Appendices

for

Checking on Checkpoints

An Assessment of U.S. Border Patrol Checkpoint Operations, Performance, and Impacts

by Jeffrey Jenkins, Jeffrey G. Proudfoot, Jim Marquardson, Judith Gans, Elyse Golob, and Jay Nunamaker

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National Center for Border Security and Immigration

BORDERS

THE UNIVERSITY OF ARIZONA

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National Center for Border Security and Immigration (BORDERS)

BORDERS is a consortium of 16 premier institutions that is dedicated to the development of innovative technologies, proficient processes, and effective policies that will help protect our nation's borders, foster international trade, and enhance long-term understanding of immigration determinants and dynamics.

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Executive Summary

OVERVIEW

In 2011, the U.S. Border Patrol asked the National Center for Border Security and Immigration (BORDERS)[1] to evaluate a 2009 review of the agency's traffic checkpoints.[2] The review recommended that the Border Patrol take actions in four major areas: *data integrity and quality*, *community impacts, performance models and measures and managerial tool development* (GAO 2009, 78). BORDERS conducted a two-year study to examine and advise the Border Patrol on how to address the following GAO recommendations:

Data integrity and quality

a) Establish internal controls for management oversight of the accuracy, consistency, and completeness of checkpoint performance data.

Community impacts

b) Implement quality of life measures that have already been identified by the Border Patrol to evaluate the impact that checkpoints have on local communities.

c) Use the information generated from the quality of life measures with other relevant factors to inform resource allocations and address identified impacts.

Performance models and measures

d) Establish milestones for determining the feasibility of a checkpoint performance model that would allow the Border Patrol to compare apprehensions and seizures to the level of illegal activity passing through the checkpoint undetected.

Managerial tool development

e) Require that the Border Patrol conduct traffic volume studies to guide the number and operation of inspection lanes at new permanent checkpoints, and document these requirements in checkpoint design guidelines and standards.

f) Along with planning new or upgrading existing checkpoints, conduct a workforce needs assessment to determine the levels of staff and resources needed to address anticipated volumes of illegal activity around the checkpoint.

BORDERS' assessment of these issues, including major findings and recommended actions are summarized below.

1. Data Integrity and Quality | *See Jenkins, et al., 2014a, pages 3–12.*

BORDERS Assessment

[1] BORDERS was established as a Department of Homeland Security Center of Excellence in 2008. Headquartered at the University of Arizona, BORDERS focuses on providing scientific knowledge, developing and transitioning technologies and techniques, and evaluating policies to meet the challenges of border security and immigration.

[2] U.S. Government Accountability Office (GAO). 2009. *Checkpoints Contribute to Border Patrol's Mission, but More Consistent Data Collection and Performance Measurement Could Improve Effectiveness* (GAO-09-824). Washington, DC.

We evaluated the data collection protocols at checkpoints, focusing on the accuracy, consistency, and completeness of collected data—important components of data integrity and quality. We examined data from the e3 system, the Checkpoint Activity Report (CAR) module, and other reports from the Border Patrol. The e3 system is used by agents to process and record data about apprehended individuals, such as apprehension location, smuggling information, and the date and time of apprehensions. The CAR report contains checkpoint operation data and infrastructure data (e.g. checkpoint profile reports, referrals, apprehensions, seizures, operational hours, and personnel). In addition, we conducted a ThinkTank™ session, interviewed Border Patrol agents, and made site visits to observe and better understand data collection processes.

Findings: While data integrity and quality has substantially increased since the 2009 GAO assessment, there are aspects of data collection and management that still need improvement:

- e3 data: we found errors in the data fields for (a) apprehension latitude and longitude, (b) entry manner, (c) smuggling method and cost, (d) distance from port of entry (POE), and (e) entry date and time.
- CAR data set: we found errors in the checkpoint profile records.

Recommendations

We recommend that the Border Patrol:

1.1. Implement a data oversight procedure to evaluate, correct, and prevent data errors.

1.2. Offer enhanced training refresher courses to agents on how to enter data and why data quality is important.

1.3. Run automated scripts on past data to correct transposed apprehension latitude-longitude data and inconsistent labels for entry manner.

1.4. Continue to modify the e3 system interface with controls to better validate the accuracy, consistency, and completeness of data entry by:

- alerting agents if the apprehension latitude-longitude entry is not within the agent's assigned sector
- implementing a drop-down selection box for "entry manner"
- requiring agents to enter a smuggling cost and method when smuggling is claimed or verified
- allowing agents to click "unknown" if smuggling cost and method are not available
- alerting agents if smuggling costs are abnormally high and therefore may be an error
- alerting agents if the entry for "miles from POE" is abnormally high and may be an error
- allowing agents to click "estimated" if the date and time of entry is not known

1.5. Set goals for further automating data collection. This may include allowing agents to transfer the apprehension latitude and longitude from their issued GPS devices directly to the e3 system, and automatically calculating the distance from POE based on latitude and longitude data when possible.

1.6. Have the Agent in Charge at checkpoints periodically review the CAR checkpoint profile data for accuracy.

2. Community Impacts | *See Jenkins, et al., 2014a, page 13–34.*

BORDERS Assessment

Our aim was to identify the nature and magnitude of the impacts of Border Patrol checkpoints on nearby communities and to provide a generalizable approach to measure the impacts. For purposes of this study, the checkpoint along U.S. Interstate 19 (I-19) between Tucson and Nogales, Arizona, was used as a case study (with the aim of identifying generalizable lessons for evaluating the community impacts of checkpoints elsewhere). We used the following methods to make this assessment:

- qualitative interview-based research to provide information as to the nature of community impacts, whether perceived or actual.
- statistical data analysis to describe Border Patrol apprehension data, which provided insight on the effect of the checkpoint on circumvention patterns.
- regression analysis of residential real estate sales data in communities north and south of the checkpoint to see if there were any checkpoint-related effects on residential real estate prices.

The identified measures of checkpoints' community impacts can be grouped into three broad categories: (a) *circumvention impacts* with attendant public safety and law-enforcement costs; (b) *inconvenience,* impacts deriving from unpredictable wait times and risk of secondary screening for those having to travel through the checkpoint; and (c) *economic harm,* impacts deriving both from changing public perceptions about the dangers of the border region and from the inconvenience to—in the case of the community of Tubac and the I-19 checkpoint—tour groups that have to go through the checkpoint and wait as their busses are boarded and documents inspected.

Findings: Our analysis of Border Patrol apprehension data before and after the interim I-19 checkpoint began operations showed that while circumvention impacts are experienced by communities north and south of a checkpoint, the impacts are disproportionately borne by communities that lie between the checkpoint and the border.

A regression analysis provides statistical evidence for the effect of the checkpoints on real-estate prices. Tentative evidence suggests that the construction of the checkpoint canopy on I-19 may have caused negative effects on Tubac and Rio Rico real estate prices over time. However, because of the limited time period analyzed and the fact that the data did not reach standard levels of statistical significance, these findings should be interpreted cautiously.

Recommendations

We recommend that the Border Patrol:

2.1. Analyze trends in the locations of apprehensions relative to the location of a checkpoint over time.

2.2. Monitor the impacts of a checkpoint on real estate prices through periodic regression analysis using a model similar to that included in this report.

2.3. Work with local law enforcement to regularly and consistently collect data on referrals by local police to the Border Patrol, including information on the type and location of criminal activity.

2.4. Work with local school officials to monitor enforcement activity around schools.

2.5. Hold periodic meetings with community members to answer questions, receive input, and clarify any points of confusion that may exist with regard to checkpoint operations.

2.6. Conduct a public opinion survey on experiences with the checkpoint, both positive and negative.

2.7. Conduct a case study of apprehension and circumvention activity around a checkpoint that controls for staffing levels in the circumvention zone.

3. Performance Models and Measures | *See Jenkins, et al., 2014a, pages 35–45.*

BORDERS Assessment

Ideally, the Border Patrol could calculate the absolute flow of illegal activity passing through a checkpoint undetected to understand and assess checkpoint effectiveness. Since this baseline is unknown and cannot be estimated directly from available data, the Border Patrol must rely on proxy measures of absolute flow and intermediate measures of checkpoint effectiveness.

Findings: We found that the best indicator of checkpoint performance is to measure the accuracy rate of the Border Patrol in detecting illegal activity, such as false documents, illicit drugs, and nuclear radiation. The most feasible and reliable method for calculating these accuracy rates is through "red teaming." Red teaming adheres to all of the requirements for effective checkpoint performance measures.

We also found that checkpoint performance is multi-dimensional and should cover government-wide priorities, such as timeliness, cost efficiency, screening efficiency, resource adequacy, and legal and interpersonal treatment of travelers. We recommend performance measures that cover these dimensions including red teaming for evaluating traveler treatment, input, output, process, efficiency, and outcome performance measures.

Recommendations

We recommend that the Border Patrol:

3.1. Calculate an interdiction rate of illegal activity through red teaming. In this report, we provide guidance to ensure valid and reliable red teaming for existing and future attempts, including:

- determining red team composition
- maintaining objectivity and confidentiality
- generating a statement of evaluation objectives
- determining the frequency of red teaming attempts
- selecting checkpoints for red teaming
- understanding safety issues
- preparing a detailed outline for the red teaming process

3.2. Implement input, outcome, process, and efficiency performance measures.

3.3. Evaluate the legal and interpersonal treatment of persons crossing through checkpoints through red teaming.

4. Managerial Tool Development | *See Jenkins, et al., 2014a, pages 46–53.*

BORDERS Assessment

We propose a checkpoint simulation and visualization tool to help the Border Patrol make informed resource allocations, conduct workforce planning needs assessments, and assess current and future traffic flows when determining the number of inspection lanes on new permanent checkpoints.

Findings: The simulation tool that we built is a realistic computerized representation of an actual checkpoint that models common components, including: pre-primary screening, primary screening, secondary screening, violation processing, traffic flows (actual or anticipated), screening times for different types of vehicles, number of inspection lanes, number of agents, secondary screening capacity, number of backscatter machines, and other checkpoint components. Using the simulation model, the Border Patrol can assess the required resources and staffing to meet current and future traffic demands and predict how making resource changes to a checkpoint would influence important outcomes such as wait time, screening time, traffic flushing, queue length, resource utilization, screening capacity, and arrests.

Recommendations

We recommend that the Border Patrol:

4.1. Adopt a checkpoint simulation model, such as that described in this report, to:

- analyze current and expected traffic volumes to determine the number of inspection lanes at new permanent checkpoints;
- conduct workforce planning needs assessment for checkpoint staffing allocations; and perform faster, easier, and more accurate analysis of checkpoint operations.

Summary of BORDERS' recommendations in response to GAO report—GAO-09-824

GAO report recommendations	BORDERS' recommendations
1. Data Integrity and Quality	
a) Establish internal controls for management oversight of the accuracy, consistency, and completeness of checkpoint performance data.	1.1. Implement a data oversight procedure to evaluate, correct, and prevent data errors. 1.2. Offer enhanced training refresher courses to agents on how to enter data and why data quality is important. 1.3. Run automated scripts on past data to correct transposed apprehension latitude-longitude data and inconsistent labels for entry manner. 1.4. Continue to modify the e3 system interface with controls to better validate the accuracy, consistency, and completeness of data entry by: • alerting agents if the apprehension latitude-longitude entry is not within the agent's assigned sector. • implementing a drop-down selection box for "entry manner," • requiring agents to enter a smuggling cost and method when smuggling is claimed or verified. • allowing agents to click "unknown" if smuggling cost and method are not available. • alerting agents if smuggling costs are abnormally high and therefore may be an error. • alerting agents if the number entered for "miles from POE" is abnormally high and therefore may be an error. • allowing agents to click "estimated" if the date and time of entry is not known. 1.5. Set goals for further automating data collection. This may include allowing agents to transfer the apprehension latitude and longitude from their issued GPS devices directly to the e3 system, and automatically calculating the distance from POE based on latitude and longitude data when possible. 1.6. Have the Agent in Charge at checkpoints periodically review the CAR checkpoint profile data for accuracy.

2. Community Impacts	
b) Implement the quality of life measures that have already been identified by the Border Patrol to evaluate the impact that checkpoints have on local communities. *c) Use the information generated from the quality of life measures in conjunction with other relevant factors to inform resource allocations and address identified impacts.*	2.1. Analyze trends in the locations of apprehensions relative to the location of a checkpoint over time. 2.2. Work with local law enforcement to collect data regularly and consistently on referrals by local police to the Border Patrol, including information on the type and location of criminal activity. 2.3. Work with local school officials to monitor enforcement activity around schools. 2.4. Hold periodic meetings with community members to answer questions, receive input, and clarify any points of confusion that may exist with regard to checkpoint operations. 2.5. Conduct a public opinion survey on experiences with the checkpoint, both positive and negative. 2.6. Conduct a case study of apprehension and circumvention activity around a checkpoint that controls for staffing levels in the circumvention zone. 2.7. Conduct a case study of apprehension and circumvention activity around a checkpoint that controls for staffing levels in the circumvention zone.
3. Performance Models and Measures	
d) Establish milestones for determining the feasibility of a checkpoint performance model that would allow the Border Patrol to compare apprehensions and seizures to the level of illegal activity passing through the checkpoint undetected.	3.1. Calculate an interdiction rate of illegal activity through red teaming. In this report, we provide guidance to ensure valid and reliable red teaming for existing and future attempts, including: • determining red team composition, • maintaining objectivity and confidentiality, • generating a statement of evaluation objectives, • determining the frequency of red teaming attempts, • selecting checkpoints for red teaming, • understanding safety issues, and • preparing a detailed outline for the red teaming process. 3.2. Implement input, outcome, process, and efficiency performance measures. 3.3. Evaluate the legal and interpersonal treatment of persons crossing through checkpoints through red teaming.

4. Managerial Tool Development	
e) Require that current and expected traffic volumes be considered by the Border Patrol when determining the number of inspection lanes at new permanent checkpoints, that traffic studies be conducted and documented, and that these requirements be explicitly documented in Border Patrol checkpoint design guidelines and standards. *f) In conjunction with planning for new or upgraded checkpoints, conduct a workforce planning needs assessment for checkpoint staffing allocations to determine the resources needed to address anticipated levels of illegal activity around the checkpoint.*	4.1. Adopt a checkpoint simulation model, such as the one described in this report, to: • analyze current and expected traffic volumes to determine the number of inspection lanes at new permanent checkpoints, • conduct workforce planning needs assessment for checkpoint staffing allocations, and • perform faster, easier, and more accurate analysis of checkpoint operations.

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A: Site Visit Reports

This section contains information from visits to the Tucson, El Paso, Rio Grande Valley, Swanton, and San Diego Border Patrol sectors. The report for each sector contains a brief summary of operations and infrastructure at the time of the site visit, as well as insights regarding the unique strengths and challenges present in each sector. The schedule below outlines the dates of the site visits.

Site Visit	Date
Tucson Sector	March 7-8, 2011
El Paso Sector	March 22-23, 2011
Rio Grande Valley Sector	April 6-7, 2011
Swanton Sector	April 21-22, 2011
San Diego Sector	May 12-13, 2011

During each site visit, BORDERS researchers:

- Held meetings with sector chiefs at sector headquarters
- Visited several operating checkpoints within the sector (both permanent and tactical)
- Toured the layout and infrastructure at each checkpoint
- Observed operations at each checkpoint (e.g. primary screening, secondary screening, intelligence gathering, etc.)
- Conducted interviews with commanding officers and operations personnel at each checkpoint
- Observed technology demos (e.g. backscatter machines, long-range high-resolution surveillance cameras, etc.) at checkpoints

The purpose of this section is to document our interviews and records, provide a thorough analysis of our observations, and support our overarching findings. Finally, this documentation provides a foundation for specifying the roles that checkpoints fulfill within the Border Patrol's larger border protection strategy (Appendix B), which will help identify appropriate performance measures.

(*We recognize that our visits represent a single observation of operations in each sector and that checkpoint/sector operations are dynamic and change over time. It is likely that tactics, operations, and infrastructure have changed since the writing of this report*.)

TUCSON SECTOR SITE VISIT

The Tucson Sector ranges from the eastern boundary of Yuma County, Arizona, eastward to New Mexico boundary. The sector has eight stations, with seven stations along the U.S.-Mexico border. The area of responsibility extends 262 miles and comprises 90,530 square miles. Sector headquarters is located in Tucson, AZ. Figure A.1 displays the 11 checkpoints in the Tucson Sector.

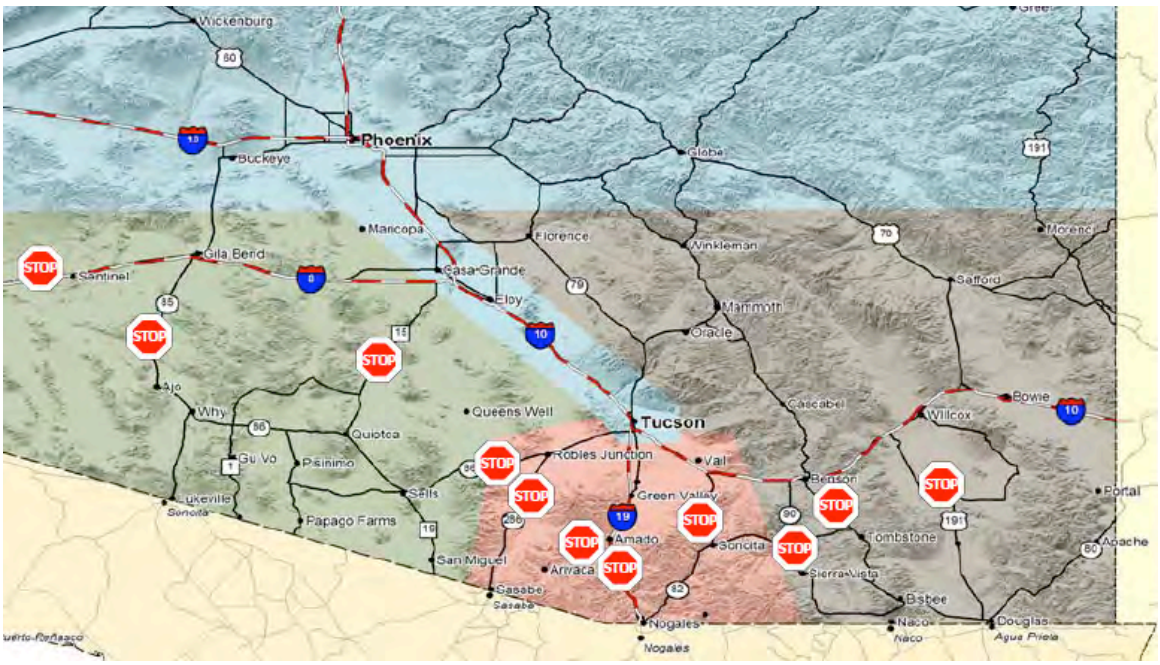


Figure A.1. Tucson Sector Checkpoints. Source: Tucson Sector HQ

Impostership was reported as a very common strategy smugglers and illegal immigrants use to by-pass checkpoints in the Tucson sector. At the port of entry (POE), agents have much more leeway as the burden of proof is on the individual to show that they are a citizen or have proper documentation. At a checkpoint, however, agents do not send someone to secondary screening without mere suspicion. Criminal organizations are reacting to Border Patrol efforts with smaller alien loads and smaller drug loads, and they are increasing the complexity of their smuggling operations.

Agents also reported strong working relationships and collaborative efforts with local law enforcement agencies (LEAs). Agents are frequently first responders to highway incidents and support LEAs in more complex tactical operations. (Collaboration between Border Patrol and local LEAs was a trend identified in each of the five site visits.)

According to Border Patrol agents interviewed, a significant purpose of checkpoints in the Tucson Sector is to increase the egress time and deny fast routes of egress via freeways and state roads. This has the strategic effect of increasing the probability of detecting smuggling. BORDERS researchers visited the Arivaca Rd, I-19, SR-90 and SR-80 checkpoints, which are designed to operate continuously.

Summary of Observations at the Arivaca Checkpoint

A core function of this checkpoint is to work in tandem with the I-19 checkpoint to prevent alien-trafficking organizations (ATOs) and drug-trafficking organizations (DTOs) from easily circumventing the I-19 checkpoint (Figure A.2). An OFO officer was present at the checkpoint during our visit conducting a joint operation with the Border Patrol and OFO. The checkpoint screens eastbound traffic only as it heads towards I-19. Infrastructure at the checkpoint includes barricades and a shade tent for non-primary agents or the public. Canines, when present, facilitate in screening operations. The checkpoint infrequently apprehends illegal immigrants, but frequently seizes narcotics. A majority of apprehensions and seizures occur in circumvention zones that overlap with part of the I-19 checkpoint's circumvention zones.

At the time of the visit, the checkpoint had 4 shifts per day, 3 agents per shift, and 2 agents operating in circumvention zones. Traffic is light with infrequent backups. It is typically limited to local work trucks or commercial vehicles. Operations in this area are susceptible to inclement weather. The checkpoint has a

temporary holding facility in a trailer, but apprehendees are generally taken to the I-19 checkpoint immediately. The infrastructure is limited as plumbing is not available and electricity is provided by generators. Agents utilize mobile camera surveillance trucks located in the circumvention zone to monitor for activity. The checkpoint is not equipped with internet or database connectivity.

Figure A.2. Arivaca checkpoint, Tucson Sector. (Source: UA)

Summary of Observations at I-19 Checkpoint

At the time of the visit, the checkpoint had 8 Border Patrol agents, 5-7 OFO officers, 2-5 canines per shift, and agents assigned to patrol circumvention zones. The checkpoint closes approximately 1 day per year for ice on the road. Agents are periodically brought in from other assignments to maintain continuous operations. Commercial vehicles proceed through the checkpoint in the far left lane, which is problematic as trucks sent to secondary screening have to cross multiple lanes of traffic. A variety of sensors are used to monitor circumvention zones around the checkpoint. Roving agents rotate with checkpoint agents to prevent a decline in vigilance. Agents regularly assist local law enforcement with emergency response on the interstate.

ATOs and DTOs use remote mountain paths to the west of the checkpoint to circumvent Border Patrol operations. Poor cell phone coverage prevents the effective use of mobile devices with connectivity to the Automated Targeting System (ATS). Due to the lack of network connectivity, agents at the checkpoint cannot screen for individuals with outstanding warrants, except by using radio communication to headquarters for a background check or through slow satellite network connections. Processing a single apprehension can occupy an agent for extended periods of time.

Sign cutting activities occur during every shift (sign cutting operations are patrols looking for indications that illegal immigrants have passed through the area, e.g. footprints across a dirt road). Agents at the checkpoint observe a general decrease in ATOs and DTOs events with an associated decrease in cut signs. ATOs have responded to checkpoint operations by decreasing the number of large loads of aliens. Instead, aliens must walk to circumvent the checkpoint or are sent through the checkpoint alone or with one other person, typically as imposters. DTOs have responded to checkpoint operations by decreasing the size of loads or increasing the complexity of concealment, or by circumventing the checkpoint on foot and in the

mountains. All tour buses and shuttles are sent to secondary screening for a more thorough investigation. Tubac community stakeholders living directly south of the checkpoint report that the checkpoint may have negative impacts on the surrounding communities (see Section 2 of main report and Appendix F).

Figure A.3. I-19 Interim checkpoint, Tucson Sector.
(Source: UA)

Summary of Observations at the SR-80 Checkpoint

The SR-80 checkpoint is operated continuously and is suspended only when dangerous weather conditions are present. At the time of the visit, at least 3 agents were required to operate the checkpoint while 2 other agents were patrolling circumvention areas. Two canine units were assigned to this checkpoint (1 working and 1 resting). Dogs may be assigned to the SR-90 checkpoint or to assist in circumvention zones. According to the Border Patrol, since the introduction of K9 units, large-load smuggling has decreased at the checkpoint. Furthermore, activity occurring in circumvention zones has increased while there are fewer apprehensions at the checkpoint.

Biometric scanners are used to reduce the time agents spend processing and identifying people in secondary screening. This checkpoint has wireless, hand-held license plate readers used in pre-primary screening attached to the ATS system. During our visit, an OFO officer was present to assist with screening and to train Border Patrol agents on detecting imposters, false documents, and immigration document knowledge. Both Border Patrol agents and OFO officers support joint operations. Border Patrol agents report that OFO officers easily adapt to the new legal requirements governing checkpoint operations.

Figure A.4. SR-80 checkpoint, Tucson Sector. (Source: UA)

Summary of Observations at the SR-90 Checkpoint

This checkpoint is assigned to the Wilcox station, but agents work closely with the nearby Douglas station. High rates of traffic are on Fridays at 6:00 p.m. (11 minute wait). Traffic flowing through the checkpoint is comprised of a mix of vehicles, including cars, trucks, commercial vehicles, etc. There is no shade for canines in primary or secondary screening which reduces their time of effectiveness. There is a temporary shelter for shade, but no license plate readers, power, and no internet infrastructure. A microwave tower is in consideration to provide internet connectivity from checkpoint SR-80. Cell phone reception is unreliable. The SR-90 and SR-80 checkpoints share a backscatter machine.

Currently, the single screening lane is a u-shaped bend that requires traffic to exit the freeway. There are plans to expand the checkpoint and to include two freeway lanes for screening. This would reduce congestion and allow for a canopy to be built. Furthermore, increasing the number of lanes would increase public safety and convenience. This would also reduce the requirements for flushing traffic, which results in less-effective screening. Expansion plans are currently in deliberation with Arizona's Department of Transportation (ADOT).

Figure A.5. SR-90 checkpoint, Tucson Sector. (Source: UA)

EL PASO SECTOR SITE VISIT

The El Paso Sector covers the entire state of New Mexico and the two western most counties in Texas, Hudspeth and El Paso. This area is comprised of 125,500 square miles with 121,000 square miles in New Mexico and 4,500 square miles in Texas. There are 268 miles of international boundary. The El Paso Sector operates several permanent and tactical checkpoints. We visited the permanent checkpoints at I-10, White Sands, Alamogordo, and US-180 (see Figure A.6). The four checkpoints are designed to operate continuously and to deny routes of egress for ATOs and DTOs.

Figure A.6. El Paso Sector checkpoints visited (I-10, White Sands, Alamogordo, and US-180)

Figure A.7. US-180/Ysleta checkpoint, El Paso Sector

Figure A.8. I-10 checkpoint, El Paso Sector. (Source: UA)

Apprehensions are down across the entire El Paso Sector. ATOs infrequently send large groups across the border according to the Border Patrol. They are now sending one or two individuals at a time and using forged documents to gain access to the U.S. Furthermore, drug seizures in the sector are transitioning from larger loads to smaller loads concealed in complex compartments. Sign cutting activities around checkpoints, and third-party indicators, provide evidence of a decrease in activity by ATO and DTO. Third-party indicators of ATOs and DTOs include reports from electric company employees, water management organizations, ranchers, farmers, Bureau of Land Management (BLM) employees, and others. In addition to staffing checkpoints, Border Patrol agents and canines are deployed at the international airport and at bus depots. Agents reported that juveniles are actively recruited by ATOs and DTOs. To respond to this development, the Border Patrol has launched the Operation Detour program to educate juveniles about the consequences of smuggling.

Due to the reduced flow of trafficking and smuggling, all apprehensions and seizures are debriefed at length for detailed intelligence. This provides valuable information which is centrally processed at the El Paso Intelligence Center (EPIC). EPIC diffuses info to and from other organizations.

The four checkpoints visited are permanent structures with the same architectural design. Headquarters reports that using the same architectural plans has cost and safety benefits as agents can readily be stationed at different checkpoints in the sector. The core infrastructure of the four permanent checkpoints includes:

- 4 detention cells; one cell is typically used for interviewing and fingerprinting
- Computers with internet access for checkpoint operations and training agents
- Backscatter machine

The checkpoints are inoperative only during poor weather conditions. Wind is reported to be a factor at all checkpoint locations in the sector.

Strengths of El Paso Sector Operations

There are a number of factors facilitating Border Patrol operations in the El Paso Sector. First, the Alamogordo checkpoint is directly east of a large military installation, which reduces the ability of illegal traffic to circumvent the checkpoint to the west. With the military in close proximity, agents at the Alamogordo checkpoint can focus greater attention to operations at the checkpoint itself and to circumvention zones to the east.

Figure A.9. Alamogordo checkpoint, El Paso Sector

An additional strength in the El Paso Sector is attributable to the permanent infrastructure of the checkpoints. Internet access and holding cells at each of the permanent checkpoints allow agents to process apprehensions quickly and on site. In other sectors without these conveniences, agents may be required to transport apprehended individuals to a central processing facility. This may reduce agent effectiveness as their time is allocated to processing and not identifying and preventing illegal activity.

The White Sands checkpoint has a unique strength as it is bordered by the White Sands National Park to the west. Like the military installation to the west of the Alamogordo checkpoint, the park acts as a natural barrier reducing the circumvention of illegal activity around the checkpoint. Border Patrol agents have developed a positive relationship with park rangers, who assist in looking for ATO and DTO activity and inform agents of any relevant intelligence. ATO and DTO activity in the park is reported as rare.

Figure A.10. White Sands checkpoint, El Paso Sector
(Source: UA)

Challenges of El Paso Sector Operations

There are a number of challenges impacting operations in the El Paso Sector. First, there are air support restrictions influencing operations around the Alamogordo checkpoint due to the White Sands military installation. Agents leverage other resources in order to compensate for the lack of air support capabilities west of the checkpoint. Another challenge is the proximity to railroad traffic. In the past, almost 50% of apprehensions were related to illegal immigrants using trains as a means to gain access to the United States. However, illegal activity associated with trains has since declined. This can be attributed to improved security and screening at the POE. Agents in the El Paso Sector periodically conduct pulse operations to inspect trains near the Alamogordo checkpoint. Apprehensions associated with these operations are reported to be infrequent.

An additional challenge present in the El Paso Sector is the urban landscape surrounding the Faben station. In an urban setting, it is much more difficult to identify and track illegal activity, as opposed to a rural setting, where the only human activity is likely of an illicit nature. Agents at this station must employ specialized strategies and tactics to identify, track and apprehend perpetrators of illegal operations.

RIO GRANDE VALLEY (RGV) SECTOR SITE VISIT

The locations of the Falfurrias checkpoint and Kingsville checkpoint were strategically chosen to increase the difficulty of egress to Corpus Christi, San Antonio, and Houston, which are common destinations for ATOs and DTOs. Figure A.11 depicts sector asset (Figure A.11).

Figure A.11. RGV Sector Map. Source: RGV Sector HQ

Agents reported that both checkpoints are open 24/7 unless DOT closes the highway. With permanent structures, screening operations are curtailed only when weather renders the situation dangerous. The duration of closures is only a few hours until safety permits the checkpoint to reopen. The permanent facilities aid in mitigating weather conditions and reducing the time a checkpoint would otherwise be nonoperational.

There are three backscatter machines utilized by the two checkpoints. The backscatters are operational 24 hours a day. Agents reported that backscatter machines occasionally go down for maintenance. To account for maintenance, the third backscatter machine is rotated into service at both checkpoints. Agents report that backscatters are used in secondary screening approximately 40 times per day. In response to this technology, DTOs have increased the complexity of their smuggling efforts. Trending examples of new smuggling techniques include hiding contraband in organic produce and lining vehicle walls with various materials to thwart x-ray technology. An additional technology leveraged by RGV checkpoints is a specialized fiber-optic scope for inspecting vehicle gas tanks and false compartments. The RGV Sector strategy is to deny urban areas to ATOs and DTOs by pushing criminal organizations into more remote areas (west of McAllen), thereby increasing egress times and the complexity of smuggling operations. Checkpoint operations provide a layered approach to identifying and mitigating illegal activities and have extreme value in intelligence-gathering operations. The intelligence they provide is passed to RGV Sector task forces and other LEAs possessing the ability, and legal authority, to deliver consequences.

When an apprehension is made at either the Falfurrias checkpoint, Kingsville checkpoint, or in a circumvention zone, the illegal immigrant is transported to the nearby station for processing (approximately 6 miles from the Falfurrias checkpoint). The apprehending agent records the apprehension-

specific data and a station-based agent enters the remaining data. This allows the checkpoint agent to remain at the checkpoint and quickly return to screening duties.

Figure A.12. Falfurrias checkpoint, RGV Sector (Source: UA)

Figure A.13. Kingsville checkpoint, RGV Sector (Source: UA)

Figure A.14. PACT lane screening at Falfurrias checkpoint, RGV Sector (Source: UA)

Strengths of RGV Sector Operations

RGV Sector is working closely with OFO and other LEAs and government agencies including: ICE, FBI, DEA, ATF, Texas Rangers, Texas Department of Transportation, state and local police, Bureau of Land Management, and others. The Border Patrol embeds agents in several of these organizations to foster collaboration, intelligence sharing, and joint operations. Furthermore, OFO, Texas Rangers, and DOT embed representatives into RGV HQ. This collaboration is beneficial to checkpoint operations as it allows the Border Patrol to deliver consequences to criminal organizations by leveraging the legal authority of other agencies

Lead and collateral intelligence agents work regularly at the checkpoints, in communities around the checkpoints, and with other LEAs on a daily basis. Lead intelligence agents interview apprehended individuals for intelligence, work at dismantling ATOs and DTOs, and identify staging operations south of the checkpoints. While lead intelligence agents are not recorded as staff in checkpoint activity reports (CARs), their work directly impacts the effectiveness of checkpoints.

An additional strength of the RGV Sector is the border intelligence center (BIC) that accumulates all intelligence gathered from Border Patrol agents and other LEAs. BIC agents report that intelligence from checkpoints are a critical part of their data-collection capabilities. BIC disseminates information to checkpoints in the form of patterns and trends of smuggling, actionable intelligence, and threat awareness. Intelligence can then be used for building prosecution cases, as justification for search warrants, seizure of ATO and DTO assets, etc.

Challenges of RGV Sector Operations

Unique to the RGV Sector is the relatively large proportion of other-than-Mexican (OTM) nationals who legally or illegally enter the country. The two main entry points for criminal activity are the rural areas west of McAllen and the Gulf of Mexico by sea. ATOs and DTOs will cross the Mexico border west of McAllen, stage operations in and around McAllen, then transport northbound on I-281 or I-77. Alternatively, ATOs and DTOs will remain on foot and attempt to circumvent the Falfurrias checkpoint, requiring extended periods of walking.

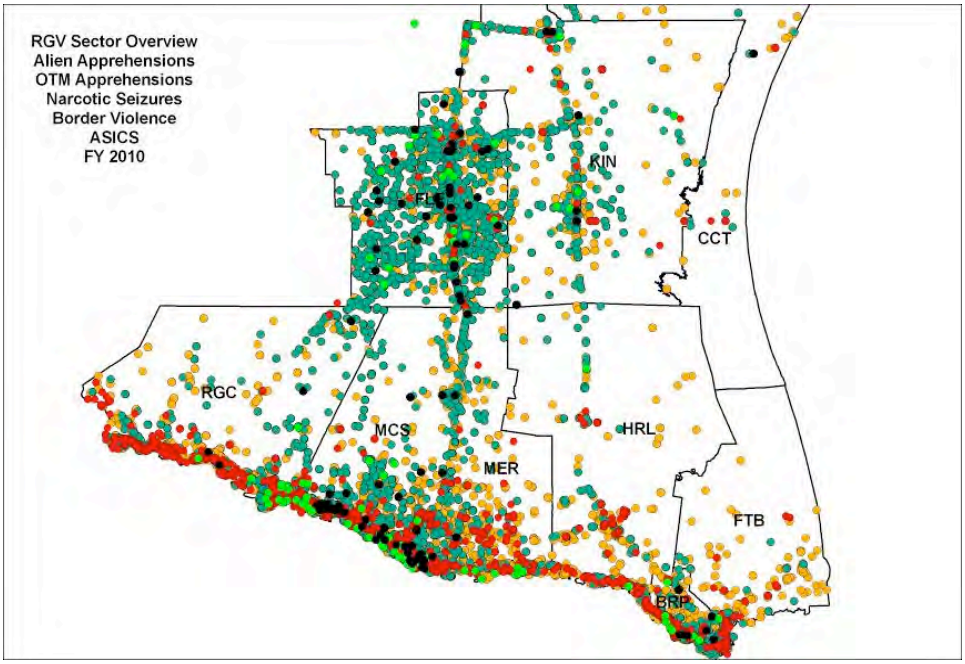


Figure A.15. RGV Sector Apprehensions and Encounters. Source: RGV Sector HQ

Figure A.15 gives a geo-spatial representation of encounters with ATO and DTO occurring during FY2010. From this figure, it suggests that ATOs and DTOs use I-281 and I-87 (vertical lines of green dots), and that these organizations attempt to circumvent the checkpoints. It also suggests that checkpoint-coordinated roving patrols and checkpoint pulse operations around the two checkpoints result in additional apprehensions.

SWANTON SECTOR SITE VISIT

The Swanton Sector area of responsibility encompasses approximately 24,000 square miles and includes Vermont; five counties of New York; and three counties of New Hampshire. This area includes 295 miles of international border—203 land miles and 92 water miles—from the Maine-New Hampshire state line on the east. Of the 261 miles of border, 173 miles are land border and 88 miles are water boundary along the St. Lawrence River (see Figure A.16). The sector is adjacent to the Canadian provinces of Quebec and Ontario. The Massena station AOR includes the Akwesasne territory, a Mohawk Nation with roughly 12,000 residents with territory in both Canada and the United States.

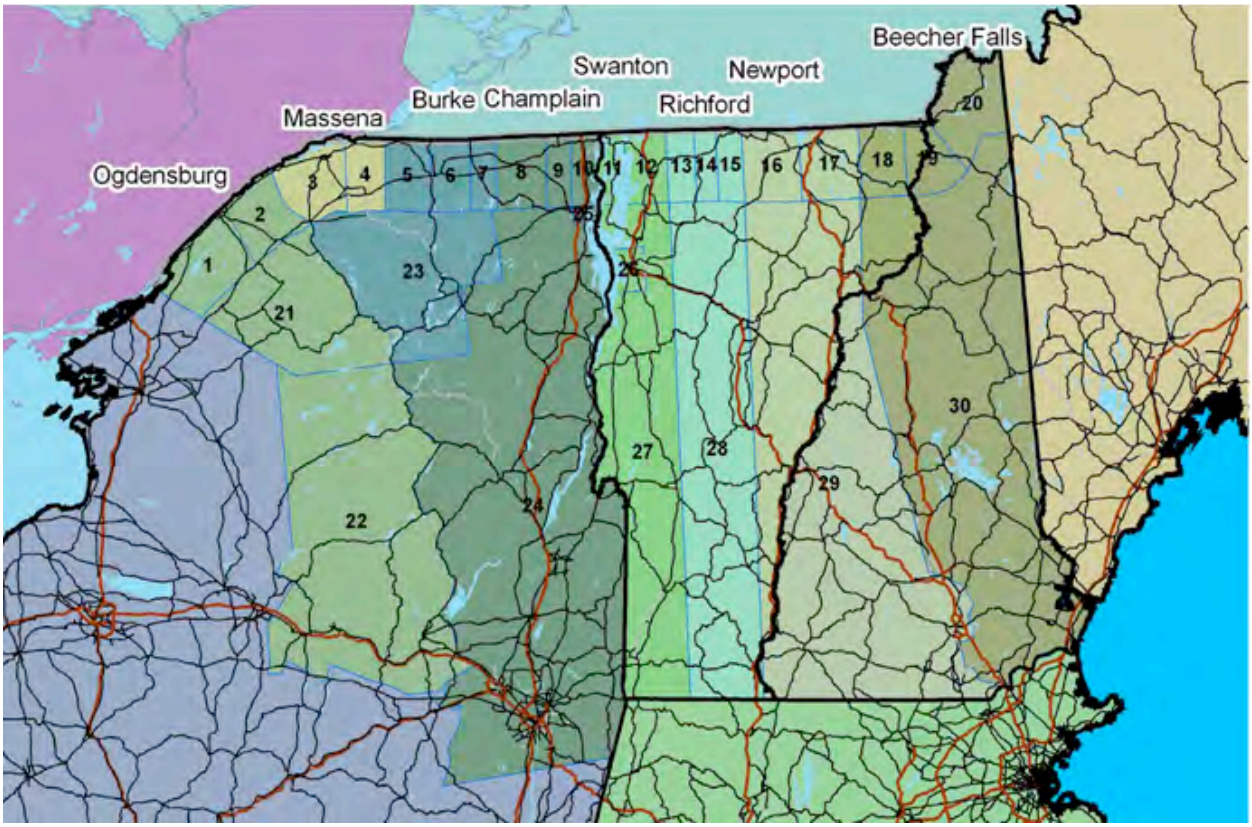


Figure A.16. The Swanton Sector area of operation in NY, VT, and NH. Major roads (black lines) and waterways (light blue) are identified. Numbers represent sector zones. Names are for the eight Border Patrol stations identified. Source: Swanton Sector.

Swanton Sector operates tactical checkpoints that require 15-20 minutes of setup and then operate for 2 to 4 hours prior to being shut down. The checkpoints are used for tactical surprise to apprehend aliens, seize assets of ATOs and DTOs, gather intelligence, and respond to actionable intelligence.

Figure A.17. The St. Lawrence River freezes during the

winter, allowing ATO and DTO to utilize it as a trafficking route. Legal traffic also utilizes the river (Source: Swanton Sector)

Checkpoints in Swanton can be categorized into three types: permanent checkpoints (I-87), Border Patrol tactical checkpoints, and NY State Trooper checkpoints.

The I-87 checkpoint has permanent facilities, including database connectivity, but is not operated continuously due to budget constraints. When open, Champlain station brings Border Patrol agents in from other areas and runs the checkpoint. This checkpoint runs concurrently with a tactical checkpoint on State Route 9, which parallels I-87, and had been used to mitigate circumvention.

Figure A.18. I-87 checkpoint in Champlain station AOR. Photo is of primary screening area. Two miles of safety equipment precede the checkpoint. SR-9 tactical checkpoint operates in tandem with I-87 to mitigate circumventions. (Source: UA)

Figure A.19. I-87 checkpoint building. Secondary screening is performed in the ample parking lot, away from traffic. (Source: UA)

Tactical checkpoint operations are planned each month but can occur spontaneously in pre-approved locations. Tactical checkpoints have three or more agents, a canine unit, and are frequently staffed with state troopers in addition to Border Patrol agents. NY State Troopers have the authority to establish a safety inspection checkpoint without preapproval, assuming it meets safety guidelines. State troopers frequently ask Border Patrol agents to coordinate efforts at or around the NY inspection site. Border Patrol-sponsored checkpoints do not have physical facilities, database connectivity, or detention facilities.

Figure A.20. Tactical checkpoint in Massena station AOR. On this occasion, a Border Patrol canine unit and a NY State canine unit (for secondary screening) were present. NY State Troopers were also present. Secondary screening is performed off the road away from traffic. (Source: UA)

In the area of Massena station, approximately 31% of the FY2010 checkpoint operations were NY-sponsored. A Border Patrol agent is routinely stationed before the checkpoint to watch for turnarounds and turnoffs. Agents may also be positioned on alternate roads to look for circumvention traffic.

Strengths of Swanton Sector Operations

Due to the low level of trafficking and smuggling in the Swanton Sector, a majority of apprehendees are debriefed at length for intelligence. This provides valuable information regarding criminal organizations trafficking aliens and drugs in the area. Intelligence is centrally processed at the Swanton Sector HQ. The sector intelligence unit diffuses information to other organizations.

The Royal Canadian Mounted Police (RCMP) has the responsibility to monitor for trafficking between POE on the Canadian side of the border. The Border Patrol has embedded agents with the RCMP to facilitate intelligence and joint operations.

Figure A.21. Roads cross the U.S.-Canadian border without POE. Canada is north of the barricade. New infrastructure improvements block the crossings to prevent unauthorized vehicle traffic. (Source: Swanton Sector)

Challenges of Swanton Sector Operations

The threats and constraints of the northern border are different than the southern border. The majority of apprehensions on the northern border are other-than-Mexican (OTM), special-interest-country individuals (SIC), and individuals on terrorist watch lists or with outstanding warrants. Canada does not require a visa to enter the country, allowing individuals who could not fly directly into the U.S. to fly into Canada, and cross into the U.S. on foot or by boat. Northbound smuggling operations are used for trafficking Mexicans, tobacco, cocaine, and other contraband.

Incursions into the sector are by land (most common) or over the St. Lawrence River. Unlike the southern border, there are roads that run parallel to the border or cross into Canada without ports of entry. In the past, ATOs and DTOs have been able to drive across the border without traveling through a POE. Recently, many roads have been barricaded. While a vehicle cannot cross, smugglers can easily use these points to unload and load contraband. At other locations, ATOs and DTOs will walk across the border and quickly enter into a waiting vehicle. The transit time to cross on foot can take 5 to 15 minutes before the individual is in a vehicle.

The high-volume of traffic on the St. Lawrence River makes it difficult to distinguish ATOs and DTOs trafficking from legal-waterway traffic by commercial shipping and personal water craft. Another unique aspect of securing the northern border is that ATOs and DTOs drive across the frozen St. Lawrence River during winter months. A security fence along the St. Lawrence River is not a feasible option as much of the land is privately owned, of high real estate value, and is used for docking. Additionally, fishing is a valuable contributor to the local economy, which a security fence would hinder. Finally, as roads are in close proximity to the river, illegal crossers can often access regular roads before an interdiction can be made.

Increasingly, ATOs and DTOs have been using small aircraft to fly through mountainous areas where radar gaps exist at altitudes less than 5000 feet. While joint operations with other LEA mobile radar have occurred, there is no permanent solution to date.

Sign cutting is a less-effective strategy on the northern border than the south. Due to dense vegetation, waterways, and the impracticability of drag strips, sign cutting is not effective in the Swanton Sector AOR (except during winter months when snow accumulates on the ground). In place of sign cutting, Border Patrol agents measure got-aways using sensors and local landowner reports of trafficking. Furthermore, sign cutting around checkpoints is not necessary as checkpoints operate for a limited period of time and circumvention traffic exploits alternative roads.

Another unique challenge in the Swanton Sector is the Akwesasne territory, which resides between the U.S. and Canada. Smuggling operations originating in this territory typically involve crossing the St. Lawrence River. The Border Patrol has no official jurisdiction in this area, thus, opportunities for identifying and mitigating illegal activities are extremely limited.

SAN DIEGO SECTOR SITE VISIT

The San Diego Sector covers more than 7,000 square miles, 60 linear miles of international boundary with Mexico, and miles of coastal land. San Diego Sector operates several tactical and permanent checkpoints as a multi-layered defense strategy. Similar to trends observed in other sectors, trafficking activity has declined over the last several years. Large groups of human traffickers and large seizures of narcotics are infrequent. Smugglers are utilizing more complex strategies, bringing smaller groups of illegal immigrants across the border, and using more complex concealment tactics to conceal narcotics in vehicle compartments.

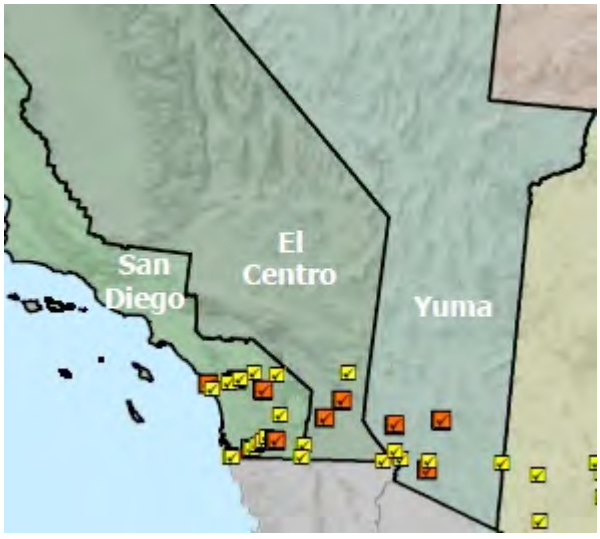


Figure A.22. San Diego Sector AOR

Strengths of San Diego Sector Operations

A significant strength of the San Diego Sector is the level of infrastructure at permanent checkpoints. San Diego Sector also has checkpoint agents trained in advanced operations, such as Desert Snow (advanced training for interdicting smugglers and terrorists) and Black Asphalt (networking tools). Agents interviewed in all sectors reported the value of advanced training programs and report drastic increases in success as agents return from training and resume work at checkpoints.

San Diego Sector also has the strength of leveraging ties with myriad LEAs operating in the sector, including FBI, ICE, DEA, San Diego police, Coast Guard, etc. Border Patrol agents in the San Diego Sector meet monthly with other agencies to coordinate operations, share intelligence, and plan and conduct pulse operations.

Challenges of San Diego Operations

A formidable challenge to San Diego Sector checkpoint operations is an increase in the diversity of transportation mediums employed to traffic narcotics and immigrants across the border. ATOs and DTOs have increased the use of boats to land on the California coast. Additionally, agents have reported an increase in the use of ultralights. Another challenge associated with San Diego Sector operations is the close proximity of the border to high-density population centers. Not only can traffickers blend in with the local population, but increased traffic volume through checkpoints also negatively impacts the ability of Border Patrol agents to screen for illegal immigrants, narcotics, and contraband. For example, the I-15 checkpoint reports an approximate traffic volume of 10,000 vehicles per hour. Flushing traffic is defined as any time where agents are removed from primary screening and traffic is allowed to pass through the checkpoint without screening. At other sector checkpoints, agents and canines can still be present during flushing, and the flush only lasts as long as required to remove the backlog. At the I-15 checkpoint, all lanes open and traffic proceeds through, usually for several hours, until freeway traffic reduces and it is safe to reestablish operations. Flushing occurs daily, after 1pm on weekdays, during holidays, and sometimes during sporting events. Agents know that ATOs and DTOs pass through checkpoints during predictable flushing, but marked and unmarked agents are on roving patrols around the checkpoint. During a flush or closure, agents are reassigned to other duties, such as roving patrols and screening at the weigh station. Even with this constraint, leadership reports the value of the I-15 checkpoint as it provides the ability to react to intelligence, especially from other LEAs.

Figure A.23. I-15 Checkpoint, San Diego Sector. Traffic flow is approximately 10,000 vehicles per hour on four lanes. (Source: UA)

Figure A.24. Rainbow checkpoint works in concert with the I-15 checkpoint to prevent circumvention around the I-15 checkpoint. (Source: UA)

An additional challenge is the San Diego Sector is the close proximity of several Native American territories to the I-8 station's AOR. Agents report that smuggling does occur through the territories, and agents have been assigned to work with representatives from the territories to reduce the amount of trafficking that occurs. Border Patrol agents work to support LEA in the territories in an effort to build rapport and develop lasting partnerships.

Figure A.25. I-8 checkpoint, San Diego Sector. (Source: UA)

Figure A.26. I-8 checkpoint secondary screening area. Secondary screening for busses is on a dirt shoulder near a steep decline. Secondary screening for passenger vehicles is to the right of the cones in the photo. (Source: UA)

Figure A.27. I-8 checkpoint screening operations of commercial vehicles at the adjacent CA weigh station. Continuous commercial vehicle screening is possible even when the general public lanes must be flushed. (Source: UA)

A final challenge encountered by Border Patrol agents in the San Diego Sector is the vastness of the sector and the size of the AOR for some checkpoints/stations. For example, the Murrieta station AOR encompasses over 3,800 miles. Due to the size and remoteness of this AOR, the communications infrastructure is restricted and the time-on-task for some operations is extensive.

B: Taxonomy of Checkpoint Core Functions

As demonstrated in the documentation of site visits, different checkpoints have different strengths, challenges, and functions. Based on our review of checkpoints, we identified five major core functions[1]. These checkpoint core functions establish a foundation for creating representative performance measures that are congruent with U.S Customs and Border Protection and Department of Homeland Security priorities. The five core functions include:

- Interdict terrorists and terrorist weapons
- Interdict illegal immigration
- Interdict drug smuggling
- Gather and respond to intelligence
- Deter illegal activity from using path of egress (Infrastructure Control)

Interdict Terrorists and Terrorist Weapons

The Border Patrol mission includes the prevention of terrorists and terrorist weapons, including weapons of mass destruction, from entering the U.S. (U.S. Customs and Border Protection, 2012). Agents across multiple checkpoints reported that they screen for special-interest-country individuals and for radiation (using personal radiation detectors) in an effort to deter and detect terrorist and terrorist weapons. Based on apprehension data for Fiscal Year 2010, checkpoints contributed to apprehending individuals from the following special interest countries: Afghanistan, Cuba, Iran, Iraq, Lebanon, Nigeria, Pakistan, Saudi Arabia, Somalia, Sudan, and Syria. In summary, checkpoints deter terrorism through the following measures:

- Detecting radiation
- Interdicting individuals linked to terrorism
- Controlling the infrastructure causing terrorist to take alternative routes
- Gathering intelligence from screening activities about terrorist threats
- Responding to intelligence targeted to deter terrorism

Interdict Illegal Immigration

Checkpoints contribute to border security by interdicting illegal immigration. All checkpoints have the authority to verify citizenship to interdict illegal immigration (see *U.S. v. Martinez-Fuerte*). As such, checkpoints are the only inland border security effort that can stop all vehicles to verify citizenship with mere or no suspicion. Checkpoints deter illegal immigration through the following measures:

- Apprehending illegal immigrants
- Controlling the infrastructure and thereby increasing time of egress
- Gathering intelligence related to immigration
- Responding to intelligence related to illegal immigration

[1] These five core functions exclude idiosyncratic functions that are not generally common among various checkpoints, and excludes purposes that are not core to DHS and CBP objectives.

An apprehension of an illegal immigrant at a checkpoint is defined as the arrest of an illegal immigrant within the pre-primary, primary, or secondary inspection areas of a checkpoint. Figure B.1 summarizes the number of apprehensions made by checkpoints between 2007 and 2010[2].

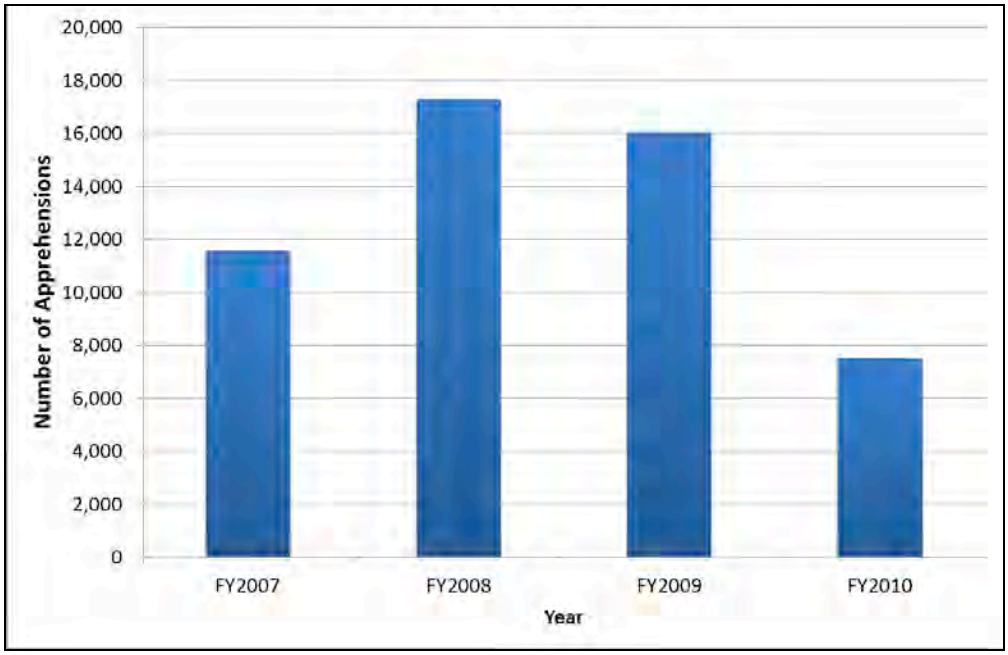


Figure B.1. Checkpoint Apprehension Trends

Interdict Drug Smuggling

Checkpoints contribute to border security by interdicting drug smuggling. However, they have limited statutory authority to search for drugs (see Appendix D). Within this statutory authority, checkpoints interdict drug smuggling through the following measures:

- Seizing illegal drugs
- Controlling the infrastructure and thereby increasing time of egress for drug smugglers
- Gathering intelligence related to drug smuggling.
- Responding to intelligence related to drug smuggling.

Seizing illegal drugs at a checkpoint refers to the interdiction of illegal drugs within the pre-primary, primary, or secondary inspection area of a checkpoint (CARS Guidance, CBP). The checkpoint narcotic seizures have fluctuated from 2007–2010 (Figure 1). Note, the decrease of checkpoint narcotic seizures from 2009 to 2010 may be a result of how seizures are attributed. Per the GAO's findings (GAO 2009), some checkpoints were attributing seizures to checkpoints when they occurred in the circumvention zone; while others only attributed seizures to checkpoints if they occurred in the pre-primary, primary, or secondary areas. The decrease may be a result of more consistent data entry among sectors.

[2] These numbers are contingent on quality data, which has been questioned.

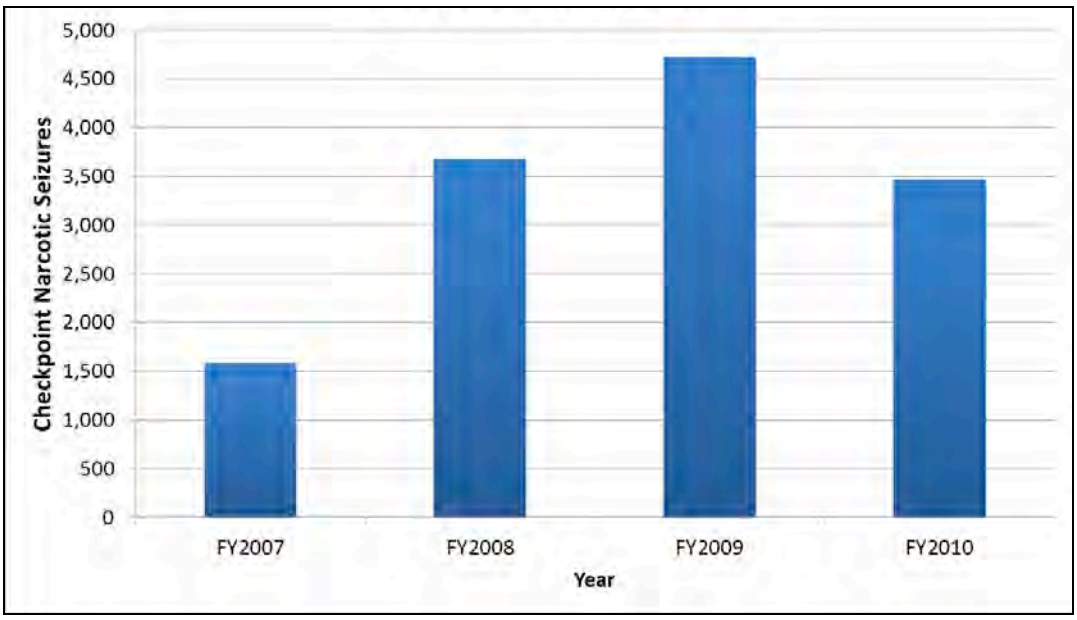


Figure 1. Checkpoint Drug Seizures Trends

Gather and Respond to Intelligence

Closely building on a checkpoint's ability to deter illegal activity (illegal immigration, drugs, and terrorist and terrorist weapons), is its ability to gather and respond to intelligence. First, checkpoints can gather intelligence that can help other Border Patrol sectors, OFO, DEA, and other agencies deter illegal activity. For example, when checkpoints have the ability to make apprehensions and drug seizures, this can provide intelligence, such as:

- Current smuggling techniques
- Information on how much illegal activity averts detection at the border or ports of entry
- Current cartel activities
- Partial illegal flow estimates

If this information is aggregated and shared with appropriate divisions and agencies, it can help deter and interdict illegal activity.

Checkpoints also contribute to border security through their unique ability to respond to intelligence. Within the interior United States, checkpoints are the Border Patrol's only mechanism to legally stop and question every vehicle with mere or no suspicion.

Deter Illegal Activity from Using a Path of Egress (Infrastructure *Control* and Increase Time of Egress)

Also closely building on a checkpoint's ability to deter illegal activity (illegal immigration, drugs, terrorist and terrorist weapons), is a strategically placed checkpoint's ability to control the infrastructure, and thereby encourage smugglers and terrorist to use alternative, often slower routes. According to National Border Patrol Strategy, agents are deployed "to confront routes of egress for terrorists, smugglers, and illegal aliens." (U.S. Department of Homeland Security 2005, 13)

The majority of checkpoints visited in our site visits reported that infrastructure control and increasing time of egress is a primary function of their checkpoint. Hence, the number of apprehensions and drug seizures are not ideal indicators of performance, because they do not account for the illegal activity that has been diverted to slower, alternative routes because of the existence of the checkpoint. These alternative routes are referred to as the circumvention zones, and are patrolled by Border Patrol agents to interdict the illegal activity.

Core Functions Align with Border Patrol and Homeland Security Priorities

The five core functions identified in the checkpoint taxonomy align with the 2012-2016 Border Patrol Strategic Plan and DHS priorities. The 2012-2016 Border Patrol Strategic Plan (U.S. Customs and Border Protection 2012) identifies the following objectives that align with the core functions of checkpoints:

- Preventing terrorists and terrorist weapons
- Improving risk management
- Disrupting transnational criminal organizations
- Increasing situational awareness
- Reducing crime and violence in surrounding communities

Furthermore, the core functions of checkpoint align with the following DHS objectives (GAO 2012):

"Objective 2.1.1 Prevent illegal entry of people, weapons, dangerous goods and contraband, and protect against cross-border threats to health, the environment, and agriculture, while facilitating the safe flow of lawful travel and commerce."

"Objective 2.1.2 Prevent illegal export and exit of weapons, proceeds of crime, and other dangerous goods, and the exit of malicious actors."

C: Checkpoint Statutory Authority

Immigration checkpoints are interior enforcement operations (rather than border operations) and therefore must adhere to the Fourth Amendment. The Fourth Amendment states, "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized."

To determine if a law enforcement activity is in compliance with the Fourth Amendment, several commonly accepted levels of suspicion have been judicially defined that describe how certain an agent is regarding a potential criminal violation, and, thus, determine the agent's legal authority. The Fourth Amendment states that "probable cause" is required for search and seizure. Probable cause refers to the collection of facts and circumstances known to agents, based upon reasonably trustworthy information, which is sufficient in itself to warrant a person of reasonable caution in the belief that a particular person committed a crime or that seizable property would be found in a particular place or on a particular person.

The level of suspicion one step lower than probable cause is called "reasonable suspicion." Reasonable suspicion is based on specific articulable facts which, when taken together with what one can reasonably infer from those facts, would lead a reasonable agent to suspect that a person might be engaged in criminal activity. Investigative detention requires reasonable suspicion.

The next lower level of suspicion is called "some or mere suspicion." Some or mere suspicion refers to a subjective suspicion on the part of an agent, i.e., a suspicion in his mind which need not be based on any objectively articulable facts. Objectively articulable facts are those that one can see, hear, feel or smell and can talk about in court. Mere suspicion can be as little as just a "hunch" or based upon articulable facts that do not support a reasonable suspicion. Finally, the lowest level of suspicion is "no suspicion."

No statutory authority exists in relation to immigration checkpoints; however, authority has evolved from a series of court decisions interpreting the authority under INA Section 287(a)(3) in light of the Fourth Amendment. INA Section 287 states that "any officer or employee of the Service authorized under regulations prescribed by the Attorney General shall have the power without warrant - (3) within a reasonable distance from any external boundary of the U.S., to board and search for aliens in any railway car, aircraft, conveyance, or vehicle." Reasonable distance means 100 air miles from any external boundary of the U.S. (8 CFR 287.1(a)(2)). An external boundary refers to the land boundaries and the territorial sea of the U.S. extending 12 nautical miles from the baseline of the U.S. determined in accordance with international law.

A series of court decisions have defined the limitations of checkpoint authority. In summary, checkpoints' core function is immigration, and judicial precedents support questioning to determine vehicular occupants' citizenships. Drug checkpoints established for the core function of general crime control have been found unconstitutional. The Supreme Court has not specifically ruled on checkpoints for the purposes of anti-terrorism and national security as it is a currently developing area of law. We now summarize relevant cases.

In Almeida-Sanchez v. U.S. (1973), the U.S. Supreme Court held that Border Patrol agents may not search a vehicle under 287(a)(3)'s "board and search" provision unless they have probable cause to believe that the vehicle contains contraband.

In 1976, the U.S. Supreme Court held in U.S. v. Martinez-Fuerte that stops for brief questioning routinely conducted at checkpoints are consistent with the Fourth Amendment and need not be authorized by warrant. The Court further held that searches at a checkpoint, however, are constitutional only if justified by consent or probable cause to search. Under this ruling, no individualized suspicion is needed for brief checkpoint questioning. Every vehicle can be stopped; immigration document inspection is allowed; and selective referral to secondary inspection is constitutional. Border Patrol may also request documents for

immigration purposes. The Border Patrol has a limited duration of time to determine each occupant's citizenship. They are also allowed to perform inspections of what can be seen from outside the vehicle, and can use K9s. There is no distinction in authority between temporary and permanent checkpoints (U.S. v. Hernandez, 9th Cir. 1984), and no checkpoint has been authorized for checking goods and contraband.

The Border Patrol can engage in consensual questioning after asking about immigration. However, a stop cannot be extended for the purposes of conducting a K9 sniff. K9 sniffs must be conducted while determining citizenship or while running checks or producing documents. U.S. v. Taylor, (9th Cir. 1991), ruled that canine sniffs are allowed at checkpoints. Detention for K9 sniffs for one-minute after immigration checks are allowed with "minimal articulable suspicion." U.S. v. Anchondo (10th Cir. 1998) ruled that canine alerts generally constitute probable cause to search. However, Illinois v. Caballes, (U.S. 2005) ruled that canine sniff should not unnecessarily prolong a stop.

Checkpoint inspections of buses are allowed (U.S. v. Portillo-Aguirre, 5th Cir. 2002), and passengers can be asked to exit a vehicle/bus for immigration inspection (Maryland v. Wilson, U.S. 1997). U.S. v. Ventura, (5th Cir. 2006) provides authority for agents and canines to conduct immigration inspections of undercarriage and common areas, such as bathrooms (U.S. v. Ventura, 5th Cir. 2006). However, Border Patrol Canine Policy currently states that passengers cannot be on the bus if a canine enters.

No individual suspicion is required to refer vehicles to secondary screening for immigration purposes. However, to refer a vehicle to secondary screening for purposes other than immigration requires reasonable suspicion. In secondary screening, Border Patrol agents may ask questions, request to inspect documents, make open view observations, request consent to search, request occupants to exit vehicle, perform exterior canine sniffs, press down the trunk, tap exterior fuel tanks, and check bus restrooms and exterior luggage bins. Once immigration status is confirmed, detention must end.

Border Patrol policy is to refer vehicles and their occupants to secondary screening with mere suspicion, and continue detention for non-immigration purposes with reasonable suspicion. U.S. v. Preciado-Robles (9th Cir. 1992) upheld that minimal articulable suspicion after immigration status is determined allows the Border Patrol to briefly detain in order to ask consent to search. U.S. v. Sukiz-Grado (10th Cir. 1994) upheld that suspicious circumstances allow a Border Patrol agent to ask a few additional questions that do not significantly lengthen detention.

Detention after secondary screening requires consent or reasonable suspicion. The Border Patrol must act quickly to confirm or dispel suspicion, and may quickly investigate criminal activity with reasonable suspicion. U.S. v. Montero-Camargo (9th Cir. 2000) upheld that Hispanic appearance alone cannot serve as reasonable suspicion.

If a car makes a U-turn prior to a checkpoint, this may be cause of reasonable suspicion to stop the vehicle. In U.S. v. Montero-Camargo (2000), the 9th Circuit ruled that a U-turn can be a factor, but not the only factor, in making a roving stop. In U.S. v Hasette (1990), the 5th district court ruled that a roving patrol stop is tantamount to a checkpoint stop if the vehicle makes a U-turn in front of the checkpoint.

Table C.1 summarizes the statutory authority of checkpoints.

Table C.1. Summary of Key Legal Restrictions for Checkpoints

Performance Measure	Definition
4th Amendment	No unreasonable searches and seizures but upon probable cause.
INA Section 287(a)(3).	Agents have authority to search for illegal aliens without warrant within reasonable distance from U.S. border.
Almeida-Sanchez v. U.S.	Agents may not search vehicles unless they have probable cause it contains contraband.
U.S. v. Martinez-Fuerte	Questioning regarding immigration is consistent with the 4th Amendment at permanent checkpoints.
U.S. v. Hernandez	No legal distinction between permanent and temporary checkpoints.
U.S. v. Preciado-Robles	Minimal articulable suspicion after immigration determined allows BPA to briefly detain in order to ask consent to search.
U.S. v. Sukiz-Grado	Suspicious circumstances allow a Border Patrol agent to ask a few additional questions that do not significantly lengthen detention.
U.S. v. Montero-Camargo	Hispanic appearance alone cannot serve as Reasonable Suspicion.
U.S. v. Taylor	Canine sniffs at checkpoints allowed. Detention of one-minute after immigration check allowed with "minimal articulable suspicion."
U.S. v. Anchondo	Canine alerts generally constitute probable cause to search.
Illinois v. Caballes	Canine sniffs should not unnecessarily prolong a stop.
U.S. v. Portillo-Aguirre	Checkpoint inspections of buses are allowed.
Maryland v. Wilson	Passengers can be asked to exit vehicle/bus for immigration inspection.
U.S. v. Ventura	BPA and canines may make immigration inspection of undercarriage and common areas, such as bathrooms.

D: Performance Measures Definitions and Examples

This documentation was provided from Border Patrol Headquarters

Performance Measure: Represents a numerical expression, conveying quantitatively, how well the organization is doing, against an associated performance goal, objective or standard.

Milestone: Milestones are significant events, accomplishments, or intermediate goals in the life of projects, programs, etc. used to indicate satisfactory progress toward achieving long-term program performance goals and Department-wide goals and objectives; milestones help identify specific and established criteria for measuring incremental progress associated with long-term activities and program outcomes.

Input measure: A type of performance measure that gauges the level or resources entering a process and typically identify the quantity of people, materials and equipment being provided to create a product or services. Other types of input measures describe the demand or request for services from a program.

Examples:

- Number of miles of tactical infrastructure
- Number of personnel assigned to Border Community liaison duties

Process measure: A type of performance measure that captures information about the process that transforms inputs into outputs. Process measures typically identify where the causes of problems occur, assist in diagnosing inefficiencies, and help in identifying how to make process improvements.

Examples:

- Percentage of court days when sectors fully satisfy Border Patrol resource commitments (Operation Streamline measure)
- Percent of routine referrals with national security implications completed within targeted processing times (OFO measure)

Output measure: A type of performance measure that describes the products and services that are produced by a process, and/or gauges the quantity of products or services delivered to customers.

Examples:

- Number of cases referred for prosecution
- Percentage of canine assisted seizures
- Percent of amenable aliens processed into a consequence delivery program

Outcome Measure: A type of performance measure that communicates the value the program delivers to its stakeholders (e.g., the American public), and/or reflects achievement of the program's long-term performance goal

Examples:

- Percent of prosecuted cases that lead to a conviction (measure for DOJ)
- Suspected or targeted smugglers and criminal aliens prosecuted as a percent of total apprehensions of these classifications
- Percent of persons known to have crossed illegally between the POEs who are apprehended or turned back

Efficiency measure: A type of performance measure that tracks the ratio of total outputs or outcomes to total inputs.

Examples:

- Cost per alien to be processed through consequence programs
- Cost per acre of environmentally important forest protected (Forest Service)

Table D. 1 summarizes the performance measures.

Table D.1. Summary of Performance Measures

Performance Measure	Definition
Input measures	• Gauges level of resources entering a process and identifies quantity of people, materials and equipment provided to create product/ service. • Demand or request for services
Process measures	• Captures information about the process that transforms inputs into outputs. • Identifies where the causes of problems occur • Helps diagnose inefficiencies • Identifies how to make process improvements.
Output measures	• Describes products/services produced by a process • Gauges quantity of products/ services delivered to customers
Outcome measures	• Communicates the value the program delivers to its stakeholders (e.g., the American public) • Reflects achievement of the program's long-term performance goal and cost effectiveness
Efficiency measures	• The ratio of total outputs / outcomes to total inputs

E: ThinkTank™ Results

The University of Arizona (UA) hosted a ThinkTank session with approximately 30 agents participating from Tucson, San Diego, Yuma, El Paso sector, Marfa, and Rio Grande Valley sectors. Tucson sector sent representatives to UA facilities and other sectors participated remotely at the same time. Several questions were asked regarding checkpoint roles, capabilities, technology, community impacts, data connectivity, etc. Titles of the participants include FOS, SBPA, PAIC, SOS, and Division chief. The following is a summary of the findings.

ThinkTank™ Results on Checkpoint Resource Evaluation

Agents were asked to identify and then rank the value of the resources at checkpoints. The answers were anonymous. The question was "What resources do you have at checkpoints?" followed by "Rank the order of the resources in order of most important to least important." Table E.1 displays the top 10 resources as ranked by the agents. Agents expressed a need for more of these resources at checkpoints.

Table E.1. Top 10 Resource Evaluation at Checkpoints

Rank	Ballot Items	Composite Vote Score
1	Canine teams	8.23
2	Infrastructure/building and road enhancements.	7.95
3	Network and Data connections	7.09
4	Agents… Good quality and motivated agents.	6.41
5	Identification technology	5.18
6	Legal/Law Issues (better laws)	5.09
7	License Plate Readers	4.77
8	Backscatter = x-ray vehicle machine	3.82
9	RVSS - remote video surveillance system	3.77
10	MVSS - mobile video surveillance system	2.68

Only 32% of the participants said they are or were canine handlers, yet the consensus is that canines are extremely valuable resource and most needed.

Of the five sector site visits, Tucson sector expressed the greatest need for additional canines. RGV indicated that checkpoints have sufficient canines. Swanton sector expressed a lower prioritized desire for canines, understanding and agreeing that Tucson sector and other southwest border sectors have a significantly greater need for canine resources.

ThinkTank™ Results on Checkpoint Training

Agents were asked to list and rank the training they evaluated as most valuable and most desired. This data is listed in Table E.2.

Table E.2. Evaluation of Top 10 Training

Rank	Training Program	Composite Vote Score
1	Legal authority training	7.79
2	Spanish Language Training (Academy)	7.00
3	Annual Legal Refresher Course	6.54
4	Desert Snow (commercial) training, Shaun West, Black Pavement, etc.	6.25
5	Spanish Language Training (Post-Academy)	6.00
6	Use of Force Refresher Course	5.75
7	Court Presentation Training	5.25
8	Continuing Education Program	4.17
9	Red Team Training (testing interdiction capabilities)	
10	Other languages training (Portuguese, Chinese, etc.)	

From the site visits, checkpoint agents expressed similar desire for the following training:

- Commercial vehicle inspection
- Desert Snow, Black Pavement, Shaun West, etc.---commercially available training
- 'Back to basics' for primary screenings (focus on behavioral detection and to not rely overly on technology or canines)
- Concealed compartment training
- Immigration documents training from OFO

Several checkpoints reported that agents who returned from Desert Snow (or similar training), from commercial vehicle inspection training, or from concealed compartment training immediately seized a drug load the next working day.

Agents also expressed a desire for a periodic refresher course that they can take at the checkpoint to keep up-to-date. Years may go by before an agent will have two sessions of the high valued training.

ThinkTank™ Results on Community Impact Measures

Agents were asked regarding possible community impact measures. Table E.3 gives the result of the Top 10 community impact measures as evaluated by the checkpoint agents.

Table E.3. Evaluation of Top 10 Community Impact Measures for all Checkpoints

Rank	Community Impact Measure	Composite Vote Score
1	Crime Rate (of neighboring areas/communities)	8.48
2	Signs of Pedestrian and Vehicle Traffic (Evidence of Circumvention Efforts)	7.96
3	Anecdotal Reports of Illicit Activity/Circumvention	6.52
4	Call Rates: Accidents, amber alerts, oa assists, etc.	5.70
5	Misdemeanor Narcotic Violations (Operation Citation or OA agencies)	5.48
6	Wait Times (by day & daypart)	5.37
7	Property Damage & Trespass Reports (from Ranchers)	5.30
8	Property Values (of neighboring areas/communities)	3.78
9	Vehicle Accident Rate Comparisons (at/near checkpoint locations)	3.74
10	Environmental Impact	2.67

When asked to reevaluate the community impacts for checkpoints in rural communities, the order of the rank adjusted slightly. The results are in Table E.4.

Table E.4. Evaluation of Top 10 Community Impact Measures for rural Checkpoints

Rank	Community Impact Measure	Composite Vote Score
1	Signs of Pedestrian and Vehicle Traffic (Evidence of Circumvention Efforts)	8.30
2	Crime Rate (of neighboring areas/communities)	7.33
3	Anecdotal Reports of Illicit Activity/Circumvention	7.33
4	Property Damage & Trespass Reports (from Ranchers)	6.85
5	Misdemeanor Narcotic Violations (Operation Citation or OA agencies)	5.78
6	Call Rates: Accidents, amber alerts, other assists, etc.	5.33
7	Wait Times (by day & daypart)	4.07
8	Vehicle Accident Rate Comparisons (at/near checkpoint locations)	3.81
9	Environmental Impact	3.22
10	Property Values (of neighboring areas/communities)	2.96

When asked to reevaluate the community impacts measures for checkpoints in urban communities, the order of the rank adjusted slightly. The data is in Table E.5.

Table E.5. Evaluation of Top 10 Community Impact Measures for urban Checkpoints

Rank	Community Impact Measure	Composite Vote Score
1	Crime Rate (of neighboring areas/communities)	8.07
2	Anecdotal Reports of Illicit Activity/Circumvention	6.36
3	Signs of Pedestrian and Vehicle Traffic (Evidence of Circumvention Efforts)	6.29
4	Wait Times (by day & daypart)	5.96
5	Misdemeanor Narcotic Violations (Operation Citation or OA agencies)	5.61
6	Call Rates: Accidents, amber alerts, oa assists, etc.	5.54
7	Property Values (of neighboring areas/communities)	5.46
8	Vehicle Accident Rate Comparisons (at/near checkpoint locations)	4.82
9	Property Damage & Trespass Reports (from Ranchers)	4.64
10	Environmental Impact	2.25

ThinkTank Results Regarding Metrics of Effectiveness

Agents were asked to brainstorm potential measures of effectiveness. Then agents were to evaluate and rank the top 10 metrics. The results are listed in Table E.6.

Table E.6. Evaluation of Top 10 Metrics of Effectiveness

Rank	Metrics of Effectiveness	Composite Vote Score
1	Number of Arrests	9.09
2	Amount of Narcotics Seized	8.09
3	Number of apprehensions in the circumvention zone	6.68
4	% of apprehensions at checkpoint based on estimated base rate	6.32
5	% of apprehensions in the circumvention zone based on estimated base rate	6.09
6	Traffic Circumvention	6.09
7	Increased Effectives of Checkpoint = Increased Seizures near Checkpoint	5.86
8	Number of Arrests for Crimes other than Illegal Immigration or Narcotics	5.41
9	Number of Criminal Organizations Disbanded	4.23
10	amount of raw intelligence that is acquired from a given checkpoint	4.09
11	Operational Hours	4.05

Agents were asked to define measures for deterrence and to rank the metrics useful for evaluating deterrence by checkpoint operations. The top 6 metrics are listed in Table 1.

Table 1. Evaluation of Top 6 Metrics for Deterrence

Rank	Metric	Composite Vote Score
1	% of time that the checkpoint is operational	4.70
2	% of vehicles screened with a K9 on primary	3.90
3	% of vehicles that are inspected / talked to by a border patrol agent	3.70
4	% of circumvention apprehensions to total apprehensions in the checkpoint zone	3.05
5	Altered Behavior of Smugglers due to Checkpoint	2.95
6	Walk-Around Traffic	2.70

F: Interview Summaries

The University of Arizona community impacts team held a series of meetings with stakeholders in Santa Cruz County. These included business and community leaders, small business owners, school district representatives, and local residents of Santa Cruz County. The substance of these interviews, transcribed here as accurately as possible, is included for a number of reasons. Because the thoughts and concerns expressed by stakeholders in the community are the basis of the themes summarized in the body of this report, these transcripts document the basis for these summaries. Further, these transcripts provide information on the number of individuals expressing specific concerns or thoughts with regard to the checkpoint. Finally, it should be noted that the substance of individuals' comments were taken at face value as it was not within the scope of this report to research their accuracy or completeness.

Santa Cruz County Sheriff's Office

Santa Cruz County law enforcement has a positive attitude toward the checkpoint along I-19. The presence of approximately 1000 Border Patrol agents in the county is welcomed because the more favorable ratio of law enforcement personnel to total population has helped to make the community safer. Perceptions about violence due to the proximity to the border are not valid and local citizens' quality of life is enhanced by the good working relationship between federal, state, and local law enforcement. Regular meetings of representatives from all three levels of law enforcement, combined with intelligence sharing, make them all more effective. From the perspective of the sheriff's department, the following observations were made about the I-19 checkpoint:

- The biggest law enforcement consequence of border enforcement and the checkpoint is circumvention. "Bad guys" are pushed into communities with a resulting increase in rip-offs, rapes, assaults, robberies, and shootings. These are mostly directed at the migrants themselves, so communities are still safe but there is a lot of criminal activity directed at migrants and drug smugglers. This activity is a big drain on local budgets.

- The location of the checkpoint also affects the location of circumvention efforts. Ranchers have the most sightings of illegal migrants and traffickers. The location of the checkpoint doesn't affect the NATURE of the cat-and-mouse game--only where the game gets played. The specifics change but the game itself doesn't.

- The cost of illegal immigrants detained in Santa Cruz County largely falls on the county. Most people in county and city jails are Mexican nationals and most of them are in the country illegally. This cost is borne by Santa Cruz County, which leaves less money in the county budget for roads and schools.

- Most of the drug and gang-related violence on the U.S. side of the border goes unreported because it is largely directed at migrants. Neither the cartels nor migrants want contact with local law enforcement.

- There is significant concern that many Border Patrol agents do not live in Santa Cruz County. Instead, they live in Green Valley, Sahuarita, or Marana, which means that the agents don't have a vested interest in the community and that the local economy does not benefit from their presence.

The sheriff's department provided the data with regard to border violence activity between 2007 and 2011. While these data are not directly related to the checkpoint per se, they do provide an indication of impacts on local law-enforcement of illegal activity in the border region related to human and drug smuggling and illegal migration. They also provide an indication of recent trends over time of these impacts. These data are displayed in Table F.1 and Figure F.1, below.

Table F.1. Border Violence Activity

	2007	2008	2009	2010	2011
Armed Robberies	3	10	43	41	94
Homicides	2	1	5	1	
Aggravated Assaults	2	4	2	8	2
Sexual Assaults	1	1	2	5	1
Assaults on Border Patrol Agent	1		5		
Undocumented alien deaths	22	18	25	19	14
Undocumented Alien Referrals				500	

Additional information provided with these data includes:

- 2007: Armed robberies involved firearms and knives. The assault on the U.S. Border Patrol agent resulted in the death of an undocumented alien assailant.

- 2008: Armed robberies involved firearms and knives.

- 2009: Armed robberies included firearms and knives. 15 victims reported being robbed on August 30. 5 additional victims were robbed on September 13. There were 5 assaults on U.S. Border Patrol agents and 1 resulted in the discharge of an agent's firearm. 1 suspect was shot 3 times after throwing rocks at an agent. On August 9, agents were shot at in the Bear Valley area in the Old Town part of Ruby. Of the 25 undocumented alien deaths, 11 occurred in a roll-over accident on June 7.

- 2010: Armed robberies included firearms and knives. There were 9 cases with a total of 41 victims. One person was shot but there were no fatalities. 1 case involved 6 victims where narcotics (marijuana) were taken. There were 5 sexual assaults including the rape of a thirty year-old woman. Of the 19 undocumented alien deaths, 1 was caused by a Union Pacific train.

- 2011: Armed robberies involved 10 cases with a total of 94 victims. Of the 2 cases of aggravated assault, 2 victims were beaten with an AK-47 and another was beaten with a rock. Of the 14 undocumented alien deaths, 11 involved skeletal remains.

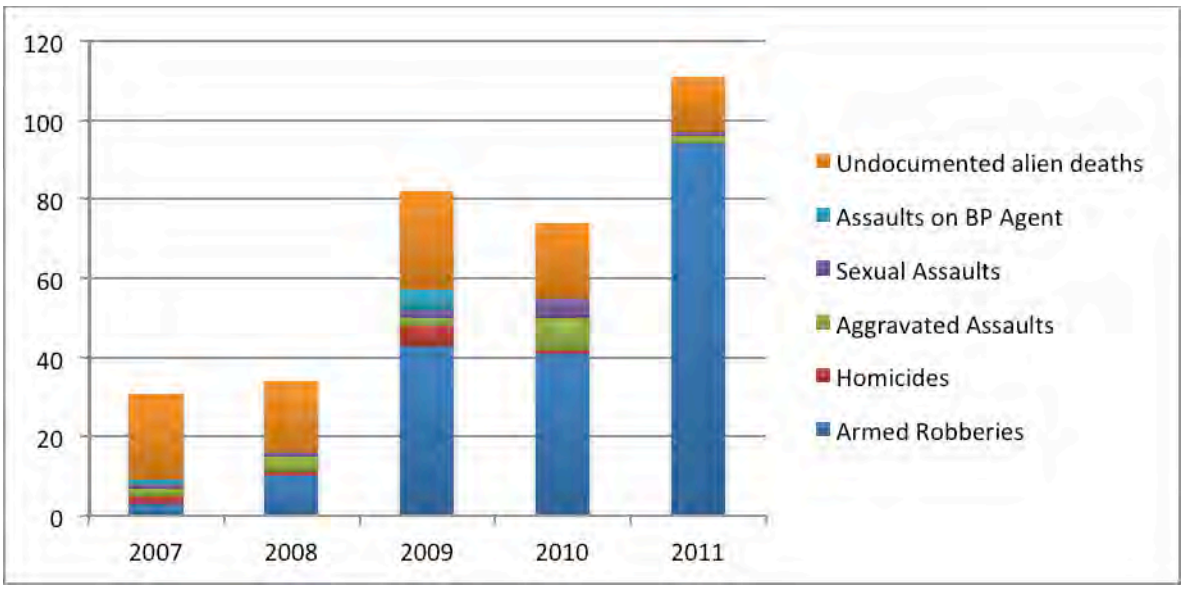


Figure F.1. Border Violence Activity

From the perspective of county drug enforcement officers, the following summarizes observations made about the impacts of the I-19 checkpoint:

- In general, the checkpoint has been a very professional unit.
- The weak economy magnifies the impacts of the checkpoint. There has been a recent increase in the number of stash houses south of the checkpoint because the weak economy has increased housing foreclosures the numbers of vacant houses in the area. Vacant houses are often used as stash houses, and rentals are often to drug traffickers. But it is easier for law enforcement to detect drug traffickers because they tend to show off their new toys—new cars, and so forth.
- Having the location of the checkpoint further north (from the 22 km point) sometimes helps with interdiction because the location of the checkpoint affects the location of stash houses.
- The checkpoint makes drug enforcement easier. The close working relationship between the sheriff's department and Border Patrol means that additional resources are routinely involved when there is movement of traffickers. In addition, having access to federal grants related to drug enforcement eases budgetary pressures.

Tubac Golf Resort and Spa

This meeting was held with the resort's Vice President of Group Operations and Sales. From the perspective of the business, the checkpoint is seen as a mixed blessing because of a tradeoff between safety and economics. The checkpoint seems to have made things safer, but it has hurt economically. The following points were made with regard to the checkpoint's economic impacts:

- Meeting planners deciding where to hold events indicate that having to go through the checkpoint is a real negative and creates significant perception problems for newcomers to the region.
- The resort estimates that they are losing about 10% of their meeting and conference business because of the checkpoint, which translates to a loss of about $200,000 per year. Some of the groups are going to Green Valley instead, which has really hurt the Tubac Golf Resort and Spa's business.

- Guests at the resort frequently complain about having to go through the checkpoint on their way to and from Tucson.

- There has been a big drop in the number of tour busses in Tubac village. Only one was seen one this year, while there used to be 2 to 3 busses per month before the checkpoint.

- People hear about violence in the border region, and the presence of the checkpoint confirms their fears. The big, visible awning is unpleasant to see and sends the message that points south of the checkpoint are more like being back in Mexico, and blurs the border.

- From a safety perspective, however, the checkpoint seems to have helped although the improvements in safety were also linked to SB1070. The following points were made in regard to safety:

- They are seeing fewer visible migrants along the river next to the resort;

- The resort cleans the highways on both sides and they are seeing fewer people walking with dogs with packs loaded with drugs to get around the highway.

It was also noted that, for individuals, the checkpoint creates tremendous uncertainty about the amount of time to allow for going through it. This is problematic with regard to being on time for meetings in Tucson, making flights out of Tucson International Airport, and so forth. Experiencing delays and suspicion from agents at the checkpoint is reportedly not uncommon. One anecdote involved a man being asked by a Border Patrol agent, "Are you an American Citizen?" When the man answered "Yes, in good standing," he was pulled over for an hour. The checkpoint is seen as a big inconvenience for local residents, who report frequent harassment by Border Patrol agents. Locating the checkpoint further south would be much better, and the roving checkpoint was seen as much better.

Esplendor Resort

This meeting, was held with the resort's general manager and marketing director. The general manager is also immediate past chair of the Southern Arizona Resort and Lodging Association. Their thoughts on the checkpoint are summarized as follows:

- The checkpoint is one of many things having a negative impact in tourism in the region. Other factors include publicity about violence in Mexico, SB1070, and the general state of the economy.

- Proximity to the border used to be a positive feature mentioned in Esplendor's marketing materials. That proximity is now a negative, and the marketing team at Esplendor is now focusing on other benefits of the region beyond proximity to the border. The challenge is that perceptions around the country about the dangers of the border region are reinforced and confirmed by the presence of the checkpoint.

- The recession and concerns about violence in the border region means that people are taking "stay-cations" and minimizing travel. There used to be more tourist traffic from Tucson and Phoenix in the border region than at present.

- Esplendor used to get most local government's regional per-diem business. Now they are competing with La Paloma and Miraval.

- A few non-profits, such as Chicanos Por La Causa, make a point of having conferences at Rio Rico because of its location in the border region. However, the location is a big issue for the broader conference market. The checkpoint and problems in the border region have had a large impact on the conference business in Rio Rico.

- The economic weakness of the region due to SB1070 weights more heavily on Rio Rico because the effects are magnified for any economic center south of Green Valley and the checkpoint.

- SB1070 stigmatized the region and the checkpoint reinforces the stigmas of SB1070. Legal foreign national Hispanics in the region don't go anywhere without their legal documents, as they did before SB1070. U.S. citizen Hispanics are being profiled and they object to having to produce documents.

- The best way to summarize the cost of the checkpoint is the 40+ cars at the checkpoint at any time. Delays have a chilling effect on tourism in the region.

Fresh Produce Association of the Americas

The community impacts team met with the Fresh Produce Association of the America's president and director of communications as well as with the Vice President of Food Safety for the Giumarra Companies, a member company of the Association. The Fresh Produce Association represents U.S.-based companies who import produce from Mexico. Nogales is a key POE for these goods so increased enforcement efforts in the region inevitably impact their constituents. Their comments are summarized as follows:

- The area between the U.S.-Mexico border and the checkpoint is a sort of demilitarized zone that keeps people away.

- The checkpoint embodies everything related to security in the border region, and creates a feeling of menace rather than security, causing people who are new to the region to ask, "What am I stepping into?"

- There was a range of concerns expressed related to the checkpoint's impacts on people's perceptions about the region.

- The Association regularly brings buyers into the region from all over the world and these buyers react very negatively to the checkpoint. Analogies have been drawn to Pinochet's Chile and other police states.

- Truck brokers have to compete for drivers and report difficulties in getting trucks and drivers to come to the region to move produce from Nogales into the U.S.. Independent operators, for whom time is money, select other routes to avoid perceived hassles in the I-19 corridor. For example, if there are grapes in Nogales and grapes in California, the perceived logistical hassle causes drivers to choose to go to California.

- The checkpoint makes it more difficult to attract and retain skilled workers. The Association operates in over 12 countries and requires a sophisticated skill set in their employees. People aren't used to being routinely questioned by uniformed officers so the checkpoint makes their staffing efforts more difficult.

- The checkpoint is seen as deterring retirees from purchasing real estate to the south of the checkpoint, and stated that Rio Rico house prices have been falling.

- They expressed a concern that enforcement activity in the region combined with a bias against Hispanics in U.S. agriculture could result in harm to the industry and continued outsourcing to countries where agricultural workers are more readily available.

- They mentioned uncertainty about protocols and said that if there is a problem at the checkpoint, the proper mechanisms for addressing it are not clear.

- While the individuals with whom we spoke do not question the need for security, they wondered why resources were devoted the checkpoint itself rather than "boots on the ground."

- They stated that they do not see as much circumvention in their area, and associate the checkpoint with a diversion of traffic far from the I-19 corridor toward Patagonia.

- They stated that the checkpoint does not pose a serious issue with delays. While delays can be as long as ½ hour, this is not a long enough delay to impact the produce itself, although drivers see it as a significant hassle.

- They stated that the Border Patrol agents are generally appropriate and professional and that the checkpoint seems to be professionally run, although they do worry about "mission creep" and that agents occasionally go beyond immigration enforcement and start becoming produce screeners.

Various Tubac Business Representatives and Community Leaders

The concerns of the Tubac business representatives and community leaders with whom we met echo those expressed by others in the region. These concerns are deeply felt and the University of Arizona community impacts team heard a long list of grievances expressed by a cross-section of the community. The core message was that the region has been negatively impacted by the visible Border Patrol presence, including the checkpoint, both of which have reinforced perceptions that the U.S. border region is unsafe. The enforcement efforts are a significant intrusion on community life that fosters negative perceptions about the region, hurts local business, and fundamentally changes the nature of the community. In addition, a number of comments were made about people being poorly treated by Border Patrol agents at the checkpoint. Comments made by the group can be summarized as follows:

Circumvention

- A key problem with the checkpoint is flanking. Border Patrol's own data indicates that during a specific period, there had been 256 arrests "at" the checkpoint and 1221 arrests "around" the checkpoint.

- Alico Springs is a key flanking area. The road cuts through the national forest, and there is flanking through the national forest onto private property. People who live in more rural areas have seen violence increase as gangs try to intercede migrants who are made to act as drug carriers. The distance from the highway for human deaths is increasing. One person reported that 4 people showed up at his house, two of whom had been shot. These four reported that Phoenix drug gangs had killed 2 other people.

- Enforcement activity along Alico Springs, which is west of the highway, has a balloon effect that pushes the flanking activity east of the highway, resulting in chases through Tubac village. Having a high-speed chase through a tourist area scares people and drives them away.

- Alternative migrant routes include the railroad track and the gas line along the east edge of Tubac.

- In October of 2010, local ranch workers dug up a body. After that, they started getting threats and found a rifle across a bale of hay, so they rented cabins to Border Patrol agents. This helped, but flanking activity is impossible to stop.

- Chavez Siding Road (about 1 mile from the checkpoint) is a very popular area for off-loading drugs and people. The subdivisions affected include Tubac Valley Vistas and Tubac Valley Villages. These are gated communities with 5-acre lots just south of the checkpoint. When people see activity, they call the Border Patrol. The next thing they see is Blackhawk Helicopters, which makes the area feel like a war zone.

- There is a big wash between the subdivisions and the Tubac Golf Resort—right along the north edge of the resort. This is a big traffic area. Green Morris Park, is a public facility that ends up not being used because of its close proximity to the railroad track. Flanking is the problem.

- Smugglers reconnect with their cargo in Green Valley business parking lots.

Reduction in tourism and economic realignment

- The checkpoint is seen as having significantly reduced Tubac's tourist traffic. The view is that Tubac is the only historic village south of the checkpoint and it is being choked off by it. Tucson resorts have cut back on bringing people down to Tubac for the day because of the hassle involved in going back through the checkpoint.

- (Rep. Jim) Kolbe had kept the checkpoint mobile. The more permanent structure has had a big negative impact.

- One shop owner stated, "The tour busses have stopped coming. There used to be tour busses from resorts in Tucson, but they don't want the hassle of going through the checkpoint. With a bus full of people, they have to stop and Border Patrol boards the bus and has to check everyone's documents. At the height of the season, they used to have 3 or more busses per day. Now it's down to maybe 2 per week."

- The same shop owner stated that they had 2 Italian customers with their own planes who informed them they won't be coming back because of what's going on with enforcement in the region and with the checkpoint. Reference was made to a GAO report that stated there were "no findings that there has been an impact on Tubac's economy," but nobody asked the shop owners. There HAS been an impact in the form of fewer home sales, people moving out, and lower retail sales because of fewer tour busses. The general economy has also had an impact, but they (the shop owners) felt the effects of the checkpoint before they felt the economy.

- Customers ask "Aren't you afraid to live here?" When told "No," the customers ask "Then why do they have a checkpoint here? It must be dangerous."

- Because the checkpoint has reduced tourism, the region's economic base has shifted from tourism to the Department of Homeland Security. Thus the federal government, at its discretion, is now a key driver of the local economy. For example, tours of duty used to be 45-day rotations. This was stopped in July, and gross revenues at the Tubac Market (grocery store) and Domino's Pizza declined by 9% overnight.

- Shops in Tubac that are geared to tourism don't benefit from this shift in the local economy. Tubac is hurt because tourism is displaced, but a lot of Border Patrol agents don't live in the area. Instead, they live in Green Valley or further north, so Tubac doesn't benefit from the infusion of people on Border Patrol payrolls.

- Because tours of duty are time-limited, Border Patrol agents are more transient and tend to leave the area when their tours of duty are over. This has resulted in a shift from purchase to rental of homes.

- With real estate sales, people have 72 hours to change their minds. A long wait at the checkpoint during that period has caused people to change their minds.

- One potential homebuyer was said to be "looking in Green Valley because they don't want to be south of the checkpoint."

- There was an accident with a fatality on Arivaca Road. Law enforcement from Santa Cruz and Pima counties as well as Border Patrol were all involved. The multiple jurisdictions result in a large law-enforcement presence that creates a police-state atmosphere. There were 3000 Border Patrol agents three years ago. Now there are approximately 18,000 agents, yet arrests are down.

- The zone between the border and the checkpoint becomes a kind of ghetto. Some people are trapped because they won't go through the checkpoint to get essential services, and the existence of a trapped segment of the population impacts the broader community.

Confusion over documents

- A painter from Tucson who is a legal Hispanic won't go through the checkpoint with his children because they're on his wife's passport.

- There is a big problem of confusion about what documents are needed—whether people should be carrying passports to go through the checkpoint and whether a foreign visitor has to have a passport to go through the checkpoint.

- There is ambiguity and confusion about protocols and rights.

Tubac Area Residents

The concerns expressed by local residents fall into three categories: the nature of their interactions with Border Patrol agents at the checkpoint; confusion about protocols and document requirements; and the location of the checkpoint. Community members' comments and concerns are summarized below:

Concerns related to interactions with Border Patrol agents

- There is a sense that Border Patrol agents' tactics have gotten rougher recently.

- Long-time residents complained of frequently being stopped and brought into secondary screening. When asked why they were being screened, the answer has been something along the lines of, "Because I said so." When asked whether they were under arrest, the answer has been something like, "Yes, you are being detained. I'm going to catch you one of these days," claiming that the dogs hit on the car.

- A number of people voiced concerns about the dogs inaccurately hitting on cars. They believe the dogs hit on food and the officers think it is marijuana.

- One individual reported being taken to secondary screening 3 out of 5 times going through the checkpoint. Another report being screened 1 out of 3 times, stating that it's always the same dog and the same trainer who hit on their car.

- One person reported watching Border Patrol agents make eye contact with each other as a signal to send him to secondary screening. Another person reported being stopped 6 times during the past 6 months. These things are viewed as harassment that inhibits passage through the checkpoint.

- A restaurant owner stated, "The way they (Border Patrol) conduct themselves leaves people shaking." He reported that a Canadian customer who has been living in Green Valley for 10 years came back to the restaurant one evening. He didn't have his passport with him and the Border Patrol agent said, "Next time you don't have your documents, asshole, I can arrest you."

- Other individuals expressed concern about the training that Border Patrol agents receive. They stated that, individually, "agents are nice young men and women, but they don't know what they are protecting. There is a lack of training. They aren't oriented to the area."

- Some expressed concern over what they see as a huge waste of money by the Border Patrol and feel they are building an empire with these permanent structures. There isn't good oversight and the people aren't well trained.

- The Border Patrol claims of effectiveness aren't substantiated. When asked, "Do we feel safer because of the checkpoint?" the answer is, "No."

Concerns related to protocol and procedures:

A number of concerns were raised about procedures and about changes in protocol. These are reported below:

- An individual who has been frequently detained started to walk toward the usual place. The Border Patrol agent stopped him. The individual asked, "Where would you like me to go?" but did not receive answer. When he asked the question a second time, the Border Patrol officer put him in a headlock.

- There is a feeling that there is ambiguity about rights and procedures with regard to things like use of cell phones.

- A person reported being detained and told it would be for 8 to 10 minutes. It turned out to be 45 minutes. His car was driven out of sight with 10 agents surrounding it. It is his understanding that cars are supposed to be searched in sight of its owner.

- Wallet searches occur but are understood to be illegal.

- Community members have received mixed information about procedures for filing a complaint. It is their understanding that they are supposed to be able to do so on-site. One individual reported asking for a complaint form and being told, "We don't have one."

- The checkpoint is presented as legally valid because everyone is being asked the same questions. This isn't true. Not everyone is asked the same questions.

- There is a sense that racial profiling occurs.

- Agents are supposedly going through "politeness training." Some are polite. Others definitely are not.

- When an agent detects nervousness on the part of someone going through the checkpoint, the questions are really inappropriate. A 5-year old was asked about his father's identity.

- *Concerns related to the location of the checkpoint*

- Some individuals were initially against the checkpoint but now believe there is a need for an enforcement presence along I-19. While they are not necessarily opposed to a permanent structure, there was strong opposition expressed to a large structure with barracks and a detention center.

- The location of a permanent checkpoint should consider the impacts on property values and on businesses. The biggest concern is the myriad routes around the checkpoint that allow flanking and make the checkpoint ineffective. Smugglers now use the Patagonia Mountains and other western mountains. People are afraid to leave their ranches since Krentz was murdered and feel that the flanking caused by the checkpoint is a real problem.

- Placing the checkpoint close to communities is a big concern. It affects property values and the businesses south of the checkpoint. Violence south of the checkpoint is not curtailed.

- There are a lot of Canadians living in Green Valley. They don't participate in Tubac's golf tournament because of the requirement to carry a passport through the checkpoint.

- A checkpoint near Amado is a problem because of its proximity to schools and businesses.

Green Valley and Sahuarita Residents

The community impacts team met with representatives from the Green Valley Chamber of Commerce and Tourism office as well as with the minister of a church north of the checkpoint. The minister lives in Sahuarita. Both discussed the impacts of the checkpoint in the region. Their comments are summarized below:

Chamber of Commerce

- There are a lot of visitors staying in the hotels and motels in the Green Valley area. People routinely say they don't feel comfortable having to go through the checkpoint.
- Hispanic workers have to go through two checkpoints (the border and the I-19 checkpoint) to get to La Posada.
- Visitors are concerned about the safety of the border region because of the "go at your own risk" message. This inhibits attempts to bring bi-national Sonora and Green Valley corridors together.
- There is widespread sentiment to put the checkpoint closer to the border in order to keep people out of the desert and prevent deaths.
- The checkpoint is seen as definitely impacting businesses south of it. About 75% of Tubac's business comes out of Green Valley. The checkpoint inhibits this traffic.
- The visibility of the Border Patrol creates a militaristic atmosphere.
- The Green Valley Chamber of Commerce gets a lot of hits on its website asking questions and expressing concern about safety and illegal traffic through the region.
- Flanking does affect communities north of the checkpoint.

Minister

- Some church employees live south of the checkpoint and report that "to go to work is to be harassed." Hispanic church fellows are ALWAYS stopped and are routinely put into secondary screening. The reasons differ but "it's always something."
- One Hispanic family coming to church was detained for an hour.
- Anglo families never know when they are going to be stopped and report having to allow an extra 20 minutes of travel time.
- When the checkpoint was moving around, it wasn't as stringent. Its more fixed status has magnified the more stringent approach.
- The permanence of the building enhances Border Patrol's authority, which slows everything down. The Border Patrol's attitude is "We own this line and we determine how fast this is going to go."
- Lines at the U.S.-Mexico border can take hours. Adding another ½ hour at the I-19 checkpoint can be too much, and some church members have cut their ties with the church. Hispanic families in particular don't want to put up with the harassment.
- The church has youth volunteers from all over the country. They are surprised by the militarization of the region. It's low intensity, but there is this pervasive pressure. Nowhere else in the U.S. do you go the Circle K and see Border Patrol agents checking people's documents in the parking lot.

- The presence of Blackhawk Helicopters has a negative effect on people's psyches. Divorces and family pressures are widespread in the region. The pervasive pressure and tension in the region is similar to that in a low-intensity war zone.

- There is a big presence of Border Patrol agents in Sahuarita because they live there. But they do very little to work with the community. They chase vans onto Sahuarita roads and past schools, but they've NEVER met with school principals or school boards. Migrants run across school grounds, but there hasn't been any discussion of protocols for trying to stop chases along particular roads.

Representatives of Local Schools

A number of community members expressed concern about flanking activity relating to school safety. The community impacts team spoke with local school officials in order to obtain first-hand information with regard to circumvention and enforcement activity near schools. Conversations were held with the Superintendent of Santa Cruz County Unified School District #35—a district with 3400 students encompassing 280 square miles—and with a Communications Specialist for the school district. Four incidents were described.

Incident #1: During the 2011 school year, a woman who was being followed on I-19 by law enforcement officials from the Sheriff's office and Customs and Border Protection came onto school property at an elementary school near Rio Rico Drive where she was arrested. Illegal immigrants were found in the trunk of her car. Fortunately, it was a professional development day and school was not in session, so no students or teachers were on site. The federal agents at the scene told school officials that they had been monitoring the school parking lot due to a suspicion that cars with drugs were being parked on the lot for later pickup. The superintendent met with officials after the incident to express concern that they were not notified of the surveillance. The CBP supervisor denied that the school had been under surveillance. In any event, the school put a fence around the entire school with a gate that is now locked at night to prevent the parking lot's use as a smuggling drop-off point.

Incident #2: Approximately a year ago, there was a lockdown in two school buildings. A group of illegal migrants were being transported by Border Patrol agents and escaped from the vehicle. They run into the neighborhood near the schools. Helicopters were flying overhead and Border Patrol agents were pursuing the migrants in the neighborhoods near the school. The school was locked down because there was a concern that the migrants would flee onto school grounds.

Incident #3: Border Patrol agent Brian Terry's murder occurred in a remote area outside of Peck Canyon. This area is not far from the highway exit used to reach three of the district's schools. While a lockdown did not occur, the schools were on high alert during the incident and their proximity to the incident was a source of concern for parents and school officials alike.

Incident #4: Three years ago there was a drug-related murder near Ruby Road at a drop-house about a mile from a school. A SWAT team came into the school as a protection in case the murderer came onto the campus, and children could not go home until the SWAT team released them. This involved about a one-hour delay in going home.

Because of concerns about circumvention, school officials were opposed to a possible location further south from the current location, which would have put the checkpoint right in the middle of the school district, maximizing the risks of circumvention through school properties. From the perspective of school safety, further north—its current location—is better. However, this has a significant negative economic impact on the region. For the school district, the checkpoint has economic and personnel consequences. For example:

- Any time the district needs something like a new roof for a building, roofing companies from Tucson won't bid on the job because they don't want their employees to have to travel through the checkpoint. Companies south of the checkpoint don't have this problem, but they know that they won't have competition from Tucson companies. This drives prices for the school district up.

- The checkpoint makes it harder to hire and retain teachers. They recruit out of state in Michigan and Washington State. Recently they have been getting a lot of questions about safety. If people have job opportunities north of the checkpoint, they take them.

- Exit interviews confirm that teachers who live in more urban communities (Tucson) take job opportunities north of the checkpoint because they don't want to have to go through the checkpoint every day.

- Since the checkpoint has become more permanent, the bureaucracy has become less responsive to the community. When the checkpoint moved around, there were always 3 lanes open, minimizing delays. Apparently the 2 dogs working the current checkpoint don't like to work together so the 3rd lane isn't opened, in spite of repeated requests from the community that it be opened. The delays magnify the checkpoints impacts on the region.

School enrollments: The district has experienced declines in enrollments since SB1070 was passed and as a result of the checkpoint. Mixed status families have moved out of Arizona, taking their U.S. citizen children with them. This has negatively impacted the district's financing. But, while the checkpoint does bring people into the region to work, most of the agents live north of the checkpoint in Pima County. This hurts Santa Cruz County's finances as well. They would love to have Border Patrol agents' kids enrolled in local schools, and Santa Cruz County would benefit from having their tax dollars spent in locally rather than in Pima County.

Fundamentally, the checkpoint is like a pebble in the shoe. It is a constant irritant that hurts the county economically in all sorts of ways. It erodes the tax base. It hurts tourism, and it results in a militaristic atmosphere that lowers everyone's quality of life.

G: Calculating Smuggling Costs

Obtaining information on the costs of smuggling entails experience in conducting interviews that elicit such information. From our site visits, we learned that Border Patrol agents receive very little training in obtaining additional information beyond the circumstances of the interdiction event. Agents should understand the smuggling hierarchy to accurately calculate smuggling costs, which is beyond what an illegal immigrant pays. The nuances of the different roles in a smuggling operation require training, either through the Border Patrol Academy or in-service training at the sectors.

For example, a true cost to the apprehended illegal immigrant should include the travel from their home state (e.g., in Central America or Mexico) to the border area, smuggling cost across the border, and the cost to travel to the final destination. Some travel by commercial plane and then to the border area in buses or vans. Then there is interaction with the smuggler or coyote to get them into the U.S. from the Mexican border area. Once into the U.S., they must get from the site that the coyote leaves them to their destination city. All of these aspects represent components of the total smuggling costs.

The inquiry with the apprehended illegal immigrant is a nuanced dialog. In some cases, at a checkpoint or between the POEs, the apprehending agent and the processing agent are not the same, so continuity between the on-site questioning and the processing questioning may not occur.

In the case of a drug smuggling event, the potential to have a number of drug smuggling organization members amongst the illegal immigrants, is very common. The roles may include the guide, security, look out, and driver. Each member may get paid different amounts depending on the role's responsibilities. The cost of drug smuggling should include the amount organizations pay their members. An important factor in deriving the overall cost of the smuggling operation is to not only include what is paid to the organization by the illegal immigrant but also the logistical cost of the organization's investment in that drug and/or human smuggling venture.

We recommend engaging agents in the process of detailed debriefings of the apprehended. The resulting accurate smuggling costs can be tracked overtime as an indicator of checkpoint performance. In addition, as costs fluctuate in smuggling areas, Border Patrol and other agencies can use that information to determine the effects of strategically applied enforcement operations. If costs to the illegal immigrant increase, Border Patrol can conclude that applications of a deployed presence, in an area, are measurable indicators of performance improvement.

Finally, the investigative agencies (e.g., HSI, DEA, FBI, HIDTA), through source debriefings, defendant statements, electronic surveillance techniques, and their own statistical analysis approaches, are able to obtain valuable verifiable intelligence on the costs of drug and human smuggling. The use of that information, in combination with Border Patrol's own sourced information, are credibly powerful supplements to Border Patrol data collection methods and concrete validation of Border Patrol measures of effectiveness.

H: Discussion of Selected Methodologies for Estimating Illegal Flow

A variety of approaches and methods have been used in an attempt to quantify the flow of illegal immigrants entering the U.S. Bean and colleagues (1998) identified a number of early attempts based on estimations of the number of apprehensions of Entrants Without Inspection (EWIs) (Bean 1990; Frisbie 1975; Garcia y Griego 1980; North 1975). Bean et al. (1998) point out the inherent flaws in this approach as (1) illegal immigrants who successfully cross the border undetected are not accounted for, and (2) apprehensions do not account for repeat offenders. More recently, Espenshade (1995) proposed a repeated-trials model that captures the "theoretical linkages between apprehensions and flow" of undocumented migrants. Espenshade suggests that undocumented migrants successfully cross the border at a rate 2.2 times the number of INS arrests.

Heer (1979) used population changes in demographic groups of Mexican origin to formulate seven different estimations of unauthorized migrant activity. Estimates by Siegel and Passel (Siegel, Passel, and Robinson 1980) did not corroborate with Heer's findings because the return migration to Mexico was not accounted for in his study. Another approach, commonly used to quantify visa overstays, compared visa entries versus departures (Chapman 1976), however, this method has received criticism (Bean et al. 1998) because some departure paperwork was incomplete or inaccurate.

Another strategy to estimate unauthorized migrant traffic is by using census data. Costanzo (2002) calculated that over 500,000 migrants crossed the border illegally each year between 1990 and 2000. Passel (2005) refined this estimate using Current Population Survey (CPS) data to calculate that between 400,000 and 425,000 migrants enter the country illegally each year.

Additionally, economic models have been used to predict changes in the flow of illegal immigrants to the U.S. For example, the Multiple Indicators Multiple Causes (MIMIC) model has been used to measure unauthorized migration using several variables, including: linewatch apprehensions, non-linewatch apprehensions, labor market conditions, the costs associated with crossing the border, increased coyote prices, higher average temperatures along the southern border, political business cycles, governance in Mexico, and the number of Mexicans legally permitted to enter the U.S.. The results of this study suggest that labor market conditions and the prevalence of border enforcement in a given region significantly impact the flow of illegal immigrants.

A recent proposal outlined four additional methods for measuring illegal border crossings between ports of entry, including: capture-recapture methods, stratified sampling, respondent-based sampling surveys, and synthetic modeling (Morral, Willis, and Brownell 2011). Morral and colleagues (2011) suggest that capture-recapture methods can be used to measure the impact of an apprehension on the likelihood that a migrant will attempt an unauthorized crossing in the future, as well as the frequency of unauthorized crossings between apprehensions. The second method that these researchers described was based on using stratified sampling to estimate the baseline of unauthorized crossings. The third approach was respondent-based sampling that can be used to gather information about migrant populations and activity on either side of the border. Finally, synthetic modeling can be used to incorporate a variety of different economic measures to generate estimates of flow.

Table H.1 summarizes a subset of the methodologies we examined (including the ones discussed above and others) for estimating the amount of illegal flow. In the table, we identify their applicability to checkpoints.

Table H.1. Example Methodologies for Estimating Unknown Populations

Methodology	Applicability to Checkpoints
COMPEX In-depth inspections	• Not legally feasible given time and search restraints
Capture-recapture method	• Not feasible to release illegal individuals when detected • Threaten national security
Survey-driven sampling	• Self-report bias • Inaccurate responses to protect self • Respondent lack of knowledge
Entrants without inspection modeling	• Disregards individuals who make it through the system undetected
Repeat trials model IDENT	• Disregards individuals who make it through the system undetected • Cannot be attributed to a specific checkpoint because smugglers use different routes of egress
Demographic change model Visa overstay model Census-driven modeling Price-driven models Economic models of flow Residual Estimation Multiplier Estimation Crime rates	• Applicable to border security as a whole, but cannot be reliably attributed to checkpoints • Many other factors influence estimate aside from checkpoints.
Red teaming based methodology	• Proxy measure for the amount of illegal traffic passing through checkpoint undetected • Estimate of interdiction rate that can be attributed specifically to checkpoints • Legally feasible • Results in an interdiction rate that is comparable to COMPEX

I: Monte Carlo Simulation for Red Teaming and Interdiction Rate Equations

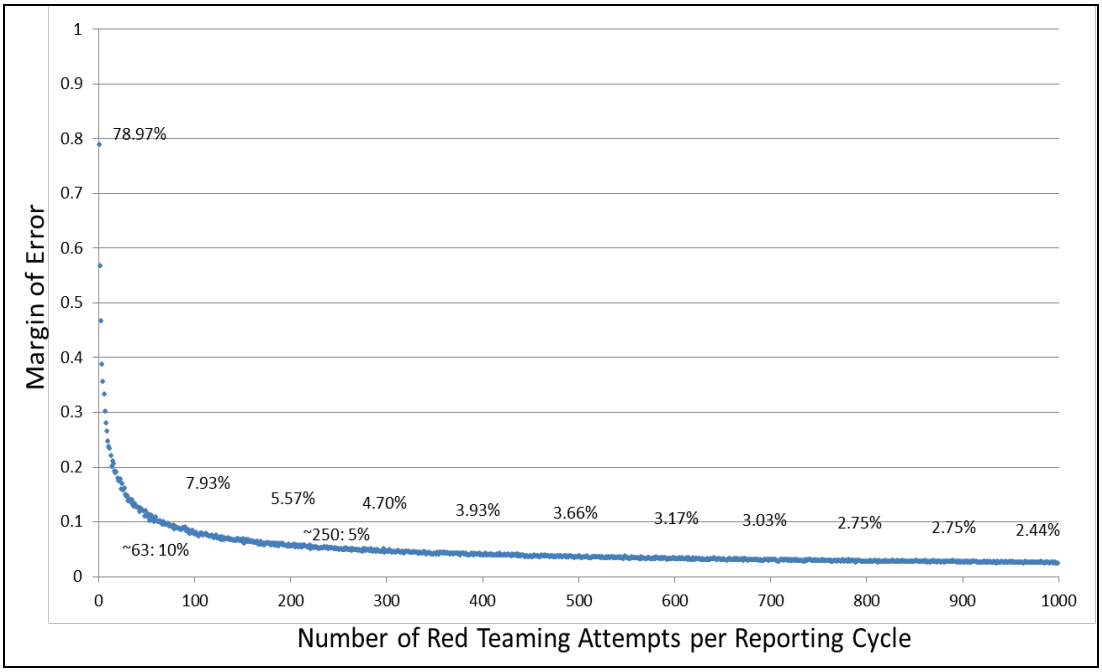


Figure I.1. Margin of errors at a 95% confidence interval

To help the Border Patrol choose the appropriate number of red teaming attempts, we conducted a Monte Carlo simulation with 1000 iterations per each of 1 to 1000 red-teaming attempts, resulting in a total of 1,000,000 iterations. The results for a 95%[3] and 99% confidence interval are shown in Figures I.1 and I.2 For example, let us assume that the Border Patrol wants to calculate the interdiction rate of illegal drugs, false documents, and radiation for checkpoints as a whole across the nation. Furthermore, let us assume that the Border Patrol indicates that a 5% margin of error is acceptable at a 95% confidence interval. To achieve this level of confidence, the Border Patrol would need to have 250 red-teaming attempts for each type of activity (illegal drugs, documents and radiation) randomly at checkpoints across the nation. Increasing the number of red-teaming attempts decreases the margin of error or increases the confidence interval. For example, running 435 red-teaming attempts for each type of red teaming will result in a 99% confidence interval and a margin of error of 5%.

These examples assume that the Border Patrol calculates the interdiction rate for checkpoints as a whole. To calculate the interdiction rate for an individual checkpoint would require the same number of red-teaming attempts for the individual checkpoint.

[3] COMPEX uses a 95% confidence interval for selecting the number of random inspections. This results in roughly 300,000 random inspections (OIG-11-36).

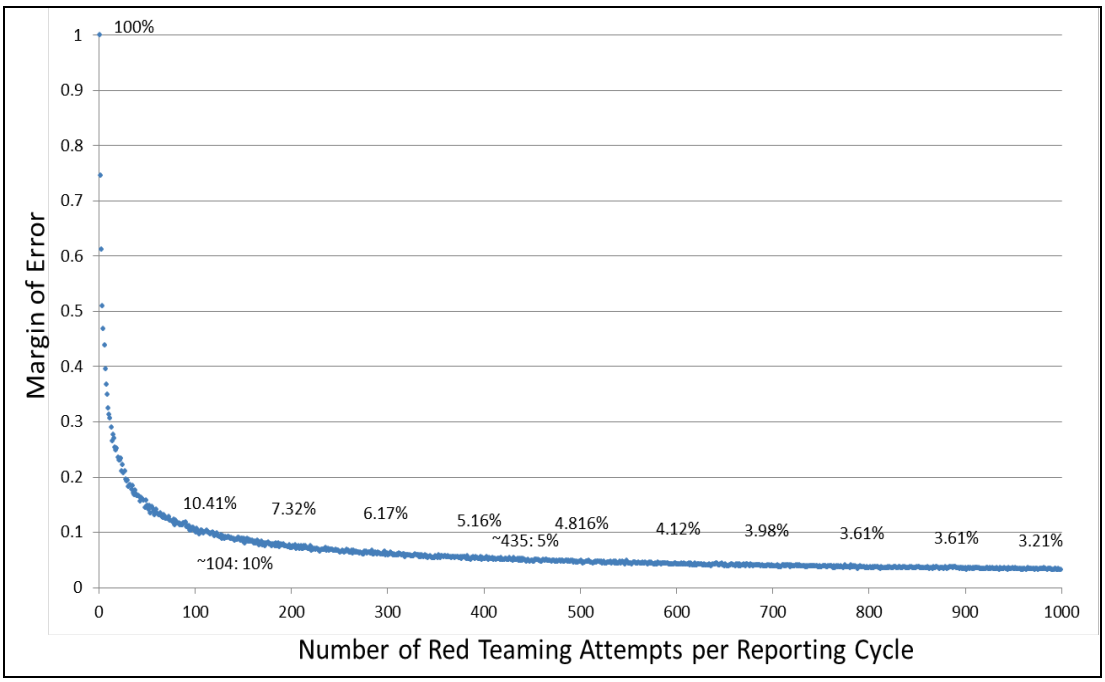


Figure I.2. Margin of errors at a 99% confidence interval

$$\text{Illegal drug interdiction rate} = \frac{\text{\# of interdicted illegal drug red teaming attempts}}{\text{total \# of illegal drug red teaming attempts}}$$

$$\text{False documentation interdiction rate} = \frac{\text{\# of interdicted false documentation red teaming attempts}}{\text{total \# of false documentation red teaming attempts}}$$

$$\text{Radiation interdiction rate} = \frac{\text{\# of interdicted radiation red teaming attempts}}{\text{total \# of radiation red teaming attempts}}$$

Equation I.1. Interdiction rate

J: Simulation User Documentation

This documentation describes some of the basic commands necessary for users to run simulations and view the corresponding output. Screenshots are included that correspond to the commands being described. Please note that even though some screenshots of reports are included, the report values in the screenshots should not be used for analysis since the simulation parameters used for the specific run are not included.

Running the Simulation

By default, a simulation is in a design phase where the parameters can be modified and processes can be changed. Running the simulation uses the model and the configured parameters in order to see how the model works and review metrics. There are several ways to run a simulation.

The initial parameters can be set by using the menu Run > Setup. The "Number of Replications" parameter defines how many times the simulation will be run (see Figure J.1). All results will be output to the final report. This is important because several parts of the simulation are probabilistic—meaning that randomness will influence the final numbers. The probabilistic nature of simulations is helpful in that it mimics the real world, but it can sometimes be troublesome because it can be difficult to determine if a result is merely an outlier or a real concern. Comparing numbers across replications is effective to ensure that the results are reliable and consistent.

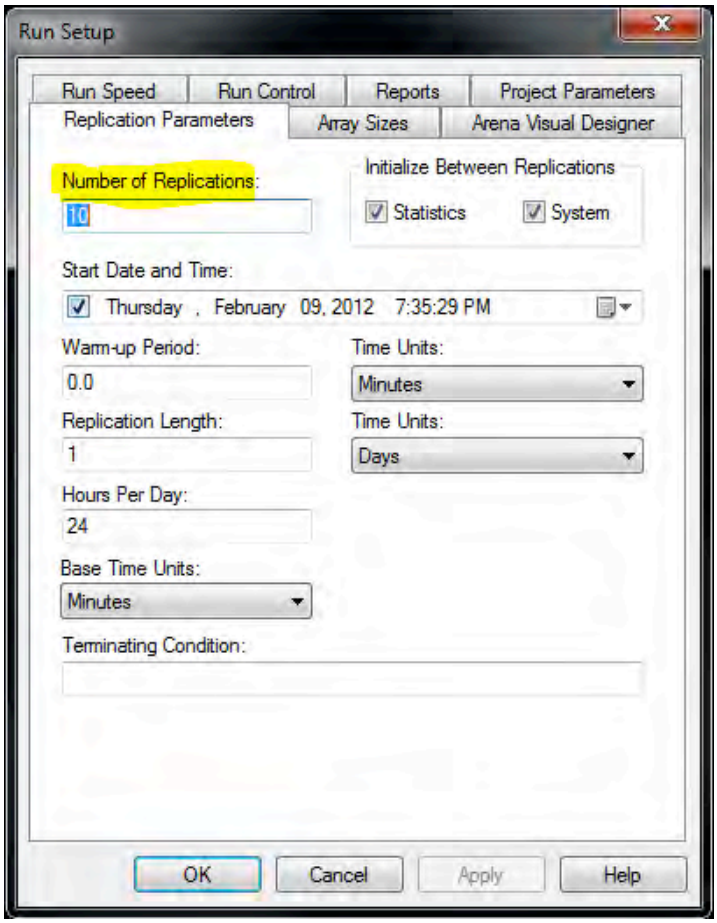


Figure J.1. Run Setup

To start the simulation, click the Play button on the toolbar, or click the menu item Run > Go Figure J.2

Figure J.2. Running Simulation

While the simulation is running, the various vehicle types can be seen going through the checkpoint processes. If the vehicles are proceeding too quickly, the slider control to the right of the Stop button can be used to control the speed of the simulation. Moving the slider all of the way to the left slows down the simulation, and moving it to the right speeds it up (Figure J.3). At slower speeds, individual vehicles can be tracked from the time that they arrive at the checkpoint to when they are free to go or are further detained.

Figure J.3. Speeding Up Simulation

If the simulation takes a long time to run, it can be helpful to click the menu item Run > Fast Forward (Figure J.4). This disables all animations in the simulation and can dramatically speed up processing.

Figure J.4. Fast Forward

After running the simulation, the user will be prompted to view the report. It will nearly always be correct to click, “Yes” (Figure J.5).

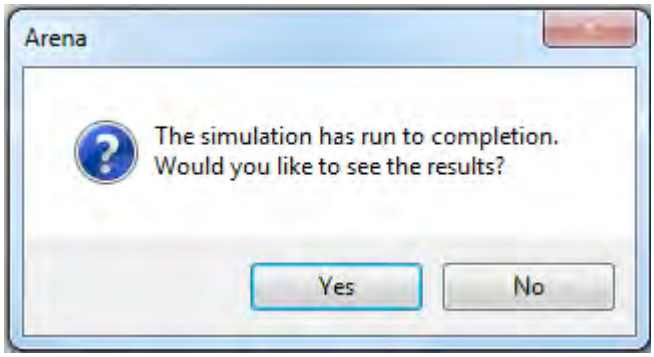


Figure J.5. See Results

If the report has been closed, it can be viewed again by navigating to the Reports tab of the navigation pane.

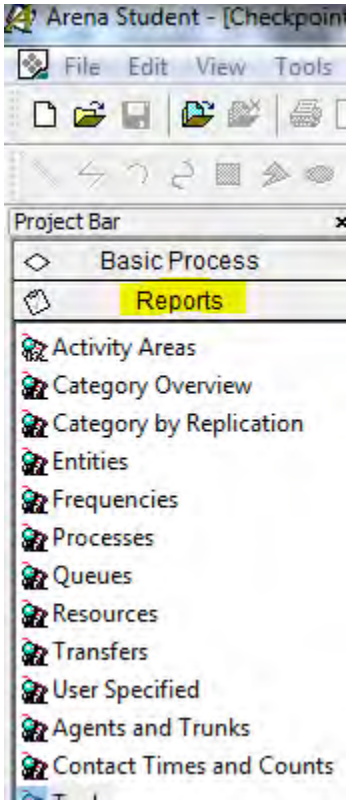


Figure K.6. Report Menu

Important: After running a simulation, it is necessary to click the square "Stop" button, or click the menu Run > End (Figure J.7). This will allow the simulation parameters to be changed. Even if the simulation does not appear to be running, it is technically left in a running state until it is stopped.

Figure J.7. Stopping the Simulation

Interpreting Results

Many of the reported statistics are automatically generated by Arena. The main report is made up of several reports which can be selected in the navigation pane. A report can be opened simply by clicking on the report name. Each report has several sections. In the Preview window, the sections can be expanded to drill down into the metrics. For example, in the screenshot below, the Queues report is opened, and the Primary Lane 2 Queue is selected (Figure J.8).

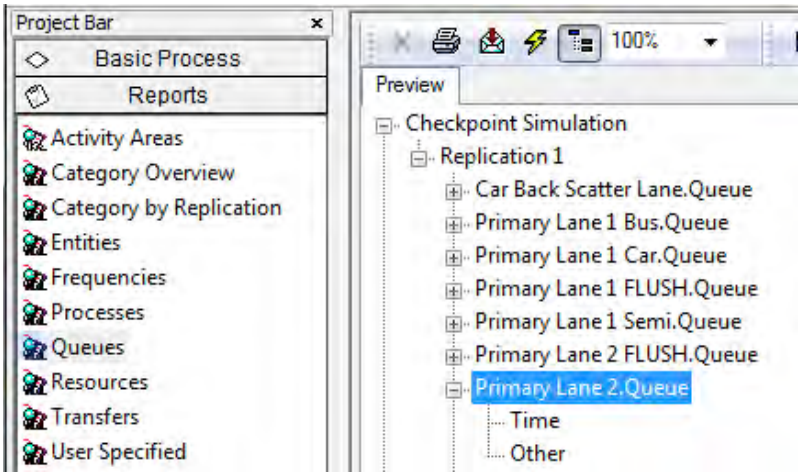


Figure J.8. Previewing Lane 2 Results

The following screenshot shows a portion of the Queues report with some relevant sections highlighted (Figure J.9). Note that the highlighted waiting times in Primary Lane 2 do not show any units. It is necessary to look to the top of the page which shows that the time units are in minutes. Therefore, when this simulation was run, the average waiting time was 0.0078 minutes (0.5 seconds), and the maximum waiting time was 0.175 minutes (10.5 seconds). It is important to understand the time units being used in each report.

Checkpoint Simulation Replications: 1

Replication 1 Start Time: 0.00 Stop Time: 1,440.00 Time Units: Minutes

Primary Lane 1 Semi.Queue

Time	Average	Half Width	Minimum	Maximum
Waiting Time	0.1363	(Correlated)	0	2.0474
Other	**Average**	**Half Width**	**Minimum**	**Maximum**
Number Waiting	0.1034	(Correlated)	0	5.0000

Primary Lane 2 FLUSH.Queue

Other	Average	Half Width	Minimum	Maximum
Number Waiting	0	(Insufficient)	0	0

Primary Lane 2.Queue

Time	Average	Half Width	Minimum	Maximum
Waiting Time	0.00784901	(Correlated)	0	0.1750

Figure J.9. Screenshot of Results

Useful Report Data Locations

As mentioned previously, the reports generated by Arena include a lot of statistics. Some of the statistics do not provide very much useful information because they report on simulation objects that exist solely to make the simulation flow logical. For example, Primary Lane FLUSH Queues were included to count the number of cars that get flushed—not because there is an actual checkpoint queue set aside for flushing. Other statistics, such as number in and number out of the back scatter machine, can probably be ignored. Table J.1 describes some of the most useful metrics, and where to find them in the report.

Table J.1. Metrics, Descriptions, and Locations

Metric	Description	Report Name & Location*
Total Flushes	The number of total flushes of all vehicle types during the simulation period.	User Specified > Counter > Count > Flushes
Red Team Vehicles	The number of Red Team vehicles for documents or drugs that attempted to pass through the checkpoint.	User Specified > Counter > Count > Red Team Vehicles
Maximum Primary Screening Car Waiting Time	The maximum time it took a car to wait for primary screening.	Category Overview > Queue > Time > Waiting Time > Primary Lane 1 Car.Queue
Maximum Primary Screening Car Queue Count	The maximum number of cars waiting in the queue. Note that in lane 1, this does not include buses and semis which also may be in the queue.	Category Overview > Queue > Other > Number Waiting > Primary Lane 1 Car.Queue
Average Time to Clear – Car	The average total time it takes a car to clear. This includes cars that are flushed, cars that are further detained, and every screening that takes place.	Category Overview > Entity > Time > Total Time > Car
Average Time to Clear – Van	The average total time it takes a van to clear. Vans are important to track because all vans are sent to secondary, and therefore can be seen as a view of secondary screen efficiency.	Category Overview > Entity > Time > Total Time > Van

*Note, for brevity, the name of the replication has been omitted from the report name and location. For example, Total Flushes can actually be found in User Specified > Replication 1 > Counter > Count > Flushes.

K: Detailed Description of the Simulated Checkpoint

SIMULATION DESCRIPTION

The simulation was designed to measure a single checkpoint. Metrics for the number and types of vehicles screened, screening times, queue lengths, number of vehicles flushed, and arrests are recorded. A detailed description of the simulation is given below.

Vehicles

Five types of vehicles are created in the simulation:

1. Cars—Regular passenger vehicles, including sedans, mini-vans, and SUVs.

2. Bus—By rule, buses carrying passengers must be sent to secondary so that passengers can provide their documentation. Exceptions are CPB buses.

3. Van—These are commercial livery vans that typically carry small groups of tourists. The simulation dictates that all livery vans must be stopped so that individuals can provide their documentation. This follows procedures observed at the I19 checkpoint, though this process could be changed in the simulation to address procedures used at other checkpoints.

4. Semi—Large trucks that tend to take a long time to traveler through checkpoints due to their large size, slow acceleration, and slow braking times.

5. Red Team Vehicle—Vehicles used for periodic sampling of checkpoint detection rates. The focus of the read team vehicles in this simulation is for immigration violations, not radioactive material. Including this type of vehicle facilitates analysis of the impact of the red teaming recommendation in Phase 4. The default simulation creation schedule does not include any red team vehicles, which essentially means that red teaming can be enabled and disabled easily in the simulation. Though included here as a type of vehicle, they are analogous to regular cars with an additional "red teaming" attribute applied.

In the simulation, vehicles pass through the lanes following a schedule that follows real world observations of checkpoints. For example, little traffic is lowest around 2AM, and peaks around 2PM. This allows potential wait times and queues to reflect actual checkpoint conditions.

Primary Screening

There are three primary screening lanes open by default. For simulation purposes, a fourth lane can be opened, and individual lanes can be closed. Following checkpoint practices, Primary Lane 1 (the left-most lane) is designated for semis and buses so that they do not visually block screening activities. Other vehicle types are allowed in any of the lanes.

All vehicles are screened in primary (except in cases of flushing). The length of the screening depends on the vehicle type. The screening times are randomized around observed vehicle averages. For example, it takes between 10 and 40 seconds for a semi to go through primary screening, with an average of 26 seconds. Cars take between 1 and 12 seconds to go through primary screening, with an average of 6 seconds spent per vehicle. In primary screening, all vehicles are sniffed by K9s. In the simulation, a constant 1% of vehicles sniffed by K9s trigger a hit, which causes those vehicles to be sent to secondary screening.

In this example, Flushing occurs when more than 50 vehicles are queued. In this case, vehicles will not be screened, but will pass through the checkpoint without stopping.

Secondary Screening

Vehicles sent to secondary have to wait in the secondary queue before being screened. Often, there is no queue in secondary. However, if the secondary queue is too long, vehicles are flushed. It should be noted that secondary flushing was built into the simulation for analysis purposes only—this practice was not observed at any checkpoint.

There are three potential outcomes of secondary screening:

1. Free to go. The simulation dictates that 90% of vehicles that pass through secondary will be free to go with no additional actions required.

2. Backscatter. A backscatter does a thorough check for drug compartments. It can take several minutes for agents to perform a scan. The simulation requires a backscatter scan for 8% of vehicles sent to secondary.

3. Arrest. The simulation stipulates that 5% of people who are sent to secondary are detained for violations. This number can be changed to accommodate variations in checkpoint processes. For example, all livery vans are stopped at the I19, which might increase the total number of vehicles inspected and detentions in secondary, but lower the rate at which people are detained.

Arrests

The time it takes for a detainee to be processed is recorded. Red teaming arrests are recorded separately from others. It is estimated that it takes between 8 and 45 minutes to perform an arrest, with an average of 20 minutes.

LIMITATIONS

Because checkpoints are dynamic systems, the simulation had to be built with the core functionality, so some checkpoint processes are not accounted for. However, the simulation covers the vast majority of time spent by agents in their duties, so it is believed that overall the simulation results is reliable.

The following situations are some of the limitations:

- Individuals in vehicles. The simulation tracks vehicles, but not how many people are in those vehicles. Currently, either an entire vehicle is detained, or nobody is detained. However, buses and vans can contain a number of individuals. It is feasible that only one or two people in a large crowd are accounted for.

- Radioactive material detection. Periodically, CPB will send nuclear material through checkpoints to determine detection rates by agents. Because this process is infrequent, it does not significantly affect overall operating times, and was therefore left out of the simulation.

- Personal Radiation Detection (PRD). Agents equipped with PRD devices may have to respond to alerts and clear devices 5-10 times per day. This process is not modeled in the simulation.

L: Simulation Technical Documentation

Detailed instructions on how to work with Arena will not be given in this section. Instead, some of the more complicated parts of the model will be explained in detail, with the rational for each choice. Also, the data values and assumptions underlying the model will be detailed.

SIMULATION FILES

Each simulation is composed of multiple files with different file extensions Table L.1.

Table L.1. Arena File Extensions

File Extension	Example	Description
.doe	Checkpoint.doe	This is the main Arena simulation model file. This file automatically creates other Arena files listed below when the simulation is run. This is the file that should be opened within Arena.
.p	Checkpoint.p	An arena program file.
.mdb	Checkpoint.mdb	This is a Microsoft Access Database that stores information about each run of the simulation. It is used to generate the reports.
.err	Checkpoint.err	This file contains errors in the simulation. Errors should be corrected prior to running the simulation. In most cases, Arena will prevent users from running simulations that contain errors.
.opw	Checkpoint.opw	This is a model components file that lists the various resources and schedules used in the model. It should not be edited manually.
.out	Checkpoint.out	This is a SIMAN output report file. Essentially, it is a text file subset of the report that is generated in Arena.

When working with the simulation, it is usually a best practice to make a copy of the current simulation and do all changes in the copy. This is important because all pending changes are automatically saved when the simulation is run. This could cause somebody to accidentally make a change to the baseline model and cause confusion.

It is advisable to make a backup of the official simulation models by zipping them and storing them in a safe location. This baseline could be restored if there were any question about which version is the official version.

SIMULATION LOGIC

Lane Selection

The simulation looks at several factors when determining which lane a specific vehicle will go in. All semis, buses, and vans go in lane 1. This is so that they do not block the visibility of the other lanes. Other vehicles have discretion as to what lane they enter. If an agent is scheduled for lane 2, lane 3, or lane 4, other vehicles will analyze the current queues, and find the shortest wait. The logic of the simulation

provides a sort of load balancing that mimics the decision making that people naturally do when approaching a checkpoint.

Flushing in Primary Screening

At certain checkpoints, driver safety is compromised when preprimary queues get too long. This can happen if there is limited visibility that causes risk of drivers not being able to stop in time before reaching the queue. In our simulation, the determination of whether or not to flush rests on primary lane 1. Because the larger and slower vehicles tend to accumulate in lane 1, it has the greatest risk of causing a flushing scenario. The simulation will flush vehicles until the queue is under the safety limits identified by agents.

SIMULATION VALUES

Certain values are coded into the simulation. These values are meant to reflect values that could be observed in the field. These values would likely need to be modified for individual checkpoints, as their specific traffic flows and detection rates could vary.

Suspicion

Suspicion can indicate a variety of things: a K9 detecting the scent of drugs, an agent suspecting a problem with immigration documents, or an agent detecting radioactive material. In the model, 1% of vehicles that pass though the checkpoint will trigger suspicion, and be sent to secondary screening.

Secondary Full

In some cases, it is conceivable that a backlog of cars in secondary screening could create a hazard for checkpoint operations. To that end, a flag to indicate if secondary screening is too full was built into the model. If there are two cars already waiting for secondary screening, the simulation will flush vehicles that would have gone to secondary screening. Figure L.1 displays where this logic is located in the simulation.

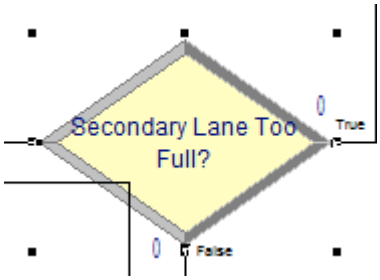
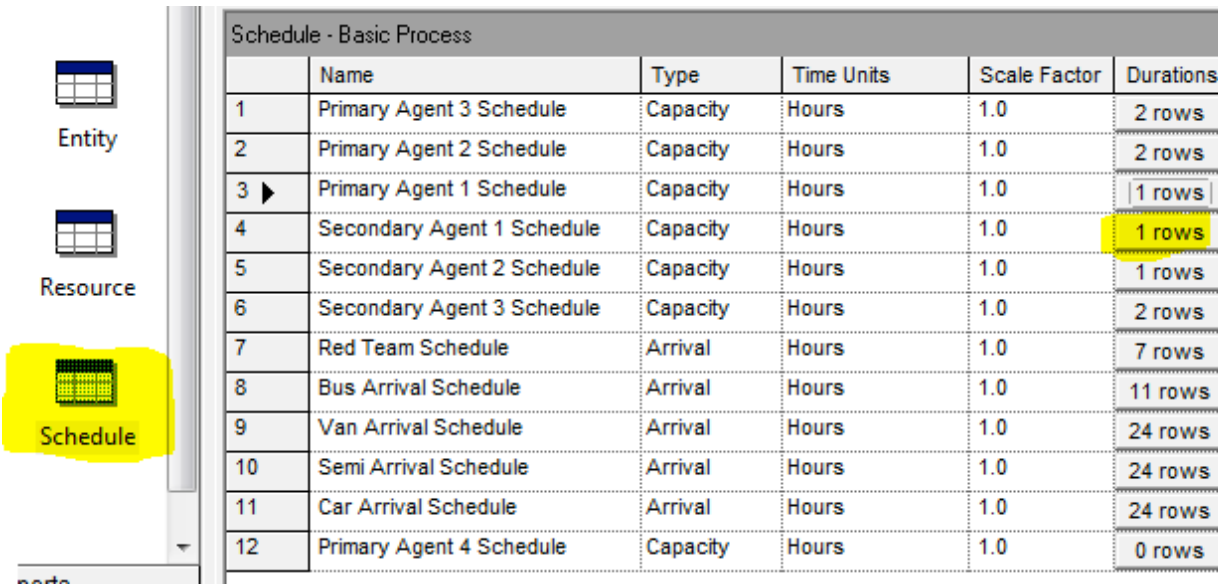


Figure L.1. Secondary Too Full Decision

SCHEDULES

The schedules determine when agents are available to work at their posts, and the rate at which vehicles arrive at the checkpoint. In Arena, the schedules can be viewed and modified by clicking on “Schedule” in the navigation pane, then clicking on the rows button on the corresponding schedule. Figure L.2 displays the schedule in Arena.



Schedule - Basic Process

	Name	Type	Time Units	Scale Factor	Durations
1	Primary Agent 3 Schedule	Capacity	Hours	1.0	2 rows
2	Primary Agent 2 Schedule	Capacity	Hours	1.0	2 rows
3	Primary Agent 1 Schedule	Capacity	Hours	1.0	1 rows
4	Secondary Agent 1 Schedule	Capacity	Hours	1.0	1 rows
5	Secondary Agent 2 Schedule	Capacity	Hours	1.0	1 rows
6	Secondary Agent 3 Schedule	Capacity	Hours	1.0	2 rows
7	Red Team Schedule	Arrival	Hours	1.0	7 rows
8	Bus Arrival Schedule	Arrival	Hours	1.0	11 rows
9	Van Arrival Schedule	Arrival	Hours	1.0	24 rows
10	Semi Arrival Schedule	Arrival	Hours	1.0	24 rows
11	Car Arrival Schedule	Arrival	Hours	1.0	24 rows
12	Primary Agent 4 Schedule	Capacity	Hours	1.0	0 rows

Figure L.2. Resource Schedule

Primary Screening Agent Schedules

- Primary Agent Lane 1: 24 hours a day
- Primary Agent Lane 2: 6am to 11pm
- Primary Agent Lane 3: 7am to 10pm
- Primary Agent Lane 4: not scheduled in the baseline model. This was added to facilitate the analysis of adding another lane.

Secondary Screening Agent Schedules

- Secondary Agent 1: 24 hours a day
- Secondary Agent 2: 24 hours a day
- Secondary Agent 3: 10am to 10pm

Vehicle Arrival Schedules

- Car: Ranges from 34 to 547 per hour
- Bus: Ranges from 0 to 5 per hour
- Van: Ranges from 3 to 44 per hour
- Semi: Ranges from 5 to 84 per hour
- Red Team: Ranges from 0 to 2 per hour

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