, and local partners along the U.S.–Mexico border. Specifically, the Border Interoperability Demonstration Project (BIDP) enabled interoperability among users on multiple radio systems, implemented a cross border text alert system, and expanded the coverage and capacity of the Rio Grande Valley Communications Groups Project 25 Regional Radio System (RGVCGRRS). These improvements impacted more than 40 jurisdictions that now benefit from real-time, direct communications between domestic and international partners operating in the Lower Rio Grande Valley region.

Outcomes

Texas achieved all four of its BIDP objectives:

- **Gained voice interoperability between multiple radio systems along the U.S.–Mexico border.** Texas' original project plan included the installation of a gateway at the Anzalduals Port of Entry to test the cross border connections of disparate radio systems. This solution would also prepare for connection to the Cross Border Secure Communications Network (CBSCN), an international public safety network between the U.S. and Mexico to improve border security and combat border violence. However, due to safety and security concerns in Mexico, Texas modified its objective to connect to the neighboring radio system in Cameron County, Texas. Using Motorola's "Smart X" technology, Texas connected two analog trunked radio sites through the Smart X converter system to the regional system's digital core. This allowed the Cameron County radio system to be controlled by a digital core controller, enabling Texas to successfully connect disparate systems and achieve voice interoperability across users.

- **Implemented a border Point of Entry text alert system for radio users.** To expedite the flow of information from regional emergency responders to three Ports of Entry (i.e., Anzaldulas Bridge, Hidalgo Bridge, and Pharr-Reynosa Bridge), Texas implemented a mass notification Text Messaging System (TMS). Previous capabilities limited communications between individual responders, while text messaging pushes information to multiple responders, enabling faster response to border incidents. The TMS provides visual and audible alerts to ensure responders see and acknowledge receipt of the message. This added capability improves situational awareness and incident response at border crossings.

- **Expanded coverage footprint of the existing regional radio system.** Texas purchased additional equipment to improve capacity and capabilities of the RGVCGRRS. Equipment included computers, base stations, microwave radios, six-channel repeaters, 700/800 megahertz (MHz) antennas, a transmit signal splitter, and an interface box. This equipment resolved coverage gaps in the regional system, expanded capacity to allow for additional users, and introduced capabilities to provide interoperability for federal, state, and local agencies throughout the Lower Rio Grande Valley region.

- **Expanded existing site capacity.** Texas' project plan included the construction of communication towers or upgrades to existing towers at several sites. As a lesson learned, Texas found that negotiating leases proved to be both a challenge and an opportunity. In some instances, Texas failed to reach an agreement for access

to existing towers, causing decision-makers to identify replacement sites that may have impacted the RGVCGRRS coverage. In other instances, successful lease negotiations enabled Texas to avoid the cost of constructing a new communications tower. These cost savings allowed Texas to purchase additional equipment to further enhance interoperable communications in the region.

Technical Assistance

The Border Interoperability Demonstration Technical Assistance Program (BIDTAP) supported Texas in achieving the program goal and its project objectives. BIDTAP fulfilled the following two requests for technical assistance:

- **Standard Operating Procedure (SOP) Development.** SOPs are formal written guidelines or instructions that usually contain both operational and technical components. SOPs facilitate an orderly and efficient response to multi-agency incidents, events as routine as dial calls for services, and events as catastrophic as large scale disasters. In September 2013, BIDTAP personnel facilitated a SOP design and development workshop at the McAllen Fire Department Administration Building. The BIDTAP team helped to draft an SOP that included use of interoperability channels and important governance principles.

- **Functional Exercise.** This service offering provided a BIDTAP exercise design team that collaborated with public safety to design, facilitate, and evaluate a communications-focused functional exercise. The exercise allowed grantees to identify improvements, gaps, and ensure the project met BIDP objectives. Texas' functional exercise participants executed a series of radio checks to validate coverage objectives, text-to-radio capabilities, and Public Safety Answering Point (PSAP) connectivity. Additional details are provided in the following section.

Functional Exercise

In May 2014, Texas held a functional exercise to demonstrate and evaluate BIDP-enabled capabilities. Agencies throughout the region participated in the three-phased exercise, totaling 42 participants representing 27 agencies. Texas successfully demonstrated regional improvements for radio coverage, text messaging capabilities, and system integration of public health, hospitals, and 911 users. Following the exercise, participants met to discuss results and recommend next steps. The after-action report identified areas for improvement including the development of SOPs and a regional Tactical Interoperable Communications Plan (TICP) to document communications assets for mutual-aid.

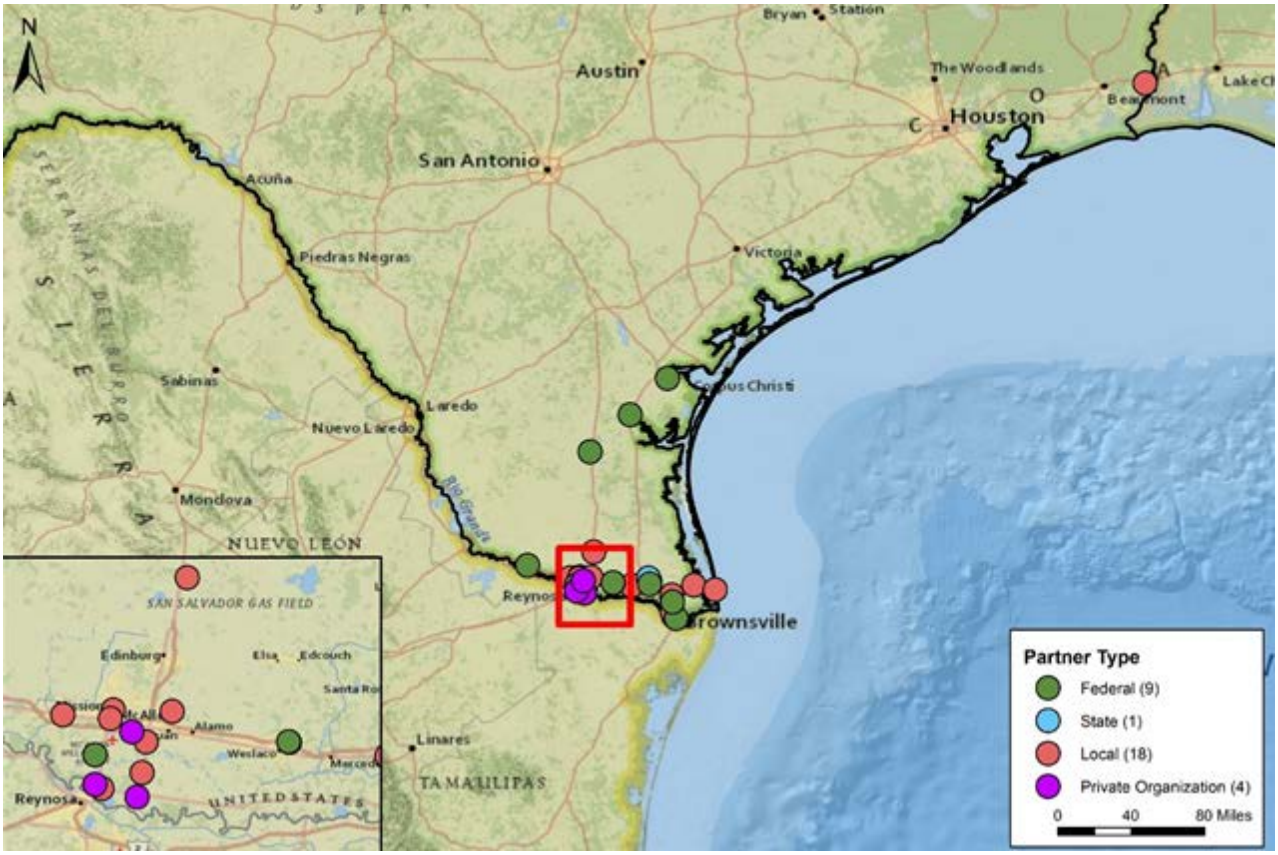
Partnerships

Texas partnered with numerous agencies during BIDP activities, as noted in the following table and map. Partners included various disciplines (e.g., law enforcement, fire, and emergency medical services) located in the Lower Rio Grande Valley region.

Figure TX-2. Texas Partnerships Table

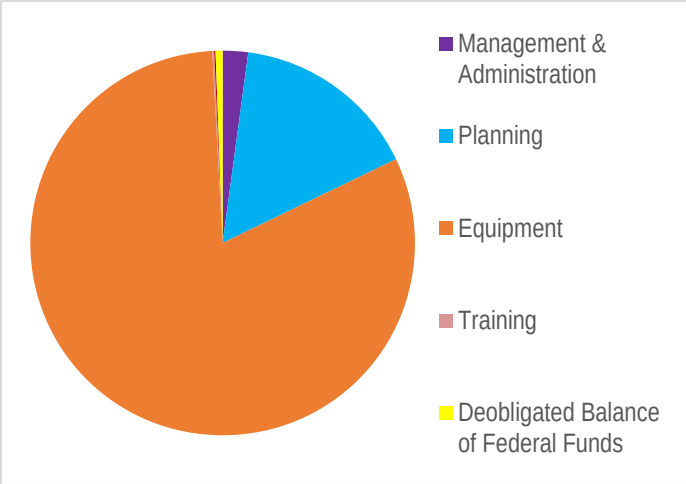
Local Partners		State Partners
• City of Brownsville	• City of Pharr	• Texas Department of Public Safety
• City of Harlingen	• City of Pinehurst	**Federal Partners**
• City of Hidalgo	• City of Port Isabel	• U.S. Customs and Border Protection
• City of La Feria	• City of San Benito	**Private Organizations**
• City of Los Fresnos	• City of San Juan	• Anzaldulas Bridge • MedCare
• City of McAllen	• City of South Padre Island	• Hidalgo Bridge • Pharr-Reynosa Bridge
• City of Mission	• City of Weslaco	

Figure TX-3. Texas Partnerships Map



Financial Reporting

Figure TX-4. Texas BIDP Spending



Texas completed its project under its proposed budget. Early in the project, Texas realized significant cost savings when decision-makers leased space on an existing communications tower instead of constructing a new tower as originally planned. Texas adjusted its project and was able to purchase additional equipment with this cost savings to enhance the interoperable solutions. Even with additional equipment purchased, Texas deobligated and returned $13,645.00 to the U.S. Department of the Treasury. The graphic provides a visual of categorical spending for the following: $41,435.60 in Project Management and Administration; $304,408.73 in Planning; $1,577,375.00 in Equipment Purchase; and $3,134.75 in Training. Texas also submitted a detailed equipment inventory report including: a description of the property; manufacturer model number; serial number or other identification number; the source of property; name on title; acquisition date; cost of the unit; the address of use; operational condition of the property; and disposition data, if applicable.

Sustainability of Project

The RGVCGRRS is managed by the Rio Grande Valley Communications Group. The group is a non-profit organization responsible for sustainment, enhancement, and expansion of the system by collecting annual subscriptions from participating agencies and organizations. BIDP-funded capabilities have been incorporated into RGVCGRRS and will be maintained by the operations costs supported by the user fee structure.

Conclusion

The BIDP Program Office concluded that the City of McAllen, as the sub-recipient of BIDP funds from the Texas State Administrative Agency, met the program goal and its individual project objectives. As a result of BIDP, Texas improved incident response through regional coordination, new text messaging capabilities, and expanded radio system coverage and capacity that other border communities could replicate.

Appendix D. Acronyms and Abbreviations

BIDP	Border Interoperability Demonstration Project
BIDTAP	Border Interoperability Demonstration Technical Assistance Program
CANUS CIWG	Canada–U.S. Communications Interoperability Working Group
CATEX	Categorical Exclusions
DHS	Department of Homeland Security
ECPC	Emergency Communications Preparedness Center
EHP	Environmental Planning and Historic Preservation
FCC	Federal Communications Commission
GFAD	Grants and Financial Assistance Division
MHz	Megahertz
NCSWIC	National Council of Statewide Interoperability Coordinators
NECP	National Emergency Communications Plan
NPSTC	National Public Safety Telecommunications Council
OEC	Office of Emergency Communications
OMB	Office of Management and Budget
REMCDP	Rural Emergency Medical Communications Demonstration Project
SCIP	Statewide Communication Interoperability Plan
SLTT	State, Local, Tribal, and Territorial
SOP	Standard Operating Procedures
SWBCWG	Southwest Border Communications Working Group
SWIC	Statewide Interoperability Coordinator
UHF	Ultra-High Frequency
VHF	Very High Frequency