

santiago chile IBTTA Technology Workshop November 12-14, 2006

IBTTA International Bridge, Tunnel and Turnpike Association

PBS&I

ORT: Conversion Rather than Green-Field

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Outline

- Why
- When
- How
- What
- What else
- What now

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Why Convert to ORT?

“Mr. Gorbachev, Tear Down This Plaza!”



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Why Convert to ORT?

- To improve traffic congestion relief and/or bring toll equity...

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Why Convert to ORT?

- High capital construction costs and unacceptable congestion
 - Inadequate Right of Way to add conventional lanes,
 - Inadequate space between interchanges for an express-lane plaza,
 - Frequency of interchanges requires too many tolling points to consider conventional plazas.



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Why Convert to ORT?

- To improve safety of motoring public and toll collectors by eliminating stopping at plazas,
- To improve air quality by eliminating queuing of stop and go vehicles,



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When Convert to ORT?

- When operations costs for video tolling and violation enforcement can be passed on to video customers and violators.
 - Motivate customers to use transponders
 - Capture incremental video processing costs:
 - Image processing (US25¢ or more each),
 - Lookup costs depending on government agreements and data quality / need for supplemental services,
 - If these are captured, video tolling doesn't cost more than electronic toll collection tolling... or does it?

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When convert to ORT?

- When considering costs, must also consider leakage:
 - Intentional violators
 - Rejected credit cards
 - Missing or illegible license plates
 - Interoperable toll accounts
 - Unusable images
 - System errors and "other" circumstances

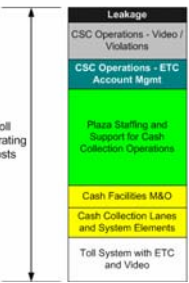


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When convert to ORT?

- When toll collection operating costs for ORT decrease to the existing level of operating costs with cash plazas.

With Cash Plazas



Without Cash Plazas



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How Convert to ORT?

- Engineering decisions and details
 - Maintain original throughput
 - Safety of work zone
 - Net affect of greater throughput on downstream interchanges / roadways

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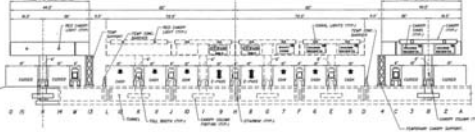
What?




- In the beginning...



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What?



Phase 1 pm traffic:				
	Southbound		Northbound	
	Oct 2002 Volumes	Capacity	Oct 2002 Volumes	Capacity
	1,480	1,500	2,490	3,000
	240	0	260	550
	730	900	860	900

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What? **PBS**

- Phase 1 construction:



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What? **PBS**


- Phase 2 construction:



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What? **PBS**

- Phase 3a construction:



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What? **PBS**

- Phase 3b construction:



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What? **PBS**


- Phase 3c construction:




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What? **PBS**

- Completion!



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What else? 

- **May be time to replace system along with civil / traffic improvements:**
 - Systems age more quickly than physical facilities
 - Network standards and data storage requirements are much larger
 - Multi-lane ORT lanes may warrant a different technology approach than “a high-speed dedicated lane.”

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What else? 


- **Need to locate vehicle across a wide area in multi-lane free-flow. Consider each ORT lane a single toll lane:**
 - One lane control, AVC & video set per lane,
 - places greater reliance on read-zone accuracy
 - OR
 - Treat entire roadway toll zone as one lane:
 - One lane control, AVC & video set per toll zone, w/
 - Lateral vehicle detection by signal / video triangulation.

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What else? 


- **Need for video for audit of ORT lanes / toll zones:**
 - Ability to easily check classification issues
 - Were the tag-indicated and detected classifications correct?
 - Did the system correctly override a tag classification?
 - Ability to check transaction disposition
 - Did the correct transactions trigger the correct video image capture?
 - Ability to see the source of errant data such as ghost vehicles, if any.

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What now? Abandoned Cash Facilities 

- Valuable real estate, already with data and power and often off-expressway access,
- **May support operations functions such as:**
 - Roadway maintenance vehicle storage,
 - Material, sign and traffic control device storage,
 - Accident recovery sites or other police support.
- **Older plaza lanes could conceivably be used for tag sales, or**
- **Demolish the old plaza lanes and use the site for a mini-mart service plaza.**

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Thank You