IMPACT OF PAPAL VISIT ON TRANSPORTATION SYSTEM OF US-MEXICO BORDER CITIES

Sushant Sharma Luis David Galicia

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Transportation Operations Group

Special events

- High levels of congestion as attendees overload streets and highway network
- Negatively affect surrounding traffic operations
- Perceived impacts of special events
- Impact varies by type of special event, geography, supply constraints, and demand uncertainty



Manage Traffic During Special Events

- Published guidelines
 - State departments of transportation
 - Metropolitan planning organizations
 - Transit Agencies
- Interagency coordination and interoperability for special events



Pope Francis' Visit

- Pope Francis' visit to various cities in the United States in September 2015
 - Washington, D.C.
 - New York
 - Philadelphia
- Managing transportation system and Moving people in an urban area
- Complexity, Uncertainty Gridlock traffic Predicted



Pope Francis' Visit to Juárez

(17th Feb 2016)





Pope Francis' Visit to Juárez

- Rare international event on the US-Mexico border with unknown impact
- Different from Recent Pope Visits
 - Unique transportation system of El Paso
 - Group travel involved crossing the border
 - Multiple LPOEs in El Paso
 - Tolls and No Tolls on Bridges







Transit Arrangements





Questions

- How will this event impact transportation system in El Paso and Juárez?
- How will the performance of freeways, state routes, and major arterials get impacted?
- How many pedestrians will travel across LPOEs to see the pope, and how will this number compare to pedestrians crossing on a normal weekday?
- When will pedestrian traffic peak? What would be the duration of the span?
- Which LPOE will experience the maximum pedestrian traffic due to the mass gathering?



INRIX Data





Data Collection





Data Collection

- Pedestrian Data: Passive infrared pedestrian counters
- Transit Data: Ridership
- Social Media Data: Twitter Feeds



Performance Measures

- Travel Time
- Buffer Index
 - Additional time to ensure on-time arrival
 - Buffer Index of 0.4 means that, for a 20-minute average travel time, a traveler should budget an additional 8 minutes (20 × 0.4 = 8 minutes) to ensure on-time arrival most of the time.
- Comparative Speed
 - Speed as a percentage of the historic average speed for a particular time of day and day of the week.



Corridors Selected





Section of I-10 (9-miles)



15

Section of I-10





Travel Time Reliability on I-10



US-62 (Paisano Dr.)



US-62 (Paisano Dr.)



US-62 (Paisano Dr.)



TX-20 (Mesa Street)



TX-20



TX-20



I-110 and US-54





I-110 and US-54





Land Port of Entries (LPOEs)



Land Port of Entries (LPOEs)





Stanton Bridge LPOE





Stanton Bridge LPOE



BOTA LPOE





BOTA LPOE



PDN LPOE



All LPOEs



Transit – BRT Route



nsportation

nstitute

Transit- All Routes









Ga ane.

Sources: Esri, DeLorme? NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri-(Thailand), TomTom, 2012



TWITTER ANALYSIS

#papaenmexico, juarez, elpapaenjuarez, 915pope, popevisit, pope, papa, francis, juarez, chihuahua, elpapaenjuarez, elpaso,popeinjuarez, papaencdj, pope915, papaenmexico, papaenmex, papaenméxico, juárez, elpapaenjuárez, popeinjuárez and papaenméx.



Twitter Analysis

Twitter HashTag Analysis















Conclusions

- Demand and supply interaction during special events can also lead to unexpected low congestion.
- Real and perceived supply constraints for traffic led to the low usage of private cars.
- People relied on public transit and walking, while many may have chosen to watch the televised event at home.
- The travel time reliability was high on all major corridors compared to any day.



Recommendations

- Develop a demand responsive incremental approach for implementing countermeasures and staffing.
- Flexible approach may be more cost-effective way of addressing a special event given the demand uncertainty.



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