Business Rules for National Interoperability Version 1.01 FINAL

LAST UPDATE: MAY 2019

ABSTRACT

This document contains the business rules established to support National Interoperability.

These business rules may be revised from time to time as agreed to by the parties to National Interoperability. Interoperability between agencies and Regions has been developed for the sole purpose of coordinating the exchange of toll Transactions of multiple organizations that utilize, operate, and manage toll facilities. This document describes what is required of a participating Agency in order to enable and maintain sound business relationships.

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DOCUMENT HISTORY

Revision Date	Version	Revision Description
September/October 2018	X.XX	 Incorporated revisions requested by NIOP Working Group. Changed 10 days to 30 days for the Transaction guaranteed period for hub to hub. Transactions submitted to the hub, within 30 days of the Transaction date, that had a valid tag in the active TVL are guaranteed. E-ZPass Transaction file frequency is 1 time per day. SSIOP requires reconciliation within 24 hours. Change to 48 hours. Use of the word "Local" (Local Hub/Local Agency). Add to Definitions, if needed. Edits to business rules, as agreed and requested. Clarify language to narrow Agency modifications to specific cases of adding locations. Increase to 30 days. Conform document to NIOP: a. Edited Southern States specific business rules to conform to NIOP. b. Replaced Southern States specific drawing with NIOP map. c. Removed abbreviations and terms that are no longer used. Added timing notes (when the clock starts) and what happens if conditions are not met, to relevant requirements. Cleaned up SSIOP-DIR-42 and SSIOP-DIR-48. Added SSIOP-GEN-15: An Agency can be a member of more than one region but NIOP Interoperable through only one Hub. Agencies are required to declare through which Hub they will be NIOP interoperable.
November 2018	1.00	Edited during and as the result of the Technical Workgroup Session in Irvine, CA, November 6-7, 2018. 11/26/18: Made revisions from M. Kolb review: 1. Section 1.1: Changed "Northeast US (E-ZPass Group) Region" to "Northeast (E-ZPass) Region" 2. "File", where appropriate, is changed to "Submission". 3. Reconciliation and Settlement reporting is in UTC. 4. Added Data Sequence Number in reference to Submission Identifier for Data Submission Number for Financial reporting. Added definition of UTC.
February 2019	1.01	Edited based on NIOP Policy meeting, January 28, 2019, as follows: Removed NIOP-MNT-04 through NIOP-MNT-06. Added NIOIP-MNT-04 through NIOP-MNT-07.
May 2019	1.01	Removed "WORKING VERSION", updated date and made FINAL.

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Introduction

1.1 **Purpose**

The purpose of this document is to describe and record all business rules for National Interoperability (NIOP).

Each Agency or Agency's Local Hub has the responsibility to implement the business rules as stated herein.

The figure below illustrates the Regions of National Interoperability as of November 2018.

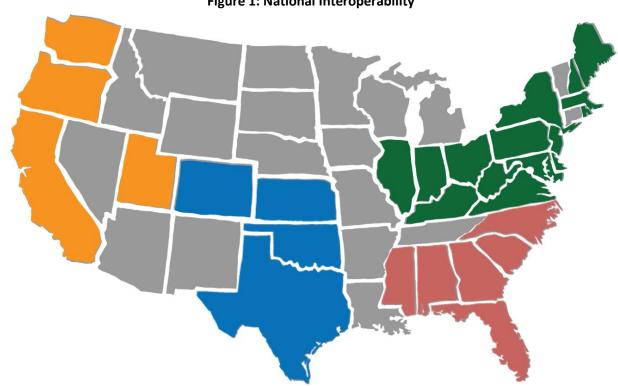


Figure 1: National Interoperability

Gold: Western US Region (WRIOP)

Green: Northeast (E-ZPass) Region (EZIOP)

Blue: Central US Region (CUSIOP) Red: Southeast US Region (SEIOP)

Please refer to NIOP ICD Appendix B for specific Agency to Hub relationships.

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1.2 Definitions, Acronyms, Abbreviations

The intent of this section is to list terms and acronyms used in this document, for easy reference.

Table 1: Definitions, Acronyms, and Abbreviations

Table 1: Definitions, Acronyms, and Abbreviations Term Description						
	·					
Accepted Transaction	Transactions that are accepted by the Home Agency. A Transaction must be accepted by the Home Agency if the Transaction is a Guaranteed Toll.					
	Non-Guaranteed Tolls are accepted based on the availability of funds on					
	the customer's account.					
Assessed						
Account	An account established by a Customer for which a tag has been issued for					
	the payment of tolls.					
Acknowledgement	Acknowledgements are based on receiving and validating data submissions,					
	not processing the contents of the submission. Please refer to the NIOP ICD					
	for additional requirements.					
Agency	An Agency, company, or other entity that participates in Interoperability.					
Agreement for Nationwide Interoperability	The Agreement for toll collection Interoperability that allows for exchange and settlement of tolling Transactions nationwide.					
Away Agency	An Interoperable Agency that is not the Customer's Home Agency.					
Away Hub	An Interoperable Hub that is the Away Agency's Local Hub.					
Bulk Tag Validation List	A Tag Validation list containing all tags that are considered good and zero					
_	or negative balance by a Home Agency and provided to Agencies via the					
	Local Hub. The tags in the Bulk Tag Validation List with a valid tag status are					
	good tags until they are identified as zero, negative balance or invalid on					
	the Tag Validation List or drop off the next Bulk Tag Validation List.					
CSV	The CSV ("Comma Separated Values") file format is often used to exchange					
	data between applications.					
Custodian	An entity appointed to act on the behalf of a NIOP Hub to send and receive					
	funds for financial settlements between NIOP Hubs and Local Agencies.					
	Note: A Hub may have more than one Custodian.					
Customer	A party that establishes an Account with an Agency.					
Differential Tag Validation	A Tag Validation list that contains the tags that have changed status since					
List	the last Bulk Tag Validation List. If a tag has changed status multiple times,					
	it is listed based on the last tag status as long as it is different from the last					
	Bulk Tag Validation List.					
Disputed Transaction	A Transaction which is disputed by the Customer or the Home Agency.					
Duplicate Transaction	Duplicate Transaction processing is based on the Home Agency business					
	rules.					
	For example, Multiple Transactions generated by the same vehicle (tag or					
	license plate) from the same general tolling location (e.g. same plaza and					
	same or adjacent lane), within a short period of time would indicate an					
	erroneous recording of a single Transaction.					
Guaranteed Toll	If a Home Hub receives a Valid Transaction and acknowledges the					
	Transaction within 30 days of the Transaction Date and the tag (read in the					
	lane or associated with the license plate on the vehicle) has been activated					

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Term	Description
	as a Valid Tag at the time of the Transaction, the Transaction is guaranteed
	to be paid by the Home Agency.
Home Agency	An Interoperable Agency which owns the Customer Account and maintains
	the information related to the vehicle(s), license plate(s) and Tag(s) to
	which interoperable toll Transactions are posted.
Home Hub	An Interoperable Hub that is the Home Agency's Local Hub.
Interface Control	Interface Control Document (ICD) describes the data interface and the
Document (ICD)	specific fields, files, naming conventions, etc., with which each
	Interoperable Hub must comply when transmitting Interoperable data.
Interoperable Transaction	Transaction created at an Away Agency by a vehicle identifiable via the TVL.
Interoperability Business	This document, which is incorporated by reference into, and is a part of,
Rules (IBR)	the Interoperability Agreement.
Invalid Tag/Transponder	Tag/Transponder that is not on any Home Agency Bulk TVL or has a reported
(see Valid	status of invalid or zero/negative balance (As determined by the Home
Tag/Transponder)	Agency). There is no revenue guarantee for toll Transactions utilizing an
	Invalid Transponder.
Invalid Transaction	The passage of a vehicle not associated with a Valid Tag/Transponder or
	Valid License Plate through an active electronic toll collection lane.
Local Agency	The term "Local Agency", is used in the context of a "Local Agency to their
	Hub". A Hub's Local Agency is an Agency that directly interfaces with that
	specific Hub for the purposes of interoperability.
Local Hub	The term, "Local Hub" is used in the context of an Agency's Local Hub,
	where the Agency interfaces with the Local Hub for interoperability with
	Other Hubs and Agencies.
NIOP	The acronym for National Interoperability. The Business Rules defined in
	this document are for the purpose of National Interoperability.
Non-Guaranteed Toll	Any transaction that is not a Guaranteed Transaction will be accepted
	(payable) by the Home Agency subject to the availability of funds in the
	account.
Other Hub	The term, "Other Hub" is used in the context of another hub who services
	another Region. A Local Agency interfaces with a Local Hub who then
	interfaces with Other Hubs for interoperability with their Local Agencies.
Post (ed) (ing)	Matching a Transaction to an Account and crediting or debiting the
	corresponding amount to/from the Account.
Reconciliation / Reconcile	The process and/or reporting used by a NIOP Hub to determine or
	demonstrate that the Transactions sent match the dispositions received,
	and to arrive at final settlement.
Reconciliation Date	Date/Time created by the Away Hub based on the Away Agency's
	Acknowledgement of the Reconciliation Data submission. Note, this
	date/time will be used for reconciliation reporting. If the date/time falls
	within the current reconciliation period, all reconciliation records in the
	associated Reconciliation Data submission with a Posting Disposition value
	of "P" (Posted/Accepted) shall be paid from the Home Agency to the Away
D	Agency.
Regions	The group of agencies organized into regional hubs to facilitate NIOP.

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Term	Description
Rejected Transaction	Transactions that are rejected by the Home Agency. Some examples may be:
	D – Duplicate Transaction
	I — Invalid Tag/Plate
	N – Not posted
	T – Transaction content/format error
	C – Tag/plate not on file
	O – Transaction too old as documented in the ICD.
Revenue Week	Days 1-7, 8-14, 15-21, 22 to the end of the month in a calendar month, based on the Reconciliation Date.
Settle (ment)	The transfer of funds between Interoperable Agencies via the Hub for Interoperable Transactions, fees and other agreed amounts.
Tag/Transponder	A radio frequency identification device (RFID) that is used to communicate
	with roadside equipment to identify the unique Tag for which an Agency
	can pursue the collection of tolls.
Tag Transaction	A Transaction transmitted to the Home Agency from the Away Agency for a
	vehicle which is equipped with a Valid Tag.
Tag Validation List (TVL)	A list of interoperable Tags and associated license plates issued by each
	Home Agency, as specified in the ICD. There may be multiple license plates
	associated with a single tag.
Transaction	An electronic record of a vehicle's use of an Agency's tolled location as defined by the ICD.
Transaction Fee	Fee(s) charged to Transactions (Transactions and/or Transaction
	adjustment) accepted by the Home Agency.
UTC	Coordinated Universal Time.
Valid License Plate	A license plate associated with an account that is valid and in good standing.
Valid Tag/Transponder	Tag provided in a TVL where the Tag Status is Valid.
(see Invalid	
Tag/Transponder)	
Valid Transaction	The passage of a vehicle associated with a Valid Tag/Transponder or Valid
	License Plate through an active electronic toll collection lane.
Vehicle	A motorized vehicle or trailer uniquely identified by license plate.
Video Transaction	An image-based Transaction that is created at an Away Agency and posted
	via the license plate identified in the TVL.

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2 Business Rules

This document defines business rules for National Interoperability (NIOP). These rules and all referenced documents are the business rules with which the parties to the Interoperability Agreements must comply. The data interface and the specifics of fields, files, naming conventions, etc. are specified in the ICD, which are referenced in this document.

2.1 Tolling Business Rules

2.1.1 General Requirements

- **NIOP-GEN-1.** Interoperable Agencies shall jointly establish a system that enables a customer to use one Account to pay tolls at all Nationally Interoperable Agencies without the need to take any further action regarding that Account or the associated Tags or plates.
- **NIOP-GEN-2.** The Home Agency will make a reasonable attempt to maintain up to date customer information.
- NIOP-GEN-3. Electronic toll collection equipment used by interoperable Agencies to read and/or write back to tags shall meet the requirements of SeGo, 6C or TDM Interop protocols (or other approved protocol) and be certified for use.
- NIOP-GEN-4. NIOP Hubs, exchanging data, shall comply with all documented interoperability requirements agreed upon, including, but not limited to, these NIOP Business Rules and the ICD.
- **NIOP-GEN-5.** Each Agency shall provide time synchronization to a National Institute of Standards and Technology time source and shall ensure that all components of its system are time-synchronized.
- **NIOP-GEN-6.** Home Agency's Customer Use Agreements shall be written or revised, as necessary, to comply with and provide clarity regarding the NIOP Business Rules.
- **NIOP-GEN-7.** There may be multiple Home Agencies for NIOP Tags in operation.

 Note: There may be customers who have their Tag registered with multiple Home Agencies.
- **NIOP-GEN-8.** Any vehicle eligible for NIOP tolling must be associated to a Valid Tag.
- NIOP-GEN-9. If a Home Hub receives a Valid Transaction and acknowledges the Transaction within 30 Days of the Transaction date, the Transaction is guaranteed to be paid by the Home Agency.

Note: The timing is based on the Transaction date; if the timing is not met, the Transaction is not guaranteed to be paid by the Home Agency. The calculation using the fields in the NIOP ICD is: Home Hub Acknowledgement Date/Time of STRAN Submission

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(from Away Hub) minus STRAN Transaction Exit Date/Time <= 30.0 days will be quaranteed.

- **NIOP-GEN-10.** The acknowledgement by the Home Agency is based on receiving the submission and validating the submission, not by processing the Transactions or data within the submission.
- **NIOP-GEN-11.** If the Home Hub receives a Valid Transaction more than thirty (30) days but less than or equal to sixty (60) days from the Transaction date, the Transaction will be accepted by the Home Agency subject to the availability of funds in the account. This is defined as Non-Guaranteed Toll Transactions.

Note: The timing is based on the Transaction date; if the timing is not met and exceeds sixty (60) days from the Transaction date, the Transaction may not be processed by the Home Agency and rejected as "Transaction too old". The calculation using the fields in the NIOP ICD is: Home Hub Acknowledgement Date/Time of STRAN Submission (from Away Hub) minus STRAN Transaction Exit Date/Time > 30.0 days and <= 60.0 days will attempt to post and will pay if posted.

NIOP-GEN-12. If an Agency receives an Invalid Transaction (the tag status is invalid or zero/negative balance) within sixty (60) days of the Transaction date, the Transaction may be accepted by the Home Agency subject to the availability of funds in the account, the status of the tag and the Home Agency's Business Rules.

Note: The timing is based on the Transaction date; if the timing is not met, the Transaction may be rejected by the Home Agency.

The calculation using the fields in the NIOP ICD is: Home Hub Acknowledgement Date/Time of STRAN Submission (from Away Hub) minus STRAN Transaction Exit Date/Time <= 60.0 days will attempt to post and will pay if posted.

- **NIOP-GEN-13.** The Home Agency is responsible for communicating to their account holders with invalid transponders (per the definition of Valid Transponder) that the customer is not interoperable.
- **NIOP-GEN-14.** Each Home Agency shall strive to maintain access from their website for all interoperable tolling entities by means of a link to the interoperable tolling entities' website.
- NIOP-GEN-15. An Agency can be a member of more than one Region but nationally interoperable through only one Hub. Agencies are required to declare through which Hub they will be NIOP interoperable. Please refer to NIOP ICD Appendix B.

2.1.2 Marketing

NIOP-MKT-1. Agencies will strive to provide at least thirty (30) days advance notification of any NIOP marketing activities to their Local Hub, who will strive to disseminate the information to the Other Hubs. The Other Hubs will strive, in turn, to disseminate the information to

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their Local Agencies.

Note: Advance notification is a process managed by the Agency engaging in the marketing activities.

2.1.3 Account Requirements

- **NIOP-ACC-1.** Each Home Agency's Customer Use Agreement shall provide that the use of a vehicle and/or tag at an Away Agency shall constitute the Customer's acceptance of the interoperability terms.
- NIOP-ACC-2. The Home Agency's Customer Use Agreement shall also provide that an Account may be charged when a vehicle's license plate is captured as an image while traveling on an Interoperable Agency's facility and that license plate can be associated with the Customer's Home Agency Account.
- **NIOP-ACC-3.** Customers shall be able to use a Valid Tag to make toll payments at all Interoperable Agency's facilities.
- **NIOP-ACC-4.** An Account may be associated with multiple Tags; one tag may be associated with multiple vehicles on an Account.

2.1.4 Reconciliation and Settlement Requirements

2.1.4.1 Reconciliation

2.1.4.1.1 Hub Reconciliation Requirements

NIOP-REC-1. NIOP Interoperable Hubs shall reconcile Transactions in a manner and frequency as agreed upon between NIOP Hubs for Transactions relevant to the Hubs. Such frequency shall be at least monthly.

Note: This is a process managed by the Hub engaging in the reconciliation activities.

- NIOP-REC-2. NIOP Interoperable Hubs shall settle in a manner and frequency as agreed upon between the NIOP Hubs. Such frequency shall be at least monthly.

 Note: This is a process managed by the Hub engaging in the settlement activities.
- **NIOP-REC-3.** Fund transfers between NIOP Hubs shall be validated and reconciled by both the submitting and receiving NIOP Hub's appointed Custodians.
- **NIOP-REC-4.** Each NIOP Hub will prepare a reconciliation and settlement report indicating the amount it believes it is due for all Interoperable Transactions, for the reconciliation period, from each Hub.

The report for each NIOP Hub shall include the following information:

(a) The time period (in UTC) being reconciled and settled

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- (b) Away Hub
- (c) Home Hub
- (d) Away Agency
- (e) Home Agency
- (f) Reconciliation Date
- (g) Data Sequence Number
- (h) The amount due to the Agency detailed as follows:
 - Total amount of Interoperable Transactions which have been reconciled by the Home Agency, grouped by submission identifier (Data Sequence Number) as specified in the ICD.
 - ii. Count and dollar amount of all Transactions for which a valid Transaction code has been received and settlement is expected.
 - iii. Count and dollar amount of any rejected Transactions.

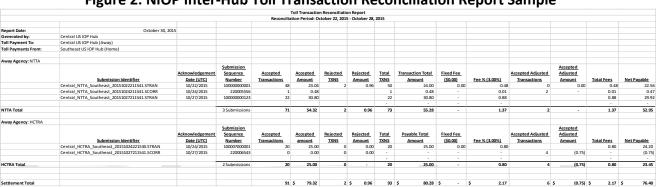


Figure 2: NIOP Inter-Hub Toll Transaction Reconciliation Report Sample



Note: The example above does not calculate fees on the adjustments. This is a sample report that contains the minimum data set. Additional fields may be added, as needed, by each hub.

NIOP-REC-5.

Each NIOP Hub shall provide a detailed reconciliation and settlement report showing every Transaction and its disposition relevant to the Hub. This report shall be provided on demand to each Agency in CSV format. The detailed reconciliation and settlement report shall provide the user with the ability to select the Home Agency (or all), Away Agency and Facility (or all), and report period. The user may filter the report period to be by Transaction date, Reconciliation Date, or Transaction submission date.

Figure 3: Toll Transaction Detail Report Sample (CSV Format)

Away Agency, Home Agency, Submission Identifier, Away Agency, Home Agency, Transaction Reference ID, Record Type, Facility ID, Exit Plaza, Exit Lane, Exit Date/ Time, Tag Agency ID, Tag Serial Number, License Plate Country, License Plate State, License Plate Number, License Plate Type, Guaranteed Flag?, Vehicle Class, Resubmit Count, Resubmit Reason, Adjustment Count, Adjustment Reason, Post Status, Toll Amount \$ (A), Accepted Amount \$ (B), Rejected Amount \$ (C), System Error Amount \$ (D), Fixed Fee \$ (E), % Fee \$ (F), Total Fees \$ (E+F=G), Net Payable \$ (B-G=H), Facility Description, Exit Plaza Description, Entry Date/ Time, Entry Plaza, Entry Plaza Description, Entry Lane, Tag Status, Other Adjustment Description, Occupancy Indicator, Discount Plan, Vehicle Classification Adjustment Flag, System Matched Flag, Spare 1, Spare 2, Spare 3, Spare 4, Spare 5, Reconciliation Home Agency ID, Home Agency Reference ID, Posted Discount Plan, Posted Date/Time, Original Submission Type, Original Submission Date/Time, From Agency ID, To Agency ID, Ack Date/ Time, Return Code

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Note: This is a sample report. Fields may be added or removed, as needed, by each hub.

NIOP-REC-6. The NIOP Hub reports shall be generated and distributed on-demand.

2.1.4.1.2 Hub and Local Agency Reconciliation Requirements

NIOP-REC-7. Each NIOP Hub shall reconcile Transactions, based on the Reconciliation Date, with their Agencies in a manner and frequency as agreed upon between the applicable NIOP Hub and its Agencies. Such frequency shall be at least weekly.

Note: This process is managed by the Agency or Hub engaging in reconciliation activities.

NIOP-REC-8. Each NIOP Hub shall settle with their Agencies in a manner and frequency as agreed upon between the applicable NIOP Hub and its Agencies. Such frequency shall be at least monthly.

Note: This is a process managed by the Agency engaging in the settlement activities.

- NIOP-REC-9. Fund transfers between NIOP Hub Custodians and their Agencies shall be validated by both the submitting and receiving NIOP Hub Custodians and Agency, except as prohibited by an Agency's State statute.
- **NIOP-REC-10.** Each Agency is responsible for reconciling against its own reporting system all Interoperable Transactions, based upon the reconciliation codes as specified in the ICD.
- **NIOP-REC-11.** The Away Agency will provide the necessary detail to support resolving discrepancies during reconciliation.
- **NIOP-REC-12.** The Home Agency will provide the necessary detail to support resolving discrepancies during reconciliation.
- **NIOP-REC-13.** Each Agency is responsible for reconciling the other Agency's Transactions to its own reports prior to settlement with their Local Hub.

2.1.4.1.3 Reconciliation Issue Resolution

- **NIOP-REC-14.** If discrepancies exist, the Agencies will work together to review and verify their differences.
- NIOP-REC-15. During the review of the reconciliation and settlement reports, the Away Agency may request that the Home Agency provide available documentation supporting the Interoperable Transactions reported as valid or rejected. The documentation should include:

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- (i) Selection by Away location, Transaction Period based on Transaction Date, Transaction Accepted Date, Transaction Submission Date, Reconciliation Date, Submission Identifier (Data Sequence Number) with grouping options.
- (a) Transaction's Tag number and/or license plate information
- (b) Transaction's date and time
- (c) Transaction's location
- (d) Transaction's disposition/status
- (e) Toll Amount

Documentation will be provided if permissible by law.

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Figure 4: NIOP Toll Transaction Detail Report Sample

					Transaction Detail Repo	и									
												-			_
eport Date:	October 29, 2015														
	FTE														
	NTTA														
eporting Period:	October 22, 2015 - Octol	ber 28, 2015													
ubmission Type:	[Correction, Transaction]														
ubmission Identifier:	Central_NTTA_Southea	st_2015102221154	11.STRAN; Cen	tral_NTTA_South	east_20151024211541.SCOR	R; Central_NTTA_Soi	theast_2015102	27211541.STRA	N						
Transaction				Exit			Tag Serial					Post	Payable	Rejected	
Reference ID	Resubmittal Count	Record Type	Facility ID	Plaza	Exit Date/Time (UTC)	Tag Agency ID	Number	Plate State	Plate Number	Plate Type	Vehicle Class	Status	Amount	Amount	Fees
101000000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12344				72	P	\$0.48		0.0
101010000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12345				72	Р	\$0.48		0.0
1010200000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12346				72	P	\$0.48		0.0
101030000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12347				72	P	\$0.48		0.0
101040000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12348				72	P	\$0.48		0.0
												P			
101050000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12349				72	P	\$0.48		0.0
1010600000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12350				72		\$0.48		0.0
101070000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12351				72	P	\$0.48		0.0
101080000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12352				72	D		0.48	
10109000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12353				72	P	\$0.48		0.0
1011000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12354				72	P	\$0.48		0.0
101110000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12355				72	P	\$0.48		0.0
101120000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12356				72	P	\$0.48		0.0
101130000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12357				72	P	\$0.48		0.0
1011400000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12358				72	P	\$0.48		0.0
101150000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12359				72	T	\$J.40	0.48	0.0
101160000000000000000000000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12359				72	P	\$0.48		0.0
												P			
101170000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12361				72		\$0.48		0.0
10118000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12362				72	P	\$0.48		0.0
10119000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12363				72	P	\$0.48		0.0
10120000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12364				72	P	\$0.48		0.0
101210000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12365				72	P	\$0.48		0.0
101220000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12366				72	P	\$0.48		0.0
101230000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12367				72	P	\$0.48		0.0
10124000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12368				72	P	\$0.48		0.0
101250000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12369				72	Р	\$0.48		0.0
101260000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12370				72	P	\$0.48		0.0
101270000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12371				72	Р.	\$0.48		0.0
10127000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12371				72	P	\$0.48		0.0
	-									-			******		
101290000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12373				72	P	\$0.48		0.0
101300000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12374				72	P	\$0.48		0.0
10131000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12375				72	P	\$0.48		0.0
10132000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12376				72	P	\$0.48		0.0
101330000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12377				72	P	\$0.48		0.0
101340000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12378				72	P	\$0.48		0.0
101350000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12379				72	P	\$0.48		0.0
101360000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12380				72	Р	\$0.48		0.0
101370000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12381				72	Р.	\$0.48		0.0
101370000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12382				72	P	\$0.48		0.0
101390000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12382				72	P	\$0.48		0.0
101400000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12384				72	P	\$0.48		0.0
101410000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12385				72	P	\$0.48		0.0
101420000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12386				72	P	\$0.48		0.0
101430000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12387				72	P	\$0.48		0.0
101440000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12388				72	P	\$0.48		0.0
101450000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12389				72	P	\$0.48		0.0
101460000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12390				72	P	\$0.48		0.0
101470000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12391				72	P	\$0.48		0.0
101480000000000000000		TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12392				72	P	\$0.48		0.
101490000000000000000000000000000000000	0	TC01	PGBT	CAMRD	10/22/2015 12:14:40	FTE	12393				72	P	\$0.48		0.
101010000000000000000000000000000000000	1	TC01A	PGBT	CAMRD	10/24/2015 12:14:40	FTE	12393				72	P	-\$0.48		0.0
												P			
101010000000000000000		TC01A	PGBT	CAMRD	10/24/2015 12:14:40	FTE	12343				72		\$0.48		
101150000000000000000	1	TC01A	PGBT	CAMRD	10/24/2015 12:14:40	FTE	12359				72	P	\$0.48		0.0
10200000000000000000		TC01	DNT	ROYLN	20151027 14:33:15	FTE	12344				72	P	\$1.40		0.
10201000000000000000	0	TC01	DNT	ROYLN	20151027 14:33:15	FTE	12345				72	P	\$1.40		0.
102020000000000000000	0	TC01	DNT	ROYLN	20151027 14:33:15	FTE	12346				72	P	\$1.40		0.0
102030000000000000000	0	TC01	DNT	ROYLN	20151027 14:33:15	FTE	12347				72	P	\$1.40		0.0
102040000000000000000	0	TC01	DNT	ROYLN	20151027 14:33:15	FTE	12348				72	P	\$1.40		0.0
											Total:		\$30.52	\$0.96	\$0.6
											Transactions:		51	2	1

Note: This is a sample report that contains the minimum data set. Additional fields may be added, as needed, by each hub.

NIOP-REC-16. If necessary, upon acceptance of a dispute, the Away Agency on which the Interoperable Transactions occurred will initiate the adjustment to be sent to the Home Agency, through the NIOP Hub, to update, correct or replace missing or incorrect Transaction data.

NIOP-REC-17. Transaction adjustments may not exceed the original toll amount.

NIOP-REC-18. Adjustments will be reported, reconciled and settled in the same manner as other Interoperable Transactions.

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2.1.4.2 Disputed Tolls

NIOP-REC-19. In order to enable proper researching of customer complaints, each Agency will maintain records related to toll Transactions for a minimum period of one hundred-eighty (180) days from the Transaction date.

Note: Record retention is based on Transaction date. If Transaction history is not maintained, Agencies will be unable to research customer complaints.

- **NIOP-REC-20.** The Home Agency shall notify the Away Agency of Customer complaints regarding alleged erroneous charges or Duplicate Transactions on the Away Agency's facilities.
- NIOP-REC-21. The Away Agency and the Home Agency shall work cooperatively when Interoperable Transactions at an Away Agency are disputed. Research may be undertaken to determine the validity of the dispute.
- NIOP-REC-22. The Home Agency will prepare a Disputed Toll Settlement Report/Form which will detail the amounts and reasons for each disputed toll to the Away Agency. The responsibility of assessing reasonableness and preventing abuse lies with the Home Agency.

Disputed Transaction Report Disnutes Processed in Settlement Period: 10/01/2015 thru 10/31/2015 Report Date: Generated by Home Agency SRTA For Settlement with Away Agency: HCTRA Fees Fixed Percentage Transaction Exit Adjusted Date/Time Original Net Reference ID Record Type Facility ID Plaza Exit Date/Time (UTC) (UTC) Adjusted Reason Amount Amount Adjustment \$0.00 0.00% 30118000000000000000 10/27/15 2:14 PM Toll Correction HCTRA Plaza B 10/24/15 2:14 PM HCTRA Facil \$1.00 -\$0.25 \$0.00 \$0.000 HCTRA Plaza B 301190000000000000000 10/24/15 2:14 PM 10/27/15 2:14 PM Toll Correction \$1.25 \$0.75 -\$0.50 \$0.00 \$0.000 HCTRA Facil -\$0.50 \$2.50 \$1.75 -\$0.75 \$0.00 2 Transactions \$0.000

Figure 5: NIOP Disputed Toll Transaction Detail Report Sample – Home Agency

Note: Disputes that have not been resolved will be reported without adjustment information. This is a sample report that contains the minimum data set. Additional fields may be added, as needed, by each Hub.

- **NIOP-REC-23.** The acceptability of the dispute lies with the Away Agency. The Away Agency notifies the Home Agency of the decision to accept or reject the dispute.
- **NIOP-REC-24.** The Away Agency must accept or reject the dispute within thirty (30) days of notification from the Home Agency.

Note: The timing starts the day of the dispute notification. In the case where the dispute is filed using the dispute application at a Hub, the filing date is the start of the dispute resolution period, extending 30 days from the filing date. After the filing date, the dispute resolution expires at the Hub. Adjustments may continue to be made as long as the adjustment fits within the adjustment business rules.

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NIOP-REC-25. Disputes which result in an adjustment will become part of the Reconciliation and Settlement. Rejected disputes will not become part of the Reconciliation and Settlement.

NIOP-REC-26. In a situation when a Customer is not satisfied with an Away Agency's resolution of an Interoperable Transaction dispute, the Customer's Home Agency may elect to credit the Interoperable Transaction to the Customer's Account and shall bear the cost of the credit and toll amount associated with the disputed Transaction.

NIOP-REC-27. A single Transaction may only be disputed once by the Home Agency.

2.1.4.3 Transaction Fees

- NIOP-REC-28. The Home NIOP Hub will prepare a report indicating the amount of Transaction fees (if applicable) due from the Away NIOP Hub based upon the accepted reconciled Transactions. The report should include:
 - (a) The time period being reconciled and settled
 - (b) The amount due to the Agency detailed as follows:
 - i. Transaction submission identifier
 - ii. Reconciliation Date
 - iii. Count and fee amount for all Interoperable Transactions for which a valid

 Transaction code has been received and settlement is expected

2.1.4.4 Settlement

- NIOP-REC-29. Settlements, between NIOP Hubs, will be released by Hub Custodians after the agencies at each Hub have reconciled and agreed to the amounts required. The amounts required will include guaranteed, accepted/posted non-guaranteed Transactions, adjustments and any applicable Transaction fees.
- **NIOP-REC-30.** NIOP settlements between the NIOP Hubs will be in gross amounts (Transaction amounts and fees), unless agreed otherwise by both parties.
- **NIOP-REC-31.** The settlement will include all reconciled and agreed amounts for the reconciled period. Included with the settlement will be an invoice/report that will include:
 - (a) Invoice period (Based on the Reconciliation Date)
 - (b) Total amount due for guaranteed and accepted/posted non-guaranteed Transactions
 - (c) Total amount of approved adjusted tolls
 - (d) Total amount of guaranteed and accepted/posted non-guaranteed Transactions plus adjusted tolls
 - (e) Total amount(s) due for Transaction Fees

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- (f) Total Credit for net settlement (if agreed upon)
- (g) Total Invoice amount due
- (h) Total count of Transactions
- NIOP-REC-32. Invoices will be distributed electronically (i.e., electronic drop box, email) to each NIOP Hub's Custodian and Local Agency, as necessary.
- **NIOP-REC-33.** Payments for invoices shall be made electronically.

Figure 6: NIOP Invoice Sample – Tolls Example

Bill to:			Remit Pa	yment to:	
Southeast US Hub			Central US Hub		
Address 1			Processin	ng Center	
City, State Zip Code			Address 2	1	
(nnn)nnn-nnnn			Address 2	2	
Attn: IOP Contact			City, Stat	e Zip Code	
Revenue Collections					
			Terms:	NET 30	
Interoperability Settlement					
Activity for the Period of: 10/1/15 to	o 10/31/15				
FTE Customers on NTTA Roads:					
		Toll			
	Transaction	Transaction			
	QTY	Amount			
Accepted Transactions:	5	3 \$30.04			
Accepted Resubmitted Transactions:		1 \$0.48			
Accepted Adjusted Transactions:		2 \$0.00			
Toll Amount Due:		\$30.52			
MDX Customers on NTTA Roads:					
		Toll			
	Transaction				
	QTY	Amount			
Accepted Transactions:	1	7 \$23.80			
Accepted Resubmitted Transactions:		0 \$0.00			
Accepted Adjusted Transactions:		0 \$0.00			
Toll Amount Due:		\$23.80			
SRTA Customers on HCTRA Roads:					
		Toll			
	Transaction	_			
	QTY	Amount			
Accepted Transactions:	2				
Accepted Resubmitted Transactions:		0 \$0.00			
Accepted Adjusted Transactions:		4 (\$0.75)			
Toll Amount Due:		\$24.25			
	Total Toll Due	: \$78.57			

Note: This is a sample report that contains the minimum data set. Additional fields may be added, as needed, by each hub.

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Figure 7: NIOP Invoice Sample – Fees Example

	Invoice			
Invoice No.:				
Invoice Date:				
Vendor ID No.:				
Bill to:			Remit Paym	ent to:
Central US Hub			Southeast U	S Hub
Address 1			Processing (Center
City, State Zip Code			Address 1	
(nnn)nnn-nnnn			Address 2	
Attn: IOP Contact			City, State Z	ip Code
Revenue Collections				
Interoperability Settlement			Terms:	NET 30
• •	10/1/15 to 10/31/15			
FTE Customers on NTTA Roa				
rie Customers on NTTA Roa	ius.	<u>Toll</u>		
	Transaction	Transaction	Total Fees	
	QTY	Amount	Due	
Fixed Fees:	54	Amount	\$0.00	
Fee %:	34	\$30.52	\$0.69	
Total Fees:		250.52	\$0.69	
			Ş0.03	
MDX Customers on NTTA Ro	pads:			
		<u>Toll</u>		
	<u>Transaction</u>	<u>Transaction</u>	<u>Total Fees</u>	
	<u>QTY</u>	<u>Amount</u>	<u>Due</u>	
Fixed Fees:	17		\$0.00	
Fee %:		\$23.80	\$0.68	
Toll Amount Due:			\$0.68	
SRTA Customers on HCTRA	Roads:			
		<u>Toll</u>		
	Transaction	Transaction	Total Fees	
	QTY	<u>Amount</u>	<u>Due</u>	
Fixed Fees:	20	40.4	\$0.00	
Fee %:		\$24.25	\$0.80	
Toll Amount Due:			\$0.80	
	Total Fees Due:		\$2.17	

Note: This is a sample report that contains the minimum data set. Additional fields may be added, as needed, by each hub.

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2.1.5 Data Interchange Requirements

2.1.5.1 General

NIOP-DIR-1. Each NIOP Hub shall comply with the ICD.

2.1.5.2 Tag Validation Lists

NIOP-DIR-2. The Home Agency shall document the status of its interoperable Tags and license plates in the Tag Validation List. The Tag Validation List shall denote the status of tags and associated license plate(s) for each interoperable Tag based on the requirements and status defined in the ICD.

NIOP-DIR-3. Tag Validation Lists shall not contain fictitious Tags.

NIOP-DIR-4. The NIOP Hubs shall electronically exchange Bulk Tag Validation Lists on a regular schedule, at least once per week. The Bulk Tag Validation List will have "now" valid and zero/negative balance tags. It is up to the Home Agency to determine whether the zero/negative balance tags are included in the Bulk TVL.

Note: If a Home Agency does not provide their TVL in sufficient time to be included in the Home Hub's Bulk TVL, the Home Hub should derive the Bulk TVL for the Home Agency and include the derived TVL in the Home Hub's Bulk TVL. Refer to NIOP ICD Appendix D.

NIOP-DIR-5. When changes occur to the Tag Validation List, Home Agencies shall create a Differential Tag Validation List and distribute via the NIOP Hubs. The Differential TVL contains new valid and "now" invalid (invalid, zero/negative balance) tags as compared to the last Bulk TVL. The Differential TVLs are exchanged at least daily. It is up to the Home Agency as to whether the zero/negative balance tags are included in the Differential TVL.

Note: If a Home Agency does not provide their TVL in sufficient time to be included in the Home Hub's Differential TVL, the Home Hub should include the most recent Home Agency Differential TVL received after the most recently active Bulk TVL and include it in the Home Hub's Differential TVL.

NIOP-DIR-6. Each Tag Validation List (Bulk or Differential) shall be acknowledged (ACK) by the receiving Hub within sixty (60) minutes of receipt.

Note: The timing is based on the date and time in the submission header. If an AC

Note: The timing is based on the date and time in the submission header. If an ACK is not received, the submission should be resent. If still no ACK, the technical staff should be notified. The calculation using the fields in the NIOP ICD is: Away Hub Acknowledgement Date/Time (first ACK) of the TVL (from Home Hub) minus TVL Submission Date/Time <= 60.0 minutes.

NIOP-DIR-7. Each Hub shall maintain a historical record of each Tag Validation List sent to and received from the other Interoperable Agencies and Hubs for a minimum period of one hundred-eighty (180) days.

Note: The timing starts when the TVL is activated (2^{nd} TVL ACK date and time). If the history is not maintained, it may be difficult to research customer complaints. The

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calculation using the fields in the NIOP ICD is: Away Hub Acknowledgement Date/Time (second ACK) of the TVL (from Home Hub) minus TVL Submission Date/Time <= 180.0 days.

- **NIOP-DIR-8.** Each Hub shall provide a utility to be used by authorized users to pull a tag's history in the event of a dispute or other inquiry.
- **NIOP-DIR-9.** The Away Hub and each Away Agency is responsible to ensure each TVL is made active as soon as possible after acknowledgement.
- **NIOP-DIR-10.** The Local Agency's TVL and Transaction Acknowledgement (ACK) date and time is recorded by the NIOP Hub who made the TVL or Transaction Submission available.
- NIOP-DIR-11. There shall be two Acknowledgements for a TVL from the Away Hub, one to confirm the TVL has been received, the second to establish and record the TVL activation date and time.
- **NIOP-DIR-12.** The Away Hub shall establish the TVL activation date and time based on the 2nd Acknowledgement received for the TVL.
- **NIOP-DIR-13.** The Home Hub shall use the second TVL ACK to establish the activation date/time of its TVL at another Hub and the tag status at the time of the Transaction.
- **NIOP-DIR-14.** It is the responsibility of the Away Agency to ensure bulk files and differential files are applied in order based on Submission Date/Time such that a stale bulk or differential submission would never overwrite a more recent bulk or differential submission.
- NIOP-DIR-15. In the event the Home NIOP Hub receives a status for the same tag from two different Home Agencies, the NIOP Hub shall not filter the tags when creating and distributing the TVLs.

2.1.5.3 Transactions

The following diagram shows the typical Transaction data flow.

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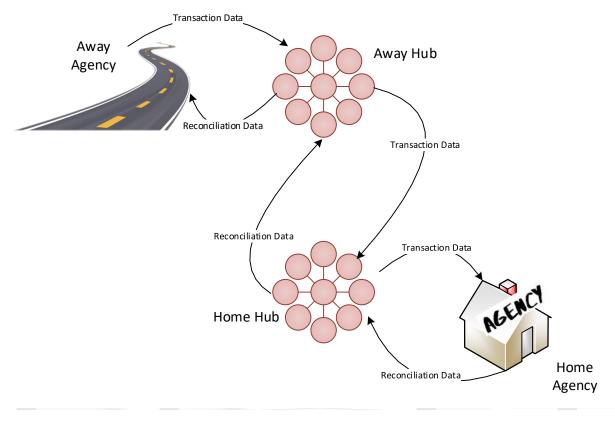


Figure 8: Typical Hub to Hub Transaction Data Flow Diagram

Note: The Transaction and reconciliation data is based on the requirements in the ICD.

NIOP-DIR-16. Upon receipt of Transaction records, the Home Agency will attempt to post Transactions to the proper accounts. It is up to the Home Agency as to whether they will process Transactions with an invalid, or zero/negative tag status. Settlement of a Guaranteed Transaction shall not be dependent on the Transaction's successful posting; i.e., the Home Agency's obligation to pay the Away Agency is not contingent upon the Home Agency's ability to post the Transactions to the customer's account.

NIOP-DIR-17. The class and toll rate as determined by the Away Agency will be honored by the Home Agency for settlement purposes whenever the Transactions is accepted by the Home Agency.

NIOP-DIR-18. Each Away Agency will attempt to process Transactions without a Valid Tag read (Video Transactions) in the following order:

- 1. Local (non-fleet) customer accounts
- 2. Regional IOP (non-fleet) TVL
- 3. NIOP (non-fleet) TVL
- 4. Local fleet accounts
- 5. Regional IOP fleet TVL
- 6. NIOP fleet TVL
- 7. Local Transaction processing for pursuing payment

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- NIOP-DIR-19. The Away Agency shall send at least one Transaction Submission to their Local Hub each day (unless no interoperable Transactions were generated since the last sending).
- **NIOP-DIR-20.** The Away Agency may send Transaction Data to their Local hub in one submission per Home Agency or one submission with all Transactions.
- NIOP-DIR-21. The Away Hub shall determine the Home Agency for those Transactions that are grouped together (where the Home Agency has not been determined by the Away Agency) before sending the Transactions to another Home Hub or Home Agency. Submissions that are received where a Home Agency is defined shall be submitted to the Home Hub associated with that Agency or to the Home Agency, intact, without determining the Home Agency.
- NIOP-DIR-22. Upon receipt of the Transaction Submission by a NIOP Hub from a Local Agency, the NIOP Hub shall send the Transaction Submission(s) to the Other Hub and/or Local Agencies after sending the acknowledgment to the Local Agency.
- NIOP-DIR-23. The Home Hub shall Acknowledge receipt of the Transaction Submission(s) from the Away Hub within sixty (60) minutes of receipt.

 Note: The timing is based on the date and time in the submission header. If an ACK is not received, the submission should be resent. If still no ACK, the technical staff should be notified. The calculation using the fields in the NIOP ICD is: Home Hub Acknowledgement Date/Time of the STRAN (or SCORR) (from Away Hub) minus Away Hub STRAN (or SCORR) Submission Date/Time <= 60.0 minutes.
- NIOP-DIR-24. The Home Hub shall process the Away Agency's Transaction Submission, from the Away Hub, and provide the associated Reconciliation Submission, within forty-eight (48) hours of the Transaction Submission.

Note: The timing is based on the date and time in the submission header from the Away Hub. If the Reconciliation Submission is not received by the Away Hub, the Away Hub should generate Transaction reconciliation records with an "S" Posting Disposition for the Transactions that were not responded to. The calculation using the fields in the NIOP ICD is: Home Hub SRECON Transmission Date/Time minus Away Hub STRAN (or SCORR) Submission Date/Time <= 48.0 hours.

- **NIOP-DIR-25.** Transaction submission(s) Acknowledgements shall be recorded by the Home Hub after the Home Agency Acknowledges the Transaction submission.
- NIOP-DIR-26. There shall be two Acknowledgements for a Reconciliation Submission from the Home Hub, one to confirm the Reconciliation Submission has been received, the second to record the Reconciliation Date.
- NIOP-DIR-27. The Away Hub shall determine the Reconciliation Date for a Reconciliation Submission based on the Away Agency's Acknowledgement Date or Date determined by the Away Hub.

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- **NIOP-DIR-28.** The Home Agencies shall use the second Reconciliation Submission ACK to determine the Reconciliation Date for the original Transaction submission.
- NIOP-DIR-29. When the Home Agency posts an Interoperable Transaction to a customer's account, the following Transaction information shall be maintained: Transaction date, time, location, Tag ID, vehicle classification, if available, and toll amount.
- NIOP-DIR-30. If, by fault of the Away Agency, Transaction processing and posting has not or could not be performed via NIOP processes within sixty (60) days, then the Away Agency may pursue payment of the Transaction based on the Away Agency's business rules. If the Away Agency decides to pursue payment via invoicing without submitting Transactions to the Hub, the Away Agency will make their best effort to notify their Local Hub who will, in turn, notify the Other Hubs to notify their Agencies.

 Note: The timing is based on the Transaction date. If the Transaction is not accepted/posted within the allotted time, the Transaction may be invoiced by the Away Agency. The calculation using the fields in the NIOP ICD is: Current date/time minus Transaction Exit Date/Time > 60.0 days.
- **NIOP-DIR-31.** A Home Agency may reject a non-guaranteed Interoperable Transaction that is created by a vehicle associated with an Invalid Tag at the time of the Transaction.
- NIOP-DIR-32. A Home Agency shall reject an Interoperable Transaction that (1) is a Duplicate

 Transaction, or (2) comprises a record that does not conform to the requirements of the

 ICD.
- NIOP-DIR-33. Rejected Interoperable Transactions processed by the Home Agency shall be classified as "rejected" (or as a status as specified in the ICD) and returned to the Away Agency via the Hub, where the Interoperable Transaction occurred. Rejected Interoperable Transactions are not subject to the guaranteed payment rules.
- **NIOP-DIR-34.** Processing of customer Transactions at the Away Agency when the Tag is reported as invalid by the Home Agency will be pursuant to the rules and regulations of the Away Agency.
- **NIOP-DIR-35.** The Agencies agree to facilitate the identification of violators by the sharing of appropriate information or submissions to the extent permitted by law and their end user license agreement.
- **NIOP-DIR-36.** The Agencies will share customer account information only for the purpose of collecting tolls, the enforcement of toll policies or as otherwise applicable by law.
- **NIOP-DIR-37.** The Away Agencies will process toll Transaction images in such a manner as to identify customers' accounts in good standing and thereby create a valid Transaction if the result is associated with a Valid Tag.

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NIOP-DIR-38.

If cash, or equivalent, is collected by the Away Agency for any Transaction when the tag is read and used as payment at the same time, the Away Agency will strive to not transfer any such Transactions to the NIOP Hub (and then to the Home Agency) for payment. For example: the Oklahoma Turnpike Authority (OTA) has cash paying customers who also pay via their PikePass. Resolution will be via the dispute process.

NIOP-DIR-39.

The Home Agency may elect to not process Interoperable Transactions submitted to the Home Agency by the Away Agency more than sixty (60) days after the date and time of the Interoperable Transaction.

Note: The timing is based on the Transaction date. If the Transaction is sent to the Home Agency after the allotted time, the Home Agency may choose not to process the Transaction. If the Home Agency does not process the Transaction, the Away Agency may choose to invoice the Transaction. The calculation using the fields in the NIOP ICD is: Current date/time minus Transaction Exit Date/Time > 60.0 days.

NIOP-DIR-40.

Away Agencies shall filter out duplicate Transactions prior to sending to the Home Agency.

NIOP-DIR-41.

Home Agencies shall filter out duplicate Transactions from Away Agencies. In the event the Home Agency does receive duplicate Transaction(s), it shall not Post or remit payment to the Away Agency for the duplicate Transaction(s).

NIOP-DIR-42.

If an Interoperable Transaction from an Away Agency's facility is adjusted, the Away Agency may submit the adjusted Transaction to the Home Agency for posting within one hundred-eighty (180) days of the Transaction date. Transaction adjustments (corrections) are not guaranteed by the Home Agency.

Note: The timing is based on the Transaction date and adjustment (correction) date. If an adjustment is made after the allotted time, the Home Agency may choose to not process the adjustment. The calculation using the fields in the NIOP ICD is: Away Agency Correction Date/Time of the SCORR record minus Transaction Exit Date/Time of the original STRAN record <= 180.0 days.

NIOP-DIR-43.

Video Transactions associated with a valid Tag will be processed in the same manner as all other valid Tag Transactions for the purposes of Interoperability. It is the Away Agency's discretion as to the toll rate charged. The rate charged shall be consistent with posted rates for the Away Agency.

NIOP-DIR-44.

An NIOP Hub shall submit a customer Transaction only to one Home Agency for posting and payment.

NIOP-DIR-45.

In the event there is more than one Home Agency for one Tag, the Away Hub shall determine where to send the Transaction.

NIOP-DIR-46.

If a transaction is rejected due to insufficient funds, it may be resubmitted by the Away Agency. The Away Hub shall resubmit the Transaction to the same Home Agency as the original Transaction.

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NIOP-DIR-47. In the event the Away Hu

In the event the Away Hub receives a status for the same tag from two different Home Agencies, the Away Hub shall use the most recently updated 'good' tag status when processing Transactions.

For example, an Oklahoma Turnpike Authority (OTA) customer moves to Harris County Texas. They open an account at the Harris County Toll Road Authority (HCTRA) and have their OTA PikePass assigned to their HCTRA account. The customer does not close their OTA Account. Both Home Agencies (OTA and HCTRA) have the same tag with a good status.

OTA and HCTRA send the OTA Tag in their TVL to the Central US Hub. The Central US Hub detects the same tag from two different Home Agencies.

When a Transaction containing the OTA Tag occurs at an Away Agency, the Away Agency will send the Transaction to the Away Hub. The Away Hub will determine the Home Agency based on which tag has the most recent good status and send the Transaction to the Home Hub for routing to the Home Agency.

2.1.6 Reporting Requirements

NIOP-REP-1.

All Interoperable Agencies shall comply with established reporting requirements as defined in these business rules.

NIOP-REP-2.

The NIOP Hubs shall produce a Transaction Submission Performance report. This report shall contain at a minimum, the submission receive date, submission identifier, the date and time the contents of the submission are sent to each Home Agency, and the date and time the Transaction submissions are responded to by each Home Agency.

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Figure 9: NIOP Transaction Submission Performance Report Sample – Home Agency

				•		
	Sou	thern States Interoperability Inter-Hub Submission P	erformance Report			
		October 2015				
Report Date:	November 1, 2015					
Generated by:	Southeast US IOP Hub					
Period:						
Received Submission	onss:					
Submission						
Receive Date/Time			Southeast US Hub ACK	Submission Sent		
(UTC)	From	Submission Identifier	Date / Time (UTC)	Date/Time (UTC)	Sent To	ACK Date/Time (UTC)
10/22/2015 21:15	Central US IOP Hub	Central_NTTA_Southeast_20151022211541.STRAN	10/22/2015 21:55:42	10/22/2015 21:16		
				10/22/2015 21:16	FTE	10/22/2015 21:25:42
10/24/2015 21:15	Central US IOP Hub	Central NTTA Southeast 20151024211541.SCORR	10/24/2015 22:15:43	10/24/2015 21:17		
				10/24/2015 21:17	FTE	10/24/2015 21:40:43
10/24/2015 9:10	Central US IOP Hub	Central_CTRMA_FTE_20151024091020.SRECON	10/24/2015 10:10:23	10/24/2015 9:15		
				10/24/2015 9:15	FTE	10/24/2015 9:17:23
10/24/2015 22:15	Central US IOP Hub	Central_HCTRA_Southeast_20151024221530.STRAN	10/24/2015 22:46:33	10/24/2015 22:19		
				10/24/2015 22:19	SRTA	10/24/2015 22:19:44
10/24/2015 22:15	Central US IOP Hub	Central_CTRMA_SRTA_20151024221525.SRECON	10/24/2015 22:38:27	10/24/2015 22:20		
				10/24/2015 22:20	SRTA	10/24/2015 22:30:23
10/27/2015 21:15	Central US IOP Hub	Central_HCTRA_Southeast_20151027211541.SCORR	10/27/2015 21:16:52	10/27/2015 21:16		
				10/27/2015 21:16	SRTA	10/27/2015 21:28:42
10/27/2015 21:15	Central US IOP Hub	Central_NTTA_Southeast_20151027211541.STRAN	10/27/2015 21:35:42	10/27/2015 21:16		
				10/27/2015 21:16	FTE	10/27/2015 21:25:42
				10/27/2015 21:16	MDX	10/27/2015 21:32:42
Sent Submissions:						
Submission Send						
Date/Time (UTC)	<u>To</u>	Submission Identifier	ACK Date / Time (UTC)			
10/23/2015 9:10	Central US IOP Hub	Southeast_FTE_NTTA_20151023091020.SRECON	10/23/2015 9:19:21			
10/24/2015 9:10	Central US IOP Hub	Southeast_FTE_NTTA_20151024091020.SRECON	10/24/2015 9:52:24			
10/23/2015 21:15	Central US IOP Hub	Southeast_FTE_Central_20151023211541.STRAN	10/23/2015 22:15:46			
10/24/2015 22:16	Central US IOP Hub	Southeast_SRTA_HCTRA_20151024221625.SRECON	10/24/2015 22:56:29			
10/26/2015 21:15	Central US IOP Hub	Southeast_SRTA_Central_20151026211520.STRAN	10/26/2015 21:45:23			
10/28/2015 4:32	Central US IOP Hub	Southeast_SRTA_HCTRA_20151027091020.SRECON	10/28/2015 5:32:12			
10/28/2015 9:12	Central US IOP Hub	Southeast FTE NTTA 20151028091020.SRECON	10/28/2015 9:52:00			

Note: The report above shall format the date/time to the seconds. This is a sample report that contains the minimum data set. Additional fields may be added, as needed, by each hub.

- **NIOP-REP-3.** In general, reports will be generated and distributed by each NIOP Hub and Agency, as applicable, for which there are Transactions to settle.
- **NIOP-REP-4.** Every report shall be able to be exported in CSV (with and without titles) and pdf.
- NIOP-REP-5. Data for summary reports shall be available for a period of two (2) years.

 Note: The timing is based on the Transaction submission date. The calculation using the fields in the NIOP ICD is: Current date Submission Date from the STRAN (or SCORR) submission <= 2.0 years.

2.1.7 Performance Requirements

2.1.7.1 Hub Performance Requirements

NIOP-PER-1. Receipt of a Transaction Submission shall be Acknowledged by the Home Hub to the Away Hub within sixty (60) minutes after receipt. Refer to NIOP-DIR-23.

Note: The timing is based on the date and time in the submission header. If an ACK is not received, the submission should be resent. If still no ACK, the technical staff should be notified. The calculation using the fields in the NIOP ICD is: Home Hub Acknowledgement

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Date/Time of the STRAN (or SCORR) (from the Away Hub) minus Away Hub Submission Date/Time of the STRAN (or SCORR) <= 60.0 minutes.

NIOP-PER-2. Receipt of a TVL File shall be acknowledged by the Away Hub to the Home Hub within sixty (60) minutes after receipt.

Note: The timing is based on the date and time in the submission header. If an ACK is not received, the submission should be resent. If still no ACK, the technical staff should be notified. The calculation using the fields in the NIOP ICD is: Away Hub Acknowledgement Date/Time (first ACK) of the TVL (from the Home Hub) minus Submission Date/Time of the TVL (from the Home Hub) <= 60.0 minutes. Refer to NIOP-DIR-6.

NIOP-PER-3. The Away Hub shall process the Acknowledged TVL File and make available the Home TVL File to the Away Agencies within sixty (60) minutes after receipt.

Note: The timing is based on the date and time in the submission header. The calculation using the fields in the NIOP ICD is: Date and Time the TVL is distributed (or made available – depending on how this is done) to the Away Agencies minus Away Hub Acknowledgement Date/Time (first ACK) of the TVL (from the Home Hub) <= 60.0 minutes.

NIOP-PER-4. The Away Hub shall send the second TVL ACK, indicating the TVL activation date/time, to the Home Hub within four (4) hours. The Home Hub shall send the separate 2nd TVL ACK to its Home Agenc(ies) as needed.

Note: The timing starts at the date and time in the TVL's submission header. If the time is not met, the TVL will not become active. Transactions where tags are added as Valid may not be recognized by the Away Agency and Customers may receive invoices or other notifications to pay other than their toll posted to their account. Tags that have transitioned to Invalid may continue to be guaranteed due to an earlier Valid Tag Status. The calculation using the fields in the NIOP ICD is: Away Hub Acknowledgement Date/Time (second ACK) of the TVL (from Home Hub) minus Submission Date/Time of the TVL <= 4.0 hours.

NIOP-PER-5.

The Away Hub shall send the second Reconciliation Submission ACK, indicating the Reconciliation Date, to the Home Hub within four (4) hours. The Home Hub shall send the separate 2nd Reconciliation Submission ACK to its Local Home Agenc(ies), as needed. Note: The timing is based on the date and time in the Reconciliation submission header. Transactions will not have a Reconciliation Date until the 2nd ACK is received. The calculation using the fields in the NIOP ICD is: Away Hub Acknowledgement Date/Time (second ACK) of the SRECON (from Home Hub) minus Home Hub's SRECON Submission Date/Time <= 4.0 hours.

NIOP-PER-6. The Home Hub shall report, the status of a processed Interoperable Transaction within forty-eight (48) hours of receipt of the Transaction submission containing the Interoperable Transaction.

Note: The timing starts based on the date and time in the Transaction submission header. When the timing is not met the Home Hub should create Reconciliation records that contain "S" at the Posting Disposition for the Transactions that were not responded to. The calculation using the fields in the NIOP ICD is: Home Hub SRECON Transmission

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Date/Time minus Away Hub STRAN (or SCORR) Submission Date/Time <= 48.0 hours. Refer to NIOP-DIR-24.

2.1.8 Fees

- NIOP-FEE-1. The Away Agency shall pay the Home Agency (via the Home Hub's Custodian) a Base Transaction Fee and/or Variable Fee for each Interoperable Toll Transaction that is not rejected, as defined by the Interoperability Agreement between two NIOP Hubs.
- NIOP-FEE-2. Transaction Fees shall be reviewed and determined in accordance with procedures agreed upon by the parties to the Interoperability Agreement between two NIOP Hubs. The determined Transaction Fees shall be adopted by, and applicable to, all Interoperable Agencies unless a bilateral agreement exists between Agencies establishing a specific fee.
- NIOP-FEE-3. Transaction Fees shall be adjusted when a Transaction correction is processed, as defined by the applicable Interoperability Agreement between two NIOP Hubs. A Transaction correction is defined to be a class adjustment, toll credit (ignore original Transaction), location correction, toll adjustment or other reason where the toll is adjusted, as defined in the ICD.
- NIOP-FEE-4. Modification to the requirements for payment of the Transaction Fees between any Interoperable Agencies shall be acknowledged by all participating Interoperable Agencies.

2.1.9 Testing Requirements

2.1.9.1 Hub Testing Requirements

- **NIOP-TST-1.** Each NIOP Hub shall undergo and pass the minimum set of agreed-upon test requirements for certification promulgated by the NIOP Test document.
- **NIOP-TST-2.** Testing for Interoperability shall be at the expense of the Local Hub Agencies who are serviced by the NIOP Hub.

2.1.9.2 Home and Away Agency Testing Requirements

- **NIOP-TST-3.** Each Agency shall undergo and pass the minimum set of agreed-upon test requirements for certification promulgated by the NIOP Test document.
- **NIOP-TST-4.** Testing for Interoperability shall be at the expense of the Agency being certified as interoperable.

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2.1.10 Notification of Maintenance and Modifications

NIOP-MNT-1.

Each Interoperable Agency shall strive to provide a minimum of thirty (30) days notification of tolling system changes, including lane configuration changes that affect interoperability. Agencies will notify their Local Hub, who will strive to disseminate the information to the Other Hubs. The Other Hubs will strive, in turn, to disseminate the information to their Local Agencies.

Note: This is a process managed by the Agency engaging in tolling system changes.

NIOP-MNT-2.

Each Interoperable Agency, in receipt of another Interoperable Agency's configuration change or update notification, shall provide notification of intent to configure any required modification to their system's configuration within thirty (30) days. For example, Agencies will notify their Local Hub, who will strive to disseminate the information to the Other Hubs. The Other Hubs will strive, in turn, to disseminate the information to their Local Agencies. NIOP Agencies will make configuration changes, as needed, in order to accept and process Transactions from the additional roadway. *Note: This is managed operationally.*

NIOP-MNT-3.

Each Interoperable Agency shall strive to provide a minimum of thirty (30) days' notice of scheduled system maintenance to their respective system that will impact another Interoperable Agency and/or the processing of Transactions.

Note: This is a process managed by the Agency engaging in the system maintenance activities.

NIOP-MNT-4.

Each Interoperable Agency will provide immediate notification of a delay in transaction processing that may impact interoperable transactions. Agencies will notify their Local Hub, who will strive to disseminate the information to the Other Hubs. The Other Hubs will strive, in turn, to disseminate the information to their Local Agencies.

NIOP-MNT-5.

Each Interoperable Agency that identifies needed change(s) to National Interoperability shall discuss change(s) within its Region. After review, the Region may draft a change request and present it to the other Regions. The Regions, jointly, will discuss and evaluate the proposed change.

NIOP-MNT-6.

After discussion and evaluation of a needed change(s), the Region originating the change request will develop any specific technical recommendations for consideration by all the Regions. Upon approval by all the Regions, the change(s) will be made and documented in the NIOP Business Rules and ICD, as applicable. Changes will be phased into each Hub, as needed.

NIOP-MNT-7.

Semi-annual technical meetings will be scheduled to review technical interoperability topics.

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