Dr. Elyse Golob
Executive Director
National Center for Border Security and Immigration, University of Arizona
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"Moving the Line of Scrimmage: Re-Examining the Defense-in-Depth Strategy"

Chairman McSally, Ranking Member Vela and Members of the Subcommittee, thank you for giving me the opportunity to testify regarding Border Patrol's defense-in-depth strategy with a focus on interior checkpoints. My name is Elyse Golob and I am the Executive Director of the National Center for Border Security and Immigration (BORDERS) headquartered at the University of Arizona. As a DHS Center of Excellence from 2008 – 2015, BORDERS was funded by the Science and Technology Directorate, Office of University Programs. As a Center Emeritus, we continue to conducted research on border security, trade and immigration with funding grants from DHS, NSF, DOD, IARPA, the Canadian Border Services Agency (CBSA) and Frontex, the European Union border management agency.

In 2011, the U.S. Border Patrol asked BORDERS to evaluate a U.S. Government Accountability Office (GAO) review of the agency's traffic checkpoints. Our findings and recommendations were published in the 2014 report, "Checking on Checkpoints: An Assessment of U.S. Border Patrol Checkpoint Operations, Performance and Impacts".[1]

BACKGROUND

The U.S. Border Patrol operates traffic checkpoints on interior U.S. roads to interdict and deter unauthorized immigration, contraband smuggling, and terrorism. In 2009, the GAO evaluated checkpoint operations[2] and, as a result, recommended that the Border Patrol implement improvement in four areas:

1. Data Integrity and Quality - Establish internal controls and management oversight to ensure the accuracy, consistency, and completeness of checkpoint performance data.

2. Community Impacts – Examine the impact that checkpoints have on the quality of life in local communities.

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[1] Jenkins, J., J. Proudfoot, J. Marquadson, J. Gans, E. Golob, J. Nunamaker, 2014. *Checking on Checkpoints: An Assessment of U.S. Border Patrol Checkpoint Operations, Performance, and Impacts.* http://borders.arizona.edu/cms/sites/default/files/checking-on-checkpoints_2014-09-09.pdf

2 See *Checkpoints Contribute to Border Patrol's Mission, but More Consistent Data Collection and Performance Measurement Could Improve Effectiveness*, U.S. Government Accountability Office, GAO-09-824, August 2009, www.gao.gov/products/GAO-09-824.

3. Performance Models and Measures - Evaluate the usefulness of a checkpoints by comparing rates of apprehension and seizures to undetected illegal activity passing through the checkpoint.

4. Managerial Tool Development – Determine the optimal number of inspection lanes needed at checkpoints based on current and predicted traffic volumes, and assess required staffing needs.

In 2010, U.S. Border Patrol asked BORDERS to conduct an independent and objective assessment of checkpoint operations to respond to GAO's comments. We received funding of $500,000 to undertake this study. Our research team consisted of three faculty members and six doctoral students.

During the course of the study, we were assigned a point of contact at Border Patrol, Office of Strategic Planning, Policy and Analysis, submitted bi-monthly reports and met periodically with headquarters personnel for briefings, clarification and feedback.

The final report was released in 2014.

METHODOLOGY

To conduct a comprehensive checkpoint assessment, we gathered and analyzed information from several sources:

Site visits. We visited 17 checkpoints in five Border Patrol Sectors on the southern and northern borders, including permanent and tactical stops.[3] These included the San Diego, Tucson, El Paso, Rio Grande Sectors on the U.S. – Mexico border; and the Swanton Sector on the U.S. – Canada border.

At each site visit, the sector chief briefed us on the current threats and developments. We also examined the checkpoint's layout, infrastructure and technology; observed on-going operations, including primary screening and secondary screening; and interviewed agents.

Apprehension data. The Border Patrol provided us with cleansed apprehension data from its e3 data-collection system (2006–2011) and from the Checkpoint Activity Report (CAR) system (2007–2011).

[3] Along the U.S.-Mexico border, we visited five checkpoints in the San Diego Sector (located at Temecula I-15, Rainbow, San Clemente I-5, Hwy 94, and I-8), four in the Tucson Sector (Arivaca Rd, I-19, SR 80, and SR 90), four in the El Paso Sector (I-10, White Sands Hwy 70 – MM 198.5, Alamogordo Hwy 54, and US 180), and two in the Rio Grande Sector (Falfurrias and Kingsville). Along the U.S.-Canada border, we visited two checkpoints in the Swanton Sector (I-87 and the Massena Station tactical checkpoint).

Specifically, we received data for 26 variables (a subset of the data in the e3 system) related to apprehended individuals, including (a) location and time of arrest; (b) manner, time, and location of entry into the United States; and (c) citizenship of the individual arrested, whether the individual was smuggled in, and, if so, the cost to the individual to be smuggled in. We received several data sets from the CAR system containing checkpoint profiles, referrals, apprehension counts, seizure counts, and operation hours.

Community data. We conducted interviews with community members and stakeholders in surrounding areas to identify the quality of life impacts of checkpoints
We analyzed circumvention rates and real estate sales data (2009 – 2012) in communities north and south of the checkpoint to determine its impact on local communities.

Performance Measures. We undertook an in-depth review of potential methodologies to estimate illegal flow and provide a baseline for checkpoint effectiveness.

Managerial Tool Development: Using commercially available software, we developed a simulation model of a checkpoint to assess resources and staffing needs to meet current and future traffic demands.

FINDINGS AND RECOMMENDATIONS

1. Data Integrity and Quality

Data integrity and quality are measured by the accuracy, consistency, and completeness of the collected data. To evaluate the data collection protocols at checkpoints, we examined data from the e3 system and the Checkpoint Activity Report (CAR) module.
The e3 is an internal system used by agents to process and record data about apprehended individuals, such as apprehension location, smuggling information, and the date and time of apprehension. The CAR report contains checkpoint operational and infrastructure data, including checkpoint profile reports, number of apprehensions and seizures, operational hours, and personnel. We also used the information gathered during the site visits better understand data collection processes.

Findings. We found that while data integrity and quality have substantially increased since the 2009 GAO assessment, there were aspects of data collection and management that still need improvement.

Specifically, we found that the e3 data had errors in the data fields for apprehension latitude and longitude, entry manner, smuggling method and cost, distance from port of entry (POE), and entry date and time. In the CAR data set, we found errors in the checkpoint profile records. (See Appendix A).

Recommendations. To address these shortcomings, we recommend that the Border Patrol implement changes in agent training, correct past errors in data entry, and improve the current e3 system to include real-time alerts for questionable data, drop-down menus and automate data entry of certain fields.

Agent training. We recommend that the Border Patrol provide refresher courses on how to enter data and why data quality is important.

Correct past errors. We recommend that Border Patrol run automated scripts on these data to correct transposed apprehension latitude-longitude data and inconsistent labels for entry manner.

e3 system. We suggest several improvements to the current interface:

a. Automatic alerts – available if the apprehension latitude-longitude entry is not within the agent's assigned sector, the smuggling cost is exorbitantly high, or the miles from POE" is abnormally high.
b. Drop-down selection box – available for for fields such as "entry manner."
c. Automated data collection - allowing agents to transfer the apprehension latitude and longitude from their GPS devices directly to the e3 system, and automatically calculating the distance from POE based on latitude and longitude data.

2. Community Impacts

While our aim was to identify and measure the impacts of checkpoints on nearby communities, it quickly became apparent that no one checkpoint could encapsulate all possible effects. Since the type and magnitude of impacts differ by the local factors such as size, population, economic base and terrain, we sought a case study that could provide a generalizable approach.
We selected the checkpoint along U.S. Interstate 19 (I-19) between Tucson and Nogales, Arizona, as a case study (see Appendix B), as it captured several major factors including traffic volume, proximity of communities, economic diversity and a mountainous topography.

Located on a 25-mile north-south artery, the I-19 checkpoint affects both commercial and personal traffic. It bisects several long established communities to its south and north. To the south, lie Tubac (4 miles), Rio Rico (10 miles) and Nogales (on the border) with a combined population of 41,000. To the north, are the communities of Amado, Green Valley and Sahuarita with a total population of 55,000. The principal economic engines of the region are real estate, tourism, mining, farming, and ranching. The corridor is located in a mountainous region, with mountains to the east and west.

For the study, we interviewed representatives from the Santa Cruz County Sheriff's Office, Tubac Golf Resort and Spa, Esplendor Resort, Fresh Produce Association of Americas, various Tubac business and community representatives; residents of Tubac, Green Valley and Sahuarita; and local schools officials. We found consistency in the perspectives of this wide range of individuals with regard to the checkpoint.

These concerns can be grouped into three broad categories: (1) *circumvention impacts* with attendant public safety and law-enforcement costs; (2) *inconvenience impacts* deriving from unpredictable wait times and risk of secondary screening for those who travel through the checkpoint; and (3) *economic harm impacts* deriving both from changing public perceptions about the dangers of the border region, including a decline in housing prices and tourism.

Findings

1. **Circumvention impacts.** The presence of the checkpoint may cause those engaged in illegal activity to attempt to circumvent the checkpoint. This circumvention, often referred to as flanking, pushes drug and human smuggling into neighborhoods and creates public safety problems in communities both south and north of the checkpoint. Community members have experienced high-speed chases through neighborhoods, Blackhawk helicopters deployed near population centers, school lockdowns, and similar disruptions.
   Our statistical analysis of apprehension data before and after the I-19 checkpoint began operations (2009- 2012) showed that while circumvention impacts are experienced by communities north and south of a checkpoint, they are disproportionately borne by communities that lie south of the checkpoint.
2. **Inconvenience impacts.** Virtually all community members south of the checkpoints reported missed meetings or airline flights due to the unpredictable wait times. Others believed that Hispanic citizens were subject to racial profiling. .
   In many instances, it was difficult to quantify these impacts. Further research is needed.
3. **Economic harm impacts.** Residents expressed concern that the checkpoint's presence contributed to the perception that the border region is dangerous, which in turn negatively impacts tourism and hurts real estate values.
   Regarding tourism, it was difficult to disentangle the effects of the general economic downturn, negative publicity from SB1070, and the impacts of the checkpoint itself.

A regression analysis of real estate price data in communities south (Tubac-Rio Rico) and north (Green Valley) of the checkpoint, provided marginally statistically significant evidence of downward pressure on housing prices. However, since the available data was limited and it was difficult to isolate the checkpoint's impacts from those of the housing crisis and other economic conditions, these results must be seen as suggestive, rather than definitive.

Recommendations. Our analysis identified a variety of quantitative measures of a checkpoint's impacts on surrounding communities, and we recommend that Border Patrol consider regularly examining them. These include:

Analysis of apprehension data relative to the roads or highways on which a given checkpoint is located, which provides a statistical measure of circumvention activity.

Analysis of real estate prices in adjacent communities to gauge the impact of the checkpoint on the housing market.

Analysis of local law enforcement referrals to Border Patrol, which provides an additional indication of circumvention activity around a checkpoint.

Analysis of enforcement activity around schools including data on school lock-downs, which provides a measure of circumvention activity specifically affecting children.

3. Performance Models and Measures

The GAO report recommended that Border Patrol develop a model that compares apprehensions and seizures to the total level of illegal activity passing through checkpoints undetected. Since this baseline is unknown and cannot be extrapolated from available data, we explored proxy measures of total flow that could measure checkpoint effectiveness.
Findings: We found that most practical, accurate and unbiased approach to get an realistic approximation of the checkpoint's effectiveness in deterring illegal activity is through "red teaming."

A red team is "a group of subject matter experts of various appropriate disciplinary backgrounds who provide an independent peer review of plans and processes; acts as the adversary's advocate; and *knowledgeably role-play the adversary, using a controlled, realistic, interactive process during operations planning, training, and exercising*"[4].
Red teaming has been successfully deployed in other agencies, including the Federal Aviation Administration (FAA), the Department of Defense (DOD), and the National Nuclear Security Administration. It is currently used at Border Patrol checkpoints to measure the accuracy of radiation detectors.

In a checkpoint context, red teaming would be carried out by actors knowledgeably role-playing the adversary in an attempt to bypass checkpoint security carrying false documents, illegal drugs, radiation (i.e., proxy for nuclear weapons), or other illegal items. The rate at which red team actors are detected at checkpoints will allow the Border Patrol to calculate an interdiction rate for illegal activities.

Red teaming would provide the Border Patrol with valuable information, including: (a) accuracy rates of detecting illegal activities during red teaming, (b) measurable indicators of how resource allocation influences this accuracy rate, (c) objective and quantitative baselines of a checkpoint's detection accuracy rate to gauge improvement over time, and (d) focused areas of improvement for checkpoint operations

Recommendations. We recommend that the Border Patrol:
Calculate an interdiction rate of illegal activity through red teaming. Our report provided guidance to ensure valid and reliable red teaming including 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 and understanding safety issues.

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[4] Homeland Security Exercise and Evaluation Program, 2007, B-26.

4. Managerial Tool Development

The 2009 GAO report emphasized the need to consider traffic volume and needs assessment in allocating resources to checkpoints. To address this, we created a checkpoint simulation and visualization tool to help the Border Patrol make informed resource allocations, conduct workforce planning needs assessments, and determine the number of open inspection lanes (see Appendix C).

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:
Adopt a checkpoint simulation model to analyze current and expected traffic volumes to determine the number of inspection lanes at checkpoints; and determine workforce needs.

SUMMARY

Our report provided addressed the recommendations made in GAO's 2009 report. Specifically, it provided recommendations that can aid Border Patrol in (1) continuing to improve the consistency, accuracy, integrity and completeness of data in the e# and CAR module systems; (2) better assessing the impact of checkpoint on surrounding communities; (3) evaluating the performance of checkpoints on detecting illegal activity, and; (4) making more informed resource allocation decisions.

ATTACHMENTS

Appendix A. Data Integrity and Quality

Appendix B. Community Impacts

Appendix C. Managerial Tools

Appendix D. Dr. Elyse Golob, Resume

APPENDIX A. DATA INTEGRITY AND QUALITY

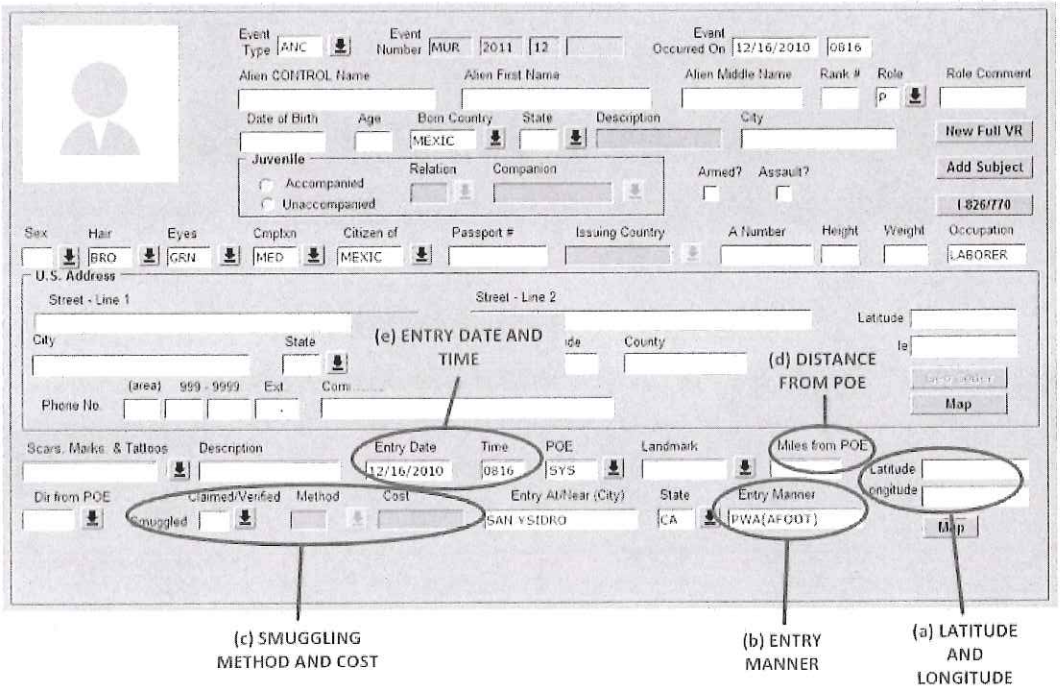

Figure 1. Data entry screen for the Border Patrol's e3 system

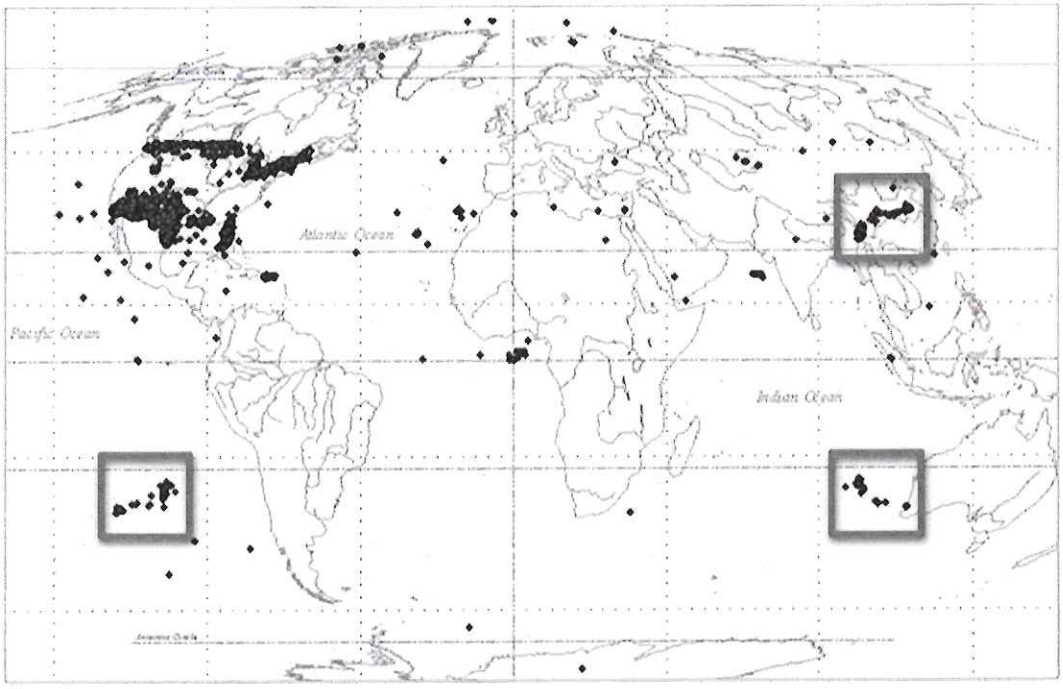

Figure 2. Plotted apprehension latitude and longitude data

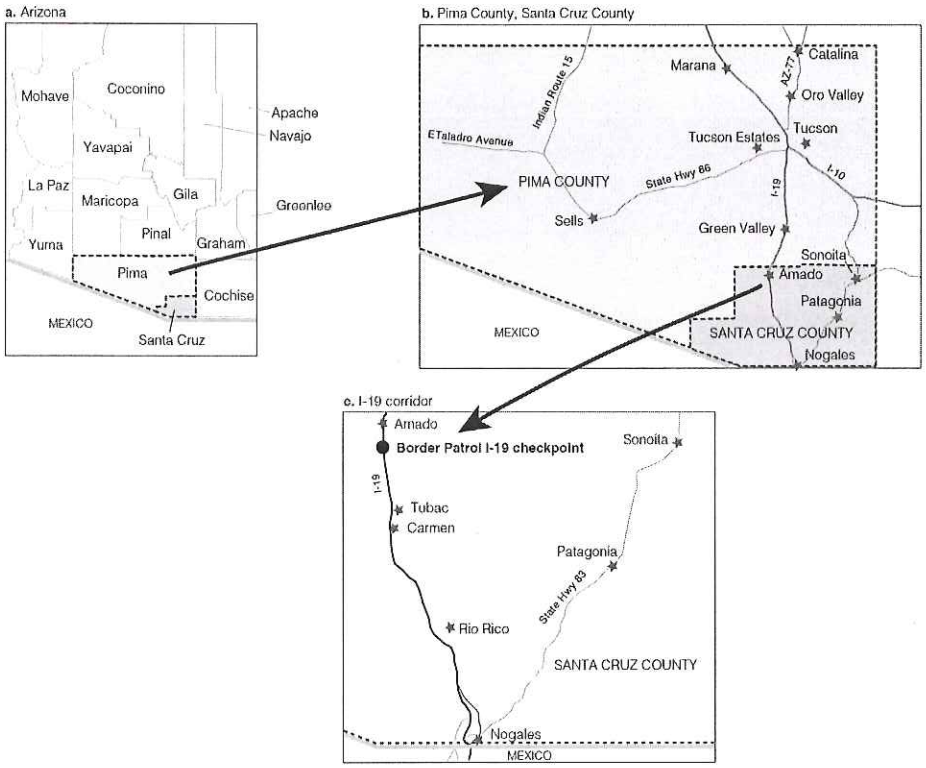

Figure 3. Location of the U.S. Border Patrol I-19 checkpoint (Source: GAO 2009, 70)

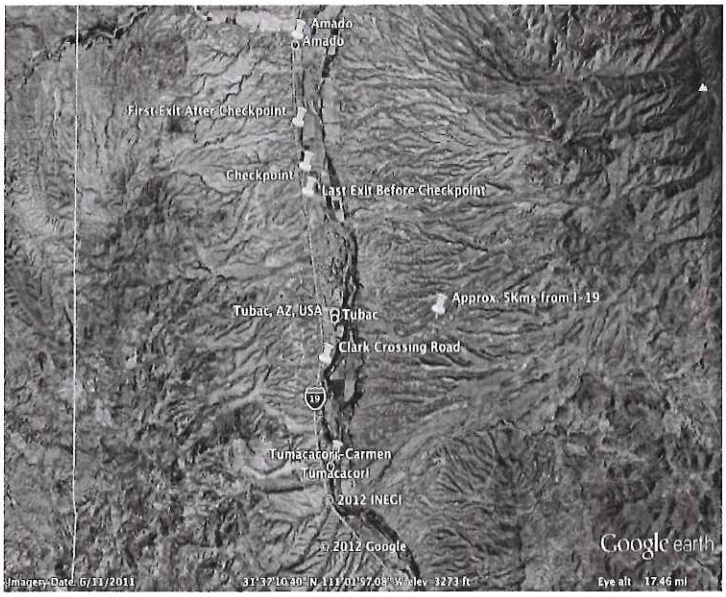

Figure 4. Google Earth map of region with key landmarks

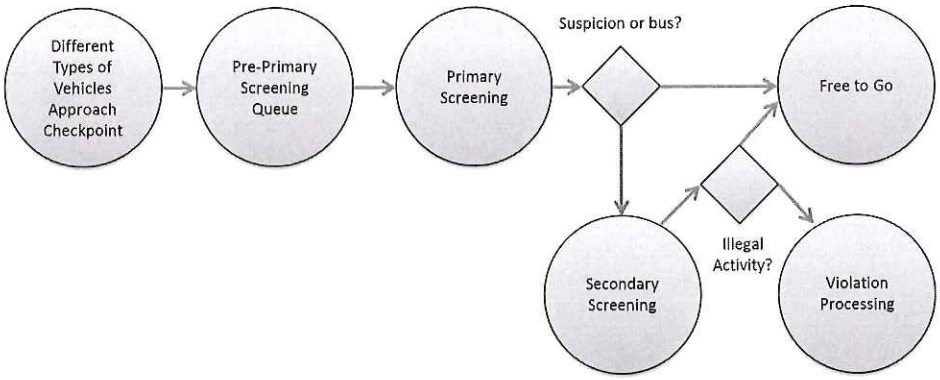

Figure 5. Overview model of simulation of Border Patrol operations

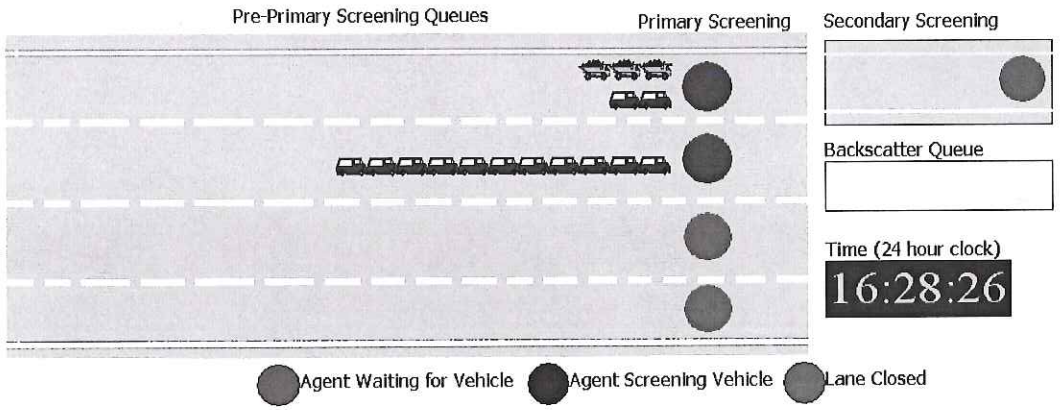

Figure 6. Simulation visualization