Origin-Destination of U.S.-Bound Visitors from an Arizona Port of Entry

2017 ITE Western District Annual Meeting
June 2017

Presented by:
Michelle Beckley, EIT
Lee Engineering, LLC
Project: Sierra Vista Metropolitan Planning Organization Origin-Destination Study

Project Owner: City of Sierra Vista
Study Objectives

The objective of the study was to analyze visitor trends and identify strategies to increase cross-border tourism and stimulate economic development in southeastern Arizona.

- Trip purpose (employment, shopping, dining, medical care, etc)
- Trip origin and destination
- Trip duration
- Popular destination stores and restaurants (and which are desired)
- Planned expenditure while visiting cities in Arizona
- Other demographic and traveler information
Study Objectives

Traveler Surveys and Focus Group Interviews

Origin-Destination Analysis using ARID Technology
Background
Study Area
Study Area
Traveler Survey

- Primary Residence
- Frequency of Border Crossing
- Primary Trip Purpose
- Destination within US
- Anticipated Expenditure in US
- Retail/Dining Preferences
Traveler Survey

- The majority of border-crossers (83-92%) lived within Agua Prieta, the town in Sonora that borders Douglas, Arizona.
- Only 1-2% of drivers indicated they live in another Mexican state outside of Sonora.
- Most survey respondents indicated that they cross the border five or more times per week.
- Shopping was the most popular trip purpose.

<table>
<thead>
<tr>
<th></th>
<th>Wave 1 (Summer)</th>
<th>Wave 2 (Fall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shopping</td>
<td>70.6%</td>
<td>50.7%</td>
</tr>
<tr>
<td>Work/Business</td>
<td>14.1%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Family/Social</td>
<td>10.9%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Medical</td>
<td>0.6%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Vacation/Tourism</td>
<td>2.1%</td>
<td>0.8%</td>
</tr>
<tr>
<td>School</td>
<td>1.5%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Other</td>
<td>0.1%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
Traveler Survey

• Over three-quarters of cross-border visitors (76%-81%) spend less than five hours in the US per trip

• The average expected expenditure in Sierra Vista was greater than the average of other Arizona cities

• Between 5-10% of respondents indicated someone in their household (including themselves) had visited the Canyon Vista Hospital in Sierra Vista within the past 24 months
Focus Group Interviews

• 19 out of 20 participants indicated shopping was their primary trip purpose for visiting Arizona

• 60% of participants indicated they had crossed the border more than 10 times in the last 60 days

• Competition for retail spending exists within the study area

• Retail in Douglas vs. Retail in Sierra Vista
Focus Group Interviews

- Currency Exchange
- Cultural Acceptance/Spanish Speaking Personnel
- Suggestion for Direct Bus Service
ARID Wi-Fi Origin-Destination Analysis

**Anonymous Re-Identification Device (ARID)**

Technology used to matches anonymous MAC addresses from discoverable electronic devices (e.g., smartphones) to determine travel time along a roadway segment.

Inclusive of both Bluetooth™ and Wi-Fi technologies.
Six devices temporarily installed across the Sierra Vista regional area created a network of possible routes from the Douglas POE.
ARID Wi-Fi Origin-Destination Analysis

Origin-Destination Results Based on Average Weekday (M-F) Matches

Legend

- Wi-Fi Device
- The Mall at Sierra Vista

1. Douglas
2. East of Sierra Vista
3. South of Sierra Vista
4. Benson
5. North of Sierra Vista
6. Tucson

Note: The percentages are shown in terms of “final” destination. If a vehicle passed through Benson (4) to get to Tucson (6), the vehicle is counted in the Tucson percentage only, as Benson was not their “final” destination.
ARID Wi-Fi Origin-Destination Analysis

Origin-Destination Results Based on Average Weekend (Sat-Sun) Matches

Legend
- Wi-Fi Device
- The Mall at Sierra Vista

1. Douglas
2. East of Sierra Vista
3. South of Sierra Vista
4. Benson
5. North of Sierra Vista
6. Tucson

Note: The percentages are shown in terms of “final” destination. If a vehicle passed through Benson (4) to get to Tucson (6), the vehicle is counted in the Tucson percentage only, as Benson was not their “final” destination.
## ARID Wi-Fi Origin-Destination Analysis

<table>
<thead>
<tr>
<th></th>
<th>Average Duration of Sierra Vista Visit (between entering and exiting detection)</th>
<th>Average Travel Time from Wi-Fi Device to Downtown Sierra Vista</th>
<th>Estimated Average Time Spent in Downtown Sierra Vista</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travelers accessing Sierra Vista using Route from <strong>1-2 (SR80/SR90)</strong></td>
<td>3 Hours 17 Minutes</td>
<td>11 Minutes</td>
<td>2 Hours 55 Minutes</td>
</tr>
<tr>
<td>Travelers accessing Sierra Vista using Route from <strong>1-3 (SR80/SR92)</strong></td>
<td>3 Hours 52 Minutes</td>
<td>8 Minutes</td>
<td>3 Hours 36 Minutes</td>
</tr>
</tbody>
</table>

Average Time Spent in Downtown Sierra Vista: 3 to 3.5 hours
Principal Findings

• Most cross-border visitors are coming from the Mexican border town of Agua Prieta

• Shopping is the most popular trip purpose

• Most visitors spend less than 5 hours in the Arizona

• Preference for Spanish-speaking personnel

• Bus service between Douglas and Sierra Vista is desired
Principal Findings

• Considering only five regional destinations from the Raúl Héctor Castro POE, the majority of vehicles travelled through the Wi-Fi device east of Sierra Vista.

• More cross-border trips pass through or visit Sierra Vista than those who completely bypass Sierra Vista.

• The Wi-Fi data analysis concluded that the average visitor spends approximately 3 to 3 ½ hours within Sierra Vista.
Recommendations for MPO

• Promote existing retail options and upcoming sales, preferably in Spanish-language materials

• Foster awareness of Spanish-speaking personnel at retail and dining establishments

• Establish regularly scheduled express bus service between Douglas and Sierra Vista

• Provide currency exchange opportunities in Sierra Vista