MINUTES
International Bridge, Tunnel and Turnpike Association
Board of Directors Meeting
June 19, 2014
(By Conference call)

IBTTA Board members present: Gerry Carrigan, Buddy Croft, Andy Fremier, Samuel Johnson, Kristi Lafleur, John McCuskey, Peter Merfeld, Tim Stewart, Chris Tomlinson, Chris Waszczuk.
IBTTA Staff: Neil Gray, Pat Jones. **Guests**: Bill Brownsberger; Michael Catolico (ROSC); James Hoffman; Tom Knuckey, Chair, Roadside Operations Subcommittee; Dave Kristick, Chair, Interoperability Committee; Carol Kuester; Mark Muriello; Suzanne Murtha (ROSC); Ted Osinski; Matt Russell; Richard Somerville;
Conrad Welzel.

Introduction
The purpose of the call was to have a high level discussion on the progress of the work of the IBTTA Roadside Operations Subcommittee efforts to achieve nationwide ETC interoperability.

IBTTA Executive Director and CEO Pat Jones called the meeting to order at about 11:05 a.m. (EDT) and introduced Dave Kristick, Chair of the IBTTA Interoperability Committee. In turn, Dave introduced Tom Knuckey, Chair of the Roadside Operations Subcommittee (ROSC) who provided a review of the group's work and actions to date and planned activities going forward. His briefing followed a PowerPoint presentation, provided with these minutes. Following is a summary of the discussion.

IBTTA ROSC Areas – subtasks and leaders
- IOP Requirements Document – Bob Redding
- Protocol Support – Matthew Russell
- Economic Cost Analysis – Michael Catolico
- Certification and Testing – Suzanne Murtha

ROSC Meetings – 21 since July 2013
- Approximate $250K in committee member volunteer service
- Adoption of work plan – January 2014

Conducted a North America Survey on IOP – Fall 2013
- To acquire info to support the metrics for developing the cost model
- For assessing the current protocol technologies in current operation
- Effort made to reach out to non-IBTTA operators
- Web and paper based Survey issued in mid-October
    - 55 Responses from 130 surveyed
    - All major US Toll Operators responded
    - $9.5 Billion from 5.1 Billion ETC transactions, 45 Million active tags, over 7,000 ETC lanes

National Toll Protocol (NTP) Requirement Document
- Development began summer of 2012
  - Use existing proven protocols, based on user needs
  - Draft Document published 11/26/13
  - Not a Protocol Specification, defines equipment needed to meet NTP IOP, **uses existing proven protocol**
  - Gathered Comments from IOP steering committee
  - Conducted RFI with vendors and follow ups, March and April 2013
  - Edits and updates made
- **Final Document Submitted to the Steering Committee 6/4/2014 for approval**

Next steps:
- Steering Committee vote on Requirements Document
- IBTTA Board Adoption of Requirements Document
  - Needed before selection of protocol for testing
- Determination of Candidate Protocol(s) for Proof of Concept testing
  - Process developed by ROSC
  - Estimated duration 3-4 months

NIOP Protocol Testing
- Test Approach being developed – ROSC and OmniAir
  - NIOP Protocol and various local protocols
  - Proof of Concept test planning
- Lab and Field testing
  - Lab testing simulation with slot cars
  - 3 Protocols in lab, 2 in field testing – plaza and ORT
  - Up to 6 local protocols
- Results provided to Steering Committee and Board for Adoption

Summary of Open Issues
- Adoption of NIOP Requirements Document
- Adoption of Protocol Selection Process
- Acceptance of what meets "Open Protocol" Definition
- Commitment for Funding of Testing
- NIOP cost work still being refined

Focus of Future Meeting Calls - Subcommittee Progress Reports
The subcommittee chairs will participate in these future board briefings to give an update of their progress to date and needed future efforts.
- Wednesday, July 16, 11 a.m. EDT: Back Office
- Friday, August 22, 11 a.m. EDT: Communications, Policy and Governance

Questions, Answers and Comments

Question: When do you envision the board would review the requirements document and approve it?

Answer: It is to be shared with the IOP Steering Committee in July before the AET workshop in San Diego. It would then be shared with the Board of Directors in advance of the Austin Annual Meeting in September.

Question: there may be some protocols in use that don't meet the requirements because they are too slow – what happens to them?

Answer: We want the Steering Committee to approve only protocols that meet the requirements document.

Samuel Johnson suggested that the steering committee and industry have input on the check list and the process. Slide 14.

Question: Has there been any legal advice offered on FRND? (Fair, Reasonable and Non-Discriminatory - intellectual property licensing). We don't have a large knowledge base on this. Discussion around slide 15.

NIOP Protocol Selection

15

- **Determination of Candidate Protocol(s) for Proof of Concept testing** - 3rd – 4th quarter 2014
  - Meets Requirements Document
    - Steering committee defined "OPEN"
    - How do we determine protocol meets Open Protocol requirement? (eg IAG, 6C, SeGo?)
      - IBTTA Attorney?
      - Commitment from vendor(s)?
      - Other?

June 2014 Board of Directors Meeting - Roadside Operations Subcommittee Status Update

It was suggested that we consider involving an intellectual property attorney.

Discussion about Slide 16.

NIOP Protocol Testing

16

- **NIOP Protocol Testing**
  - Test Approach being developed – ROSC and OmniAir
    - NIOP Protocol and various local protocols
    - Proof of Concept test planning
    - Lab and Field testing
      - Lab testing simulation with slot cars
      - 3 Protocols in lab, 2 in field testing – plaza and ORT
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June 2014 Board of Directors Meeting - Roadside Operations Subcommittee Status Update

If we don't arrive at just one protocol, then we have more work to do.

Question: Explain the use of slot cars for testing purposes.

Answer: Slot cars would be for lab testing only. Using slots because we think we can get high speeds (real) up to 100 mph. Those devices that prove themselves in lab testing would then move on to field testing.

Discussion about Slide 17:

NIOP Protocol Testing

17

- **NIOP Protocol Testing**
  - Lack of Funding commitment threatens entire NIOP ROSC program
  - ROSC identifying updated cost options for Steering Committee
    - Funding levels sets testing approach
    - Currently $1.5 -$4 M estimate
  - Commitment for Test Funding should be obtained before Protocol Selection is made
  - Options for Funding
    - Self – Agencies, IBTTA
    - Outside – Federal, pooled state funding, pooled vendors

- **Certification Process (2015 – on going)**
  - Omni Air administered
  - Vendor participation for funding

June 2014 Board of Directors Meeting - Roadside Operations Subcommittee Status Update

The absence of commitment to funding would threaten the whole testing process. Test estimates: $1.5 to $4 million. We're up to about $3 million for our current test plan. Funding is a big concern as we move closer and closer to the testing element.

Suzanne. When OmniAir does certification for 6C, we are focused on the needs of the specific users. It's a little more specific than the IEEE.

Discussion of Costs

Michael Catolico. These data represent an order of magnitude rather than a hard cost number.

Slide 19. How the half billion dollar investment is distributed among the various protocols.

Slide 20. We don't know what the demand is for national interoperability. Commercial fleets, yes. But what is the timeline, when does the investment occur? Two key questions: what does it cost the industry to upgrade? What are the savings the industry will realize by migrating to national protocol?

There being no further business, the meeting was adjourned at about 12:05 p.m. (EDT).

Respectfully submitted,

Patrick D. Jones
Executive Director & CEO