



ETC, LLC:

ORIGINAL TECHNICAL PROPOSAL FOR THE RIVERLINK  
CUSTOMER SERVICE CENTERS AND BACK OFFICE SYSTEM

DIGITAL COPY

DECEMBER 08, 2020

## EXHIBIT E. PROPOSAL CHECKLIST

Proposers shall follow the order of the Proposal Checklist and include a referenced copy of this document with the Proposal submission and any Proposal Revision.

Proposal Part 1, 2 and 3		
<i>Proposal Component</i>	<i>Form (if applicable)</i>	<i>ITP Exhibit</i>
<b>Part 1 – General Information</b>		
<b>A. Executive Summary</b>		
Executive Summary (Exclude price information)	No forms are provided	Exhibit B
<b>B. Proposer Information, Certifications &amp; Documents</b>		
Proposal Letter	Form A	Exhibit B
Authorization Documents	No forms are provided	Exhibit B
Letter accepting joint and several liabilities, if applicable	No forms are provided	Exhibit B
Responsible Proposer and Major Participant Questionnaire	Form C	Exhibit B
Non-Collusion Affidavit	Form D	Exhibit B
Surety/Financial Institution Information	No forms are provided	Exhibit B
Conflict of Interest Disclosure Statements	Form F	Exhibit B
Equal Opportunity Employment Certifications	Form H	Exhibit B
Lobbying Certifications	Form I	Exhibit B
Debarment and Suspension Certifications	Form J	Exhibit B
Insurance	No forms are provided	Exhibit B
Confidential Contents Index	No forms are provided	Exhibit B
Required Affidavit for Bidders, Offerors and Contractors in KY	Form N	Exhibit B
Legal Information	No forms are provided	Exhibit B
Stipend Agreement	Form O	Exhibit B
Exceptions	Form P	Exhibit B
Drug Free Workplace Certification	Form R	Exhibit B
<b>C. Financial Information</b>		
Corporate and financial information for the Proposer, Major Participants, Guarantor and any other Financially Responsible Party	No forms are provided	Exhibit B
Audited Fiscal Financial Statements and unaudited interim financial statements	No forms are provided	Exhibit B
Material Changes in Financial Condition	No forms are provided	Exhibit B



<b>Proposal Part 1, 2 and 3</b>		
<i>Proposal Component</i>	<i>Form (if applicable)</i>	<i>ITP Exhibit</i>
Guarantor Commitment Letter	Form L	Exhibit B
<b>Appendices</b>		
Proposer Teaming Agreement or Key Terms	No forms are provided	Exhibit B
<b>Part 2 – Technical Proposal (Exclude price information)</b>		
<b>D. Technical Response</b>		
Technical Requirements Conformance Matrix	Form K	Exhibit C
Approach to Project Plan and Implementation	K-1	Exhibit C
Approach to Data Migration	K-2	Exhibit C
Approach to System and Project Requirements	K-3	Exhibit C
Approach to Operations and Maintenance	K-4	Exhibit C
Approach to BOS and CSC Transition	K-5	Exhibit C
Approach to CSC Workforce Management	K-6	Exhibit C
Approach to Key Performance Indicators	K-7	Exhibit C
Approach to Technology and Telephony	K-8	Exhibit C
Value Adds	Form Q	Exhibit C
<b>E. Preliminary Project Schedule</b>		
Preliminary Project Schedule	No forms are provided	Exhibit C
<b>F. Project Team</b>		
Identification of Proposer and Equity Members	Form B-1	Exhibit C
Information About Proposer Organization	Form B-2	Exhibit C
Information About Major Participants and Identified Contractors	Form B-3	Exhibit C
Qualifications Information	No forms are provided	Exhibit C
Key Personnel resumes and references	No forms are provided	Exhibit C
Personnel Work Assignment Form and Commitment of Availability	Form E	Exhibit C
<b>Part 3 – Price Proposal</b>		
Price Forms	Form G	Exhibit D

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## EXHIBIT F. REQUIRED FORMS

Form A	Proposal Letter
Form B-1	Identification of Proposer and Equity Members
Form B-2	Information About Proposer Organization
Form B-3	Information About Major Participants and Identified Contractors
Form C	Responsible Proposer Major Participant Questionnaire
Form D	Non-Collusion Affidavit
Form E	Personnel Work Assignment Form and Commitment of Availability
Form F	Conflict of Interest Disclosure Statement
Form G	Price Forms (provided as a spreadsheet)
Form H	Equal Employment Opportunity Certification
Form I	Use of Contract Funds for Lobbying Certificate
Form J	Debarment and Suspension Certification
Form K	Technical Requirements Conformance Matrix (provided as a spreadsheet)
Form L	Guarantor Commitment Letter
Form M	RFP Comment Form
Form N	Required Affidavit for Bidders, Offerors and Contractors in KY
Form O	Form of Stipend Agreement
Form P	Exceptions (provided as a template)
Form Q	Value Add (provided as a template)
Form R	Drug-Free Workplace Certification



## Table of Contents

D	Part 2 – Technical Response.....	D-1
D.1	Technical Requirements Conformance Matrix (Form K) .....	D-1
D.2	Planned Approaches .....	D-3
D.2.1	Approach to Project Plan and Implementation (K-1) .....	D-3
D.2.2	Approach to Data Migration (K-2).....	D-13
D.2.3	Approach to System and Project Requirements (K-3) .....	D-21
D.2.4	Approach to Operations and Maintenance (K-4) .....	D-41
D.2.5	Approach to BOS and CSC Transition (K-5) .....	D-51
D.2.6	Approach to CSC Workforce Management (K-6) .....	D-61
D.2.7	Approach to Key Performance Indicators (K-7).....	D-67
D.2.8	Approach to Technology and Telephony (K-8).....	D-75
D.3	Value Adds (Form Q).....	D-85
E	Preliminary Project Schedule .....	E-87
E.2	Proposed Preliminary Project Schedule .....	E-90
F	Project Team .....	F-91
F.1	Proposer, Major Participants, Other Contractor Information.....	F-93
F.1.1	Identification of Proposer and Equity Members, Form B-1 .....	F-93
F.1.2	Information About Proposer Organization, Form B-2 .....	F-93
F.1.3	Information About Major Participants and Identified Contractors, Form B-3 .....	F-93
F.2	Qualifications Information .....	F-95
F.2.1	Project References: Back Office Systems.....	F-99
F.2.2	Project References: Customer Service Center Operations .....	F-102
F.3	Key Personnel Resumes and References.....	F-105
F.3.1	Key Personnel References.....	F-105
F.3.2	Key Personnel Resumes .....	F-110
F.4	Form E. Personnel Work Assignment Form and Commitment of Availability (Form E) F-111	

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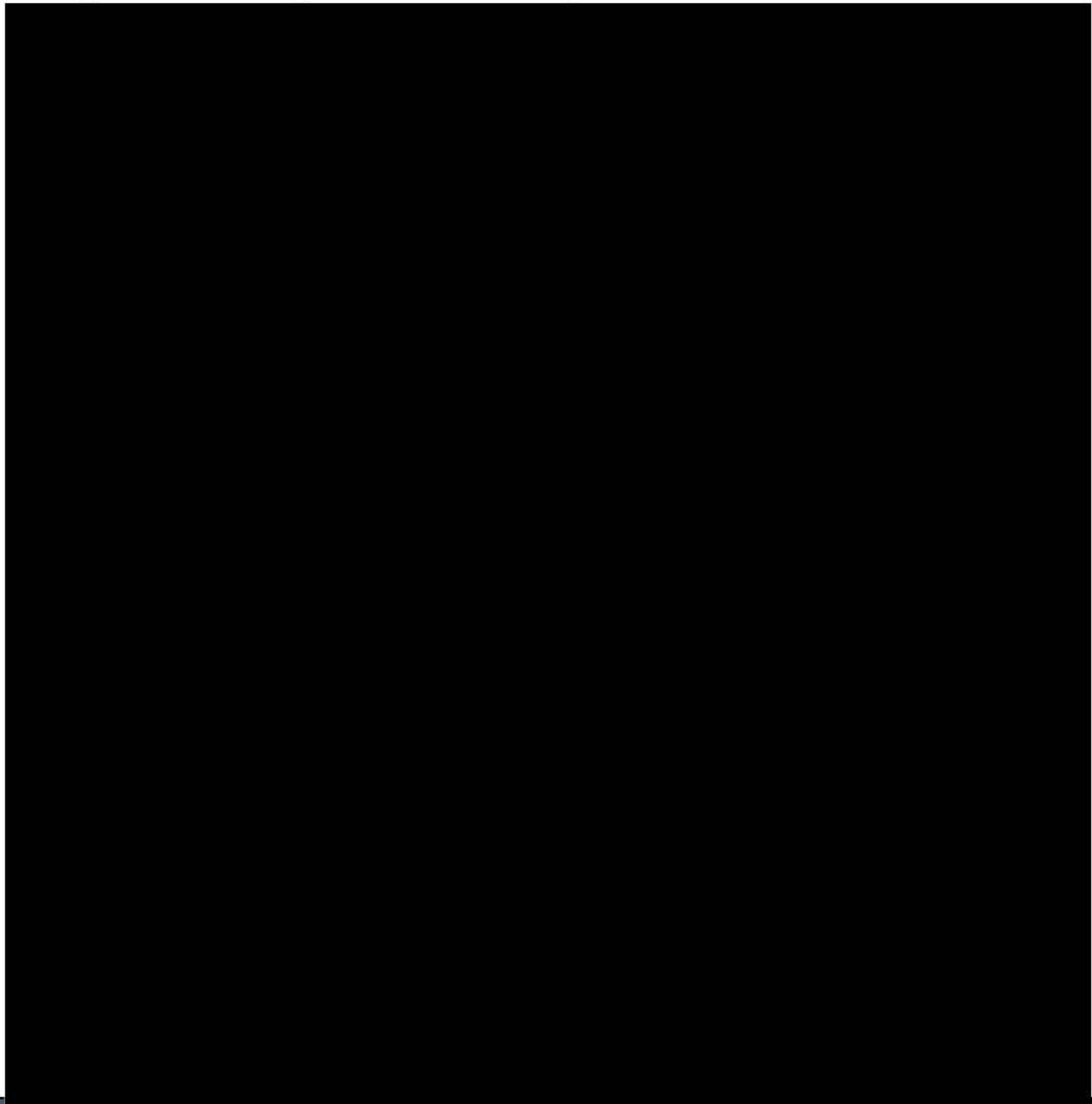
## D PART 2 – TECHNICAL RESPONSE

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### D.1 TECHNICAL REQUIREMENTS CONFORMANCE MATRIX (FORM K)

#### *Requirements Tracking*

The Joint Board increases the opportunity for success by leveraging ETC's proven methodology for requirements gathering and tracking. Our *Requirements Traceability Matrix (RTM)* provides a dynamic platform for tracking the requirements through design, development, testing, training, and maintenance. ETC can provide the most effective, schedule efficient, and risk mitigated approach to ensure requirements are successfully documented and achieved.



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The completed Technical Requirements Conformance Matrix is attached herein.

The native Excel version of the RCM has been submitted on the USB copies containing the proposal files.



**1. Customer and Customer Account Management**  
**General Customer Relationship Management (CRM)**

Req. #	Requirement
CAM-001	TSP2 shall provide a full-feature CRM system that is fully integrated into the BOS that allows for Customer Accounts to be established, utilized and maintained and that complies with the Contract.
CAM-002	The BOS shall provide the capability for an Authorized User to create user-defined fields, within the CRM environment, to support the Future Updated Business Rules.
CAM-003	TSP2 shall provide a real-time, two-way interface, between the CRM system and the BOS in order to populate the CRM system with information from the BOS and populate the BOS with information from the CRM system.
CAM-004	The BOS shall populate the CRM system with all customer related information, including but not limited to: <ul style="list-style-type: none"> <li>• contact information (e.g., name, address, email address and phone numbers),</li> <li>• payment information (e.g., payment type, payment success or failure),</li> <li>• vehicle information (e.g., vehicle type and License Plate Data),</li> <li>• Transponder information (if applicable)</li> <li>• information regarding Account Attributes and Account Flags,</li> <li>• detailed Traffic Transaction (including images of each crossing), Financial Transaction and Event Transaction information,</li> <li>• Notifications to the customer,</li> <li>• correspondence from the customer, and</li> <li>• notes/comments.</li> </ul>
CAM-005	The BOS shall provide the capability for an Authorized User to view all contact channels through which a customer accessed their Customer Account.

**General Customer Account Management**

Req. #	Requirement
CAM-006	Based on the Future Updated Business Rules, the BOS shall provide the capability for an Authorized User to perform various Customer Account management actions, including but not limited to: <ul style="list-style-type: none"> <li>• open a Customer Account;</li> <li>• waive fees by changing Account Attributes and/or Account Flags;</li> <li>• edit customer name and/or contact information;</li> <li>• add and/or edit vehicle information;</li> <li>• transfer vehicles;</li> <li>• temporarily transfer a vehicle;</li> <li>• add a Transponder to an existing vehicle;</li> <li>• add a Transponder to a new vehicle;</li> <li>• replace a Transponder on an existing vehicle;</li> <li>• inactivate a Transponder;</li> <li>• activate a Transponder;</li> <li>• transfer a Transponder (between vehicle and Customer Account);</li> <li>• edit Transponder effective dates;</li> <li>• add/edit/remove a payment method;</li> <li>• add/edit/remove payment preferences;</li> <li>• update the Auto-Replenishment amount;</li> <li>• update the Low Balance Level amount;</li> <li>• make a one-time payment to Customer Account balance, unpaid Financial Transaction(s), or MBS;</li> <li>• schedule recurring payments;</li> <li>• merge Customer Accounts;</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>• edit Customer Account preferences, including but not limited to Notification preferences (opt-in/out), Notification delivery preferences (how to notify), and payment preferences (default payment method(s));</li> <li>• dispute transaction(s) or an MBS;</li> <li>• un-match transaction(s) from an MBS and transfer to a different MBS or Customer Account;</li> <li>• apply a credit to a Customer Account;</li> <li>• adjust both Traffic and Financial Transaction(s);</li> <li>• waive both Traffic and Financial Transaction(s);</li> <li>• Write-off both traffic and Financial Transaction(s);</li> <li>• Write-off MBS(s);</li> <li>• create a Payment Plan;</li> <li>• view Notification mail dates including sent date for text and email Notifications;</li> <li>• view all correspondence;</li> <li>• view Financial Transaction history, including to the image level where applicable;</li> <li>• view all MBS(s); and</li> <li>• view Customer Account activity, including activity related to Financial Transactions and Event Transactions.</li> </ul>
CAM-007	The BOS shall maintain the history of every change made to a Customer Account, including when the change was made and who made the change.

#### Customer Account Attributes

Req. #	Requirement
CAM-008	<p>Based on the Future Updated Business Rules, the BOS shall allow the creation, maintenance and utilization of Configurable Account Attributes for/on Customer Accounts, including but not limited to the following:</p> <ul style="list-style-type: none"> <li>• personal, commercial, or temporary/anonymous</li> <li>• exempt/non-revenue or revenue</li> <li>• prepaid or postpaid</li> <li>• Auto-Replenishment amount</li> <li>• Low Balance Level amount</li> </ul>
CAM-009	<p>Based on the Future Updated Business Rules, the BOS shall allow Account Attributes to impact various Configurable Customer Account parameters including but not limited to:</p> <ul style="list-style-type: none"> <li>• maximum number of active vehicles and/or Transponders,</li> <li>• payment options,</li> <li>• Auto-Replenishment amounts, and</li> <li>• Low Balance Level amounts.</li> </ul>
CAM-010	The BOS shall support changing Account Attributes while maintaining the same Customer Account number and all Customer Account history.
CAM-011	The BOS shall provide the capability to display every (i.e., all, active, inactive) Account Attribute (Configurable) upon accessing the Customer Account.

#### Customer Account Flags

Req. #	Requirement
CAM-012	Based on the Future Updated Business Rules, the BOS shall allow the creation, maintenance, utilization and display of Configurable Account Flags for/on Customer Accounts.
	<p>The BOS shall provide the capability for an Authorized User to automatically and manually set, remove, and reset Account Flags, based on conditions and events, including but not limited to:</p> <ul style="list-style-type: none"> <li>• habitual violator</li> <li>• VIP customer</li> <li>• Interoperability allowed</li> <li>• Fleet</li> <li>• automatically calculate auto-replenishment amount</li> <li>• suspicious activity customer (potentially trying to game the system)</li> <li>• valid/invalid auto-replenishment method;</li> </ul>



Req. #	Requirement
CAM-013	<ul style="list-style-type: none"> <li>• valid/invalid automatic payment method;</li> <li>• positive or negative account balance;</li> <li>• account balance greater than Low Balance Level;</li> <li>• account balance less than or equal to Low Balance Level;</li> <li>• bad address;</li> <li>• bad email address;</li> <li>• bad phone number;</li> <li>• phone number on the account is unlisted;</li> <li>• inactive account;</li> <li>• Transponder in certain status (e.g., lost or stolen);</li> <li>• Excessive VTolls;</li> <li>• account is in "pending to close" status;</li> <li>• account has an open Case;</li> <li>• customer enrolled in Discount Plan(s);</li> <li>• unresolved returned check(s);</li> <li>• past (resolved) returned check(s);</li> <li>• at least one (1) Credit Card bad on the account;</li> <li>• at least one (1) Credit Card is expired or is expiring within a Configurable number of days;</li> <li>• multiple chargebacks;</li> <li>• unresolved chargeback(s);</li> <li>• account has at least one (1) suspended auto-replenishment method;</li> <li>• account has unpaid transaction(s);</li> <li>• one (1) or more vehicles on the account has been placed on Registration Hold;</li> <li>• account is in Collections;</li> <li>• the owner of the account is a habitual violator;</li> <li>• account has an Administrative Hearing request pending;</li> <li>• account has transactions that have been written off;</li> <li>• account was closed in bad standing;</li> <li>• account has a least one (1) high priority comment;</li> <li>• do not accept checks for payment;</li> <li>• account needs to be referred to a supervisor;</li> <li>• account owner is deceased;</li> <li>• Bankruptcy;</li> <li>• Conversion occurred (at the license plate level); and</li> <li>• Legal Hold.</li> </ul>
CAM-014	The BOS shall provide the capability to display every (i.e., all, active, inactive) Account Flag (Configurable) when accessing the Customer Account, or the Customer Account information where the Account Flag is relevant.
CAM-015	The BOS shall provide the capability for an Authorized User to automatically or manually clear Account Flags no longer applicable to a Customer Account.
CAM-016	The BOS shall allow Fleet customers to manage all vehicles from a view, as well as allow each vehicle to be managed from their own individual Customer Accounts, based on the Future Updated Business Rules.



Req. #	Requirement	Proposer Response			
		Meets	Meets with Config.	Meets with Cust.	Exception

**Establish/Create Customer Account**

Req. #	Requirement
CAM-017	The BOS shall provide the capability for an Authorized User or customer to create Customer Accounts via methods that include, but are not limited to: <ul style="list-style-type: none"> <li>Self-Service Website (by customer),</li> <li>Self-Service Mobile Website (by customer),</li> <li>CSR BOS interface by CSR in response to: <ul style="list-style-type: none"> <li>received mail or email</li> <li>telephone call with customer</li> <li>walk-up customer</li> </ul> </li> <li>Retailer(s) via temporary transponders;</li> <li>Retailer BOS interface (by CSR in response to walk-up customer), and</li> <li>automatically using information provided by the VRI Source.</li> </ul>
CAM-018	The BOS shall provide a Customer Account creation process, which logically leads an Authorized User or customer through the necessary steps to create a Customer Account.
CAM-019	The BOS shall provide the capability for an Authorized User or customer to dynamically enable/disable required available data fields in the Customer Account record, as Account Attributes are changed.
CAM-020	The BOS shall provide on-screen guidance during the Customer Account creation process regarding missing or improperly formatted information. The Authorized User shall not be able to move to the next step until the required information is provided and in the appropriate format.
CAM-021	The BOS shall provide the capability for an Authorized User or customer, during the establishment of a Customer Account, to select the desired Account Attributes and preferences, based on the specific Customer Account being established.
CAM-022	The BOS shall require the applicable Customer Account agreement (Configurable) be acknowledged, and a record of that acknowledgment saved in the BOS.
CAM-023	The BOS shall capture opt-in/opt-out preferences and record and store the customer's election in the BOS.
CAM-024	The BOS shall allow the auto-creation of a Customer Account (should one not already exist for the License Plate Data), based on an Image-Based Transaction being matched to VRI at the time of the transaction.
CAM-025	The BOS shall provide the capability for an Authorized User to merge and unmerge Customer Accounts. This process shall logically lead the user through all necessary steps to merge one (1) Customer Account into another.
CAM-026	The BOS shall provide the capability for an Authorized User to designate multiple authorized Customer Account contacts.
CAM-027	The BOS shall request payment based on the Customer Account established and the Future Updated Business Rules.
CAM-028	Customer Accounts shall transition from prepaid to postpaid or postpaid to prepaid, based on the Future Updated Business Rules.
CAM-029	For Customer Accounts which have transitioned from prepaid to postpaid, the BOS shall create new Customer Account(s) for the vehicle(s) where the name and address from the obtained VRI is not the Customer Account holder listed on the prepaid account, based on the Future Updated Business Rules.
CAM-030	The BOS shall ensure that the original Customer Account has links to the Customer Accounts, where new Customer Accounts have been created and vice versa.
CAM-031	The BOS shall provide the capability for an Authorized User to access Customer Accounts, where the name and address from the obtained VRI is the original Customer Account holder, via the link from the original Customer Account, and based on the Future Updated Business Rules.
CAM-032	The BOS shall provide the capability for an Authorized User to access the original Customer Account, from the new Customer Account created, as the result of the name and address from the obtained VRI not being the same as the Customer Account holder.
CAM-033	The BOS shall provide the capability to allow an Authorized User to copy selected (Configurable) fields from one (1) Customer Account to another Customer Account.

**Vehicle Registration Information (VRI)**

Req. #	Requirement
CAM-034	The BOS shall ensure that when VRI updates are obtained, Customer Accounts and vehicle information is updated with the new VRI, based on the Future Updated Business Rules.
CAM-035	The BOS shall ensure that if the updated VRI is obtained from a VRI Source, it will automatically update the VRI on the Customer Account (including vehicle information), based on the Future Updated Business Rules.
CAM-036	The BOS shall provide the capability for an Authorized User to review the results and confirm the VRI, when multiple matches are returned for License Plate Data, before Posting the related Traffic Transaction(s) to the Customer Account.



Req. #	Requirement
CAM-037	The BOS shall ensure that if a Customer Account is system-generated, based on VRI and the VRI changes, it will create a new Customer Account for the new VRI based on the Future Updated Business Rules.
CAM-038	The BOS shall provide the capability for an Authorized User to review the results and take appropriate action, if partial VRI matches are returned, and confirm the Customer Account matches the VRI name and address.
CAM-039	The BOS shall add the License Plate Data to the Customer Account, when VRI matches the Customer Account.
CAM-040	The BOS shall ensure that if a new address is obtained from the VRI Source, it will update the VRI for the vehicle on the Customer Account, retain the old address for historical information, and update based on the Future Updated Business Rules.

#### Customer Contact Information

Req. #	Requirement
CAM-041	The BOS shall allow all Customer Accounts to have multiple customer contacts.
CAM-042	The BOS shall allow all Customer Accounts to have multiple customer contact methods and maintain contact history for each customer contact, including but not limited to: <ul style="list-style-type: none"> <li>primary phone number,</li> <li>additional phone numbers,</li> <li>primary email address,</li> <li>additional email addresses, and</li> <li>USPS mailing address.</li> </ul>
CAM-043	The BOS shall require email address confirmation by the customer, by comparing a re-keyed email address; the addition of un-matched entries shall not be allowed.
CAM-044	The BOS shall send an email requesting validation of an email address.
CAM-045	The BOS shall provide cell phone number confirmation for texting and SMS.
CAM-046	The BOS shall provide the capability for an Authorized User to change the Customer Account holder's name based on the Future Updated Business Rules and SOPs.

#### Address Management

Req. #	Requirement
CAM-047	The BOS shall provide the capability to store multiple addresses, and address history, including all addresses for all Customer Accounts, in both original form and in address standardization/validation form, including but not limited to: <ul style="list-style-type: none"> <li>shipping,</li> <li>shipping (standardized/validated),</li> <li>billing,</li> <li>billing (standardized/validated),</li> <li>mailing, and</li> <li>mailing (standardized/validated).</li> </ul>
CAM-048	The BOS shall identify the source of the information, when a customer address is updated in the BOS.
CAM-049	The BOS shall record the source of the address (i.e., Skip Tracing, NCOA, VRI Source, manual entry, customer, etc.).
CAM-050	The BOS shall record the address effective dates, for each address that is stored in the BOS.
CAM-051	The BOS shall provide the capability for the Authorized User to accept or reject the recommended changes, provided during address validation or standardization.
CAM-052	The BOS shall acquire and store multiple addresses and address types, including all prior addresses for all Customer Accounts, in both original form and in address standardization/validation form from sources including but not limited to: <ul style="list-style-type: none"> <li>customer provided address;</li> <li>customer provided address, standardized/validated;</li> <li>VRI lookup;</li> <li>Skip Tracing;</li> <li>Skip Tracing, standardized/validated;</li> <li>National Change of Address (NCOA);</li> <li>collections addresses; and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>collections addresses, standardized/validated.</li> </ul>
CAM-053	The BOS shall provide the capability for an Authorized User to add international addresses.
CAM-054	The BOS shall automatically populate (or provide multiple options for selection) the city and state upon entry of the zip code (including Canada and Mexico).
CAM-055	The BOS shall obtain periodic updates, at least quarterly, to the zip code list, at a minimum, as additional information becomes available.
CAM-056	The BOS shall provide the capability for an Authorized User to initiate an automated Skip Tracing process.
CAM-057	The BOS shall provide the capability, when a mailing address is found to be bad, to perform Skip Tracing and add the acquired mailing address or other contact information to the Customer Account and identify the source of the address as Skip Tracing.
CAM-058	The BOS shall provide the capability for an Authorized User to Configure instances, where the existing active address on the Customer Account is to be automatically replaced with a different address obtained from one (1) of the address sources (i.e., Skip Tracing, VRI Source, customer) per the Future Updated Business Rules.
CAM-059	The BOS shall automatically update the Customer Account address based the Future Updated Business Rules.

#### Vehicle and License Plate Management

Req. #	Requirement
CAM-060	The BOS shall provide the capability for an Authorized User or customer to add, edit, maintain and remove vehicles on or from a Customer Account.
CAM-061	The BOS shall provide the capability for an Authorized User or customer to edit the vehicles' effective dates on a Customer Account.
CAM-062	TSP2 shall obtain and update a list of vehicle make, model, class and color of all vehicles from an automated source.
CAM-063	<p>The BOS shall provide the capability for an Authorized User or customer to manage a drop-down list of vehicle information including but not limited to:</p> <ul style="list-style-type: none"> <li>vehicle manufacturer,</li> <li>vehicle make,</li> <li>vehicle model,</li> <li>vehicle year,</li> <li>vehicle color,</li> <li>license plate type,</li> <li>fields relating to the vehicle fuel efficiency (i.e., fuel efficient, hybrid and electric),</li> <li>Transponder exception specifying that the make and model requires an externally mounted Transponder or special mounting locations for windshield Transponders,</li> <li>self-driving vehicles,</li> <li>axle-based vehicle classification, and</li> <li>shape-based vehicle classification.</li> </ul>
CAM-064	The BOS shall provide the capability for an Authorized User to load and edit vehicles on a Customer Account, by loading in a file, based on the Future Updated Business Rules.
CAM-065	The BOS shall provide the capability for an Authorized User to enter multiple vehicles in a tabular format.
CAM-066	The BOS shall provide the capability for an Authorized User to add/upload a sample picture of the license plate for a vehicle on the Customer Account.
CAM-067	<p>The BOS shall provide the capability for an Authorized User, when adding new License Plate Data to a Customer Account, to automatically view other Customer Account(s) associated with that License Plate Data, including but not limited to:</p> <ul style="list-style-type: none"> <li>Customer Accounts that have unpaid transactions and MBSS,</li> <li>Customer Accounts in bad standing,</li> <li>Customer Accounts closed in bad standing,</li> <li>Customer Accounts in Collections,</li> <li>Customer Accounts in bankruptcy status, and</li> <li>Customer Accounts where the License Plate Data is active on another Customer Account.</li> </ul>
	<p>The BOS shall provide the capability for an Authorized User to associate information with a license plate, including but not limited to:</p> <ul style="list-style-type: none"> <li>license plate type,</li> <li>license plate Jurisdiction,</li> <li>license plate characters,</li> </ul>



Req. #	Requirement
CAM-068	<ul style="list-style-type: none"> <li>license plate issue date,</li> <li>license plate type,</li> <li>vehicle make (from a drop-down list),</li> <li>vehicle model (from a drop-down list),</li> <li>vehicle year (from a drop-down list),</li> <li>vehicle color,</li> <li>Transponder,</li> <li>Transponder friendly name,</li> <li>VRI,</li> <li>VRI Source,</li> <li>driver's license number,</li> <li>driver's license state of issue,</li> <li>VRI lookup date,</li> <li>indication the license plate is on a trailer,</li> <li>indication the license plate is a temporary license plate, and</li> <li>license plate expiration date, if applicable.</li> </ul>
CAM-069	The BOS shall record the history of VRI associated with each license plate.
CAM-070	The BOS shall provide the capability for an Authorized User to transfer vehicle(s) and associated License Plate Data between Customer Accounts based on the Future Updated Business Rules and SOPs.
CAM-071	The BOS shall provide the capability for an Authorized User or customer to add license plates from all fifty (50) states, territories, districts and international license plates.

#### Transponder Management

Req. #	Requirement
CAM-072	<p>The BOS shall provide the capability for an Authorized User to manage various Transponder types, including but not limited to:</p> <ul style="list-style-type: none"> <li>RiverLink sticker (internal/windshield; 6C), <ul style="list-style-type: none"> <li>Class 1</li> <li>Class 2</li> <li>Class 3</li> </ul> </li> <li>RiverLink E-ZPass: internal/hardcase, programmable Class; and</li> <li>RiverLink E-ZPass: external / bumper / license plate, programmable Class.</li> </ul>
CAM-073	<p>The BOS shall allow for Configurable Transponder statuses, including but not limited to:</p> <ul style="list-style-type: none"> <li>inactive (prior to fulfillment),</li> <li>active (assigned to a Customer Account and not invalid),</li> <li>invalid (assigned to a Customer Account): <ul style="list-style-type: none"> <li>lost,</li> <li>stolen,</li> <li>deactivated,</li> <li>insufficient balance: <ul style="list-style-type: none"> <li>insufficient for use on home facilities</li> <li>insufficient for use on Regional Interoperable facilities</li> <li>insufficient for use on National Interoperable facilities <ul style="list-style-type: none"> <li>Customer Account is "pending to close", and</li> </ul> </li> </ul> </li> </ul> </li> <li>returned to inventory, and</li> <li>returned to manufacturer.</li> </ul>
CAM-074	<p>The BOS shall provide the capability for an Authorized User to define and edit Transponder's statuses based on the Configurable Customer Account balance amount and area/region it serves, including but not limited to:</p> <ul style="list-style-type: none"> <li>Home facilities,</li> <li>Regional Interoperability facilities, and</li> <li>National Interoperability facilities</li> </ul>
CAM-075	The BOS shall provide the capability for an Authorized User to manually change certain Transponder statuses, such as when a customer calls to report a Transponder has been stolen.



Req. #	Requirement
CAM-076	The BOS shall automatically change Transponder statuses (e.g., when a Transponder, which is in inventory with a "returned to inventory" status, is subsequently added to a Customer Account, the status changes to "active").
CAM-077	The BOS shall track a Transponder's current status and status history.
CAM-078	The BOS shall automatically change all Customer Account Transponder statuses (for the region it serves), from "active" to "invalid", when the Customer Account balance is equal to or below a Configurable balance, applicable to that region.
CAM-079	The BOS shall automatically change all Customer Account Transponder statuses (for the region it serves), from "invalid" to "active", when the Customer Account balance is above the Configurable balance, applicable to the region it serves.
CAM-080	The BOS shall automatically change all Customer Account Transponder statuses, from "active" to "invalid", when Customer Account is set to "pending to close".
CAM-081	The BOS shall provide the capability for an Authorized User or customer to request a Transponder for every vehicle on the Customer Account.
CAM-082	The BOS shall provide the capability for an Authorized User or customer to request a Transponder for every vehicle added during the Customer Account establishment process.
CAM-083	The BOS shall ensure that each Transponder on a Customer Account must be tied to a unique vehicle on the Customer Account.
CAM-084	The BOS shall track customer Transponder requests.
CAM-085	The BOS shall record the Transponder delivery method, such as in-person via the Walk Up Center, or by mail.
CAM-086	The BOS shall record the Transponder issue date and time.
CAM-087	The BOS shall record the Transponder effective date and time.
CAM-088	The BOS shall record and associate a payment for every Transponder sold, if applicable.
CAM-089	The BOS shall age fulfillments, via Case Management, and automatically send an Alert when a fulfillment request has exceeded a Configurable amount of time.
CAM-090	The BOS shall determine the Transponder type recommended for the vehicle.
CAM-091	The BOS shall allow the Authorized User to override the BOS-selected Transponder mount type, such as windshield or license plate.
CAM-092	The BOS shall allow for the Authorized User to override the customer-selected Transponder mount type, such as windshield or license plate.
CAM-093	The BOS shall provide the capability for an Authorized User to read a Transponder ID (using a barcode reader), and automatically associate it to Customer Account, during the Customer Account establishment process.
CAM-094	The BOS shall provide the capability for an Authorized User to transfer Transponders, between Customer Accounts, while maintaining the associated Transponder transaction history on the original Customer Account.
CAM-095	The BOS shall provide the capability for an Authorized User to add a Transponder to a vehicle on a Customer Account.
CAM-096	The BOS shall provide the capability for an Authorized User to edit Transponder effective dates.
CAM-097	The BOS shall provide the capability for an Authorized User to register a Transponder obtained from a Retail Partner on the Self-Service Website, by phone, or in the Walk Up Center.
CAM-098	The BOS shall require customers to enter the Transponder ID, and any associated code, when registering a retail Transponder.
CAM-099	The BOS shall provide the capability for the same Transponder to be on multiple Customer Accounts historically.
CAM-100	The BOS shall ensure a Transponder that is historically on multiple Customer Accounts is active on only one (1) Customer Account at a time.

## Preferences

Req. #	Requirement
CAM-101	The BOS shall provide a user interface, as part of the Customer Account establishment and maintenance process that allows Authorized Users to specify and update preferences.
CAM-102	The BOS shall provide the capability for an Authorized User to set and edit Customer Account preferences.
CAM-103	The BOS shall default Customer Account preferences, based on the Customer Account Attributes and Flags, based on the Future Updated Business Rules.
CAM-104	The BOS shall store and act upon Customer Account preferences, including but not limited to: <ul style="list-style-type: none"> <li>• payment preferences (e.g., specifying payment options, and the order for the options), and</li> <li>• Notification preferences.</li> </ul>
CAM-105	The BOS shall provide the capability for an Authorized User to set and edit vehicle preferences (e.g. vehicle requires bumper tag).
CAM-106	The BOS shall default vehicle preferences, based on vehicle attributes and the Future Updated Business Rules.
CAM-107	The BOS shall store and act upon vehicle preferences based on the Future Updated Business Rules.
CAM-108	The BOS shall provide the capability for an Authorized User to set and edit Transponder preferences, based on the Future Updated Business Rules.
CAM-109	The BOS shall default preferences based on Transponder attributes and the Future Updated Business Rules
CAM-110	The BOS shall provide the capability for Authorized Users to set "opt-in" and "opt-out" options, including but not limited to: <ul style="list-style-type: none"> <li>• mail MBSs (opt-out is overridden if customer has an overdue balance), and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>• receive marketing/newsletter correspondence</li> </ul>
CAM-111	The BOS shall track the date history of customer opt-ins and opt-outs.

#### Customer Account Activity

Req. #	Requirement
CAM-112	The BOS shall provide the capability for an Authorized User to Configure Financial Transactions, Event Transactions, Alerts and other Custom Account activity records to specify whether it should be available to the customer and customer service, or to customer service only.
CAM-113	<p>The BOS shall provide the capability for an Authorized User to view MBS attributes for a specific Customer Account, including but not limited to:</p> <ul style="list-style-type: none"> <li>• MBS recurring generation date,</li> <li>• MBS mailing and due dates,</li> <li>• MBS summary information,</li> <li>• detail of the MBS,</li> <li>• images associated with Traffic Transactions,</li> <li>• MBS delivery Notification,</li> <li>• history of the MBS, and</li> <li>• images of the MBS and MBS envelope or email.</li> </ul>
CAM-114	The BOS shall allow the Authorized User to view Customer Account activity for a specific Customer Account.

#### Comments

Req. #	Requirement
CAM-115	The BOS shall provide the capability for an Authorized User to enter Comments on Customer Accounts.
CAM-116	The BOS shall provide the capability for an Authorized User to enter Comments related to a vehicle.
CAM-117	The BOS shall provide the capability for an Authorized User to enter Comments related to a Transponder on a Customer Account.
CAM-118	The BOS shall provide the capability for an Authorized User to categorize Comments.
CAM-119	The BOS shall provide the capability for an Authorized User to Configure BOS-generated Comments, when an action is taken.
CAM-120	<p>The BOS shall force users to enter Comments, or have the BOS automatically enter Comments, on Configurable actions processed on a Custom Account; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• disputes,</li> <li>• dismissals,</li> <li>• transfer of Financial Transactions to another Customer Account,</li> <li>• payments made through the Customer Account,</li> <li>• reversals of payments and dismissals,</li> <li>• waivers,</li> <li>• refunds,</li> <li>• corrections,</li> <li>• adjustments, and</li> <li>• chargebacks.</li> </ul>



Req. #	Requirement
<b>Notifications</b>	
Req. #	Requirement
CAM-121	The BOS shall display customer Notifications on the GUI. Notifications shall be highly visible to the Authorized User (e.g., red font or bold font).
CAM-122	The BOS shall provide the capability for an Authorized User to view, select, and print Notification pieces directly from the Customer Account.
CAM-123	The BOS shall provide the capability for an Authorized User to email a PDF version of the Notification piece directly from the Customer Account.
CAM-124	The BOS shall provide the capability for an Authorized User to download a PDF version of the Notification directly from the Customer Account.
<b>Discount Plans</b>	
Req. #	Requirement
CAM-125	The BOS shall provide the capability for an Authorized User to assign Discount Plans at the Customer Account level.
CAM-126	The BOS shall provide the capability for an Authorized User to assign Discount Plans at the Transponder-level.
CAM-127	The BOS shall provide the capability for an Authorized User to assign Discount Plans at the transaction level.
CAM-128	The BOS shall provide the capability for an Authorized User to assign Discount Plans at the license-plate-level.
CAM-129	The BOS shall prevent the transfer of Discount Plans when the Transponder or license plate is transferred to another Customer Account or vehicle.
CAM-130	<p>The BOS shall provide the capability for an Authorized User to enroll customers in Discount Plans in multiple ways, including but not limited to:</p> <ul style="list-style-type: none"> <li>• automatically based on eligibility;</li> <li>• customer elects to participate;</li> <li>• customer elects to participate and makes required payment (e.g., setup fee and/or monthly fee); and</li> <li>• customer elects to participate, but authorization is required.</li> </ul>
CAM-131	<p>The BOS shall allow configuring and offering various Discount Plans with a combination of features; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Account Attribute(s);</li> <li>• Account Flag(s);</li> <li>• Customer Account balance;</li> <li>• percentage discount;</li> <li>• dollar amount discount;</li> <li>• time duration, such as a Discount Plan, may only be available for a limited time or may require periodic renewal;</li> <li>• specific toll location(s);</li> <li>• method of calculating the discount, such as a Traffic Transaction-level discount, where members receive a parameterized percent discount on every qualifying toll transaction, or a rebate credit on following month, based on the number of transactions within a period of time;</li> <li>• use of Posting Date or Transaction Date to qualify transactions for a rebate;</li> <li>• specific criteria for qualification (such as only offered for two (2) axle vehicles); and</li> <li>• time of day (i.e., Traffic Transactions occurring during specific times of the day may receive discounts).</li> </ul>
CAM-132	The BOS shall account for VTolls in frequency-based Transponder-level discounts.
CAM-133	The BOS shall apply rebates as lump-sum account-level credits.
CAM-134	The BOS shall apply and reverse discounts based on how the discount is configured.
CAM-135	The BOS shall provide the capability to clearly indicate which discount was applied to any given transaction.
CAM-136	The BOS shall provide the capability to Configure a non-revenue plan (100 percent discount), to a Transponder or license plate, on all or specific tolling facilities.
CAM-137	The BOS shall provide the capability to use effective (start/end) date/times, to track the active duration of Discount Plans. Once a Discount Plan on Customer Account expires, it is no longer valid and Traffic Transactions post to the Customer Account at the original/non-discounted toll rate.
CAM-138	The BOS shall allow third-party sponsorship of tolls, whereby all (or specific) tolls for a specified duration, and at one or more specified tolling location are paid for by a third-party.
CAM-139	The BOS shall provide the capability for an Authorized User to apply a toll discount after the Traffic Transaction has been posted to a Customer Account per the Future Updated Business Rules.



Req. #	Requirement
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#### Fees

Req. #	Requirement
CAM-140	The BOS shall support the assessment of fees automatically to Customer Accounts.
CAM-141	The BOS shall provide the capability for an Authorized User to manually apply fees at various levels, including but not limited to: <ul style="list-style-type: none"> <li>at the Customer Account level,</li> <li>at the MBS level,</li> <li>at the vehicle level,</li> <li>at the transaction level, and</li> <li>at the escalation level.</li> <li>at Transponder level</li> </ul>
CAM-142	The BOS shall charge Configurable, account related fees, with different Configurable amounts, depending on Account Attributes and Flags.
CAM-143	The BOS shall maintain Configurable parameters related to fees.
CAM-144	The BOS shall provide the capability for an Authorized User to create new fees.
CAM-145	The BOS shall allow the assessment of fees, based on account activities for all Customer Accounts, or specific Customer Accounts and Attribute(s) and/or Flags.
CAM-146	The BOS shall notify the customer when a fee is assessed (Configurable) pursuant to Future Updated Business Rules.
CAM-147	The BOS shall provide the capability for an Authorized User to schedule a start and end date/time, when a fee change will go into effect/conclude.

#### Adjustments and Reversals

Req. #	Requirement
CAM-148	The BOS shall provide the capability for an Authorized User to make corrections, adjustments and reversals to transactions, while preserving the original transaction, including the original Transaction Date and amount. Any corrections, adjustments or reversals shall be tied to, but not change, the original transaction.
CAM-149	The BOS shall report the adjustment or reversal to Collections, should the original transaction be in Collections.
CAM-150	The BOS shall post all corrections, adjustments and reversals to the day the adjustment or reversal occurred.
CAM-151	The BOS shall allow full reversals, of any type of transaction with a reason code (Configurable), preserving complete history.
CAM-152	The BOS shall require the Authorized User to select the transaction(s) or fee(s) before applying an adjustment.
CAM-153	The BOS shall provide the capability for an Authorized User to manually adjust the toll amount of a transaction(s), without changing other attributes of the transaction(s).
CAM-154	The BOS shall prevent the sum of any corrections, adjustments, or reversals, done to a transaction, from exceeding the amount of the original transaction.
CAM-155	The BOS shall provide the capability for an Authorized User to establish Configurable courtesy credit amounts, by courtesy credit type. Courtesy credit shall be used for tolls and fees and are not refundable.
CAM-156	The BOS shall provide the capability for an Authorized User to apply courtesy credits, to Customer Accounts, and require the entry of Comments.
CAM-157	The BOS shall provide the capability for an Authorized User to Configure all relevant parameters, related to establishing role-based thresholds for BO transactions, including, but not limited to: <ul style="list-style-type: none"> <li>adjustments,</li> <li>credits, and</li> <li>reversals.</li> </ul>
CAM-158	The BOS shall provide the capability for an Authorized User to post adjustments, credits and reversals, up to their Configurable role-based threshold amount.
CAM-159	The BOS shall automatically prompt the user to establish a Case, or choose to prompt for a supervisor's authorization, when Authorized Users are unable to process a transaction, as a result of reaching their role-based adjustment, credit or reversal limits (Configurable).
CAM-160	The BOS shall record the supervisor's authorization and associate the authorization with the transaction.
CAM-161	The BOS shall record each adjustment, who made the adjustment, the date/time of the adjustment, Comments made by the user, and the supervisor's authorization.
CAM-162	The BOS shall provide detailed tracking of individual adjustments, credits and/or reversals and categorize each separately.
CAM-163	The BOS shall allow an Authorized User to define the workflow state where a Customer Account may transition to delinquent.



Req. #	Requirement
CAM-164	The BOS shall process adjustments and reversals, which affect Interoperable Agency customers, in accordance with the applicable Interoperable agreement and specifications, and include these transactions in the reconciliation reporting, based on adjustment Reconciliation Date and Posting Date (not original Transaction Date).
CAM-165	The BOS shall provide the capability for an Authorized User to transfer transactions (financial or tolls) to another Customer Account (e.g., a check posted incorrectly to a Customer Account gets reversed and re-posted to the appropriate Customer Account).
CAM-166	The BOS shall provide the ability to automatically reinstate an adjusted or waived fee, based on certain conditions not being met and on the Future Updated Business Rules.

#### Customer Account Statuses

Req. #	Requirement
CAM-167	The BOS shall provide Customer Account statuses; including, but not limited to: <ul style="list-style-type: none"> <li>• active/open,</li> <li>• suspended/hold,</li> <li>• pending to close, and</li> <li>• closed.</li> </ul>
CAM-168	The BOS shall provide the capability to transition between Customer Account statuses.
CAM-169	The BOS shall provide the capability for an Authorized User to set a Configurable period of time before Customer Accounts automatically transition from one (1) Customer Account status to another (e.g., transition from "pending to close" to "closed" after required days have elapsed).
CAM-170	The BOS shall send a customer Notification when the Customer Account status changes.
CAM-171	The BOS shall use the Customer Account status in determining whether or not to post a transaction to the Customer Account (e.g., only post transactions to a Customer Account in "active" or "pending to close" status).
CAM-172	The BOS shall automatically set Customer Accounts to "active" status, based on the Future Updated Business Rules.
CAM-173	The BOS shall automatically set Customer Accounts to "pending to close" status upon a request to close the Customer Account which shall initiate various automatic BOS actions, based on the Future Updated Business Rules, including but not limited to: <ul style="list-style-type: none"> <li>• terminating effective dates of active vehicles;</li> <li>• terminating effective dates of active Transponders; and</li> <li>• setting the Customer Account closing date, based on the Configurable period of time.</li> </ul>
CAM-174	The BOS shall automatically age a Customer Account from "pending to close" to "closed" status after a Configurable period of time which shall initiate various automatic BOS actions, based on the Future Updated Business Rules, including but not limited to: <ul style="list-style-type: none"> <li>• removing payment methods on the Customer Account,</li> <li>• assessing the appropriate fees (if applicable),</li> <li>• expiring promotion credits (if applicable),</li> <li>• starting the refund process to bring the Customer Account balance to zero.</li> </ul>
CAM-175	The BOS shall provide the capability to capture multiple reason codes for a Customer Account closing at "pending to close" time.
CAM-176	The BOS shall provide the capability to reactivate a Customer Account in the "pending to close" or "closed" status.
CAM-177	The BOS shall prevent transactions from posting to Customer Accounts that are in the "closed" status.
CAM-178	The BOS shall provide the capability for an Authorized User to add Comments to Customer Accounts that are in the "closed" status.
CAM-179	The BOS shall provide the capability for automated refunds, up to a Configurable amount, to the Customer Account holder of any Configurable positive balance on the Customer Account at the time of closing.
CAM-180	The BOS shall provide the capability for an Authorized User to view, and access/download information from Customer Accounts that are in the "closed" status that have not been archived.
CAM-181	The BOS shall provide the capability for an Authorized User to report on Customer Accounts that are in the "closed" status.
CAM-182	The BOS shall set and maintain an inactive Customer Account parameter, which would be used to determine inactive Customer Accounts (i.e., a customer's account that has not had any activity (tolls or customer contacts) for a period longer than that of the parameter, would be marked as an inactive Customer Account).



Req. #	Requirement
<b>Payment Management</b> <b>Customer Account Replenishment</b>	
Req. #	Requirement
CAM-183	The BOS shall auto-replenish Customer Accounts when the Customer Account hits the Low Balance Level, defined for the Customer Account, in batch or real-time based on the configuration of the auto-replenishment method.
CAM-184	The BOS shall allow one (1) or more Auto-Replenishment methods within a Customer Account for all electronic payment methods.
CAM-185	The BOS shall allow the replenishment amount to be Configured based on the Account Attributes and Account Flags.
CAM-186	The BOS shall allow the Low Balance Level to be Configured based on the number of vehicles and/or Transponders and Account Attributes and Account Flags.
CAM-187	<p>TSP2 shall provide Configurable Account Replenishment parameters for all Customer Accounts, including but not limited to:</p> <ul style="list-style-type: none"> <li>• method of replenishment calculation;</li> <li>• fixed replenishment amount;</li> <li>• replenishment amount based on the number of vehicles and/or Transponders on the Customer Account and Account Attributes and Flags;</li> <li>• replenishment amounts calculated based on average use for a Configurable period of time;</li> <li>• include and/or exclude the Customer Account's negative balance in the replenishment amount;</li> <li>• maximum replenishment amount per payment method on the Customer Account (e.g., if the replenishment amount is \$10,000, but maximum replenishment allowed for that Credit Card is \$1,000, there should be ten (10) \$1,000 replenishments);</li> <li>• number of months used to calculate monthly average use;</li> <li>• number of replenishment failures before next method is attempted;</li> <li>• number of declines before an auto-replenishment method is suspended based on appropriate reject reasons; and</li> <li>• replenishment amount by payment type, such as default replenishment amount for ACH replenishment might be higher than for Credit Card replenishment.</li> </ul>
CAM-188	The BOS shall allow Authorized Users to identify Customer Accounts that are not subject to auto-replenishment recalculation.
CAM-189	The BOS shall allow an Authorized User to change Account Attributes and Flags at the account level within the established threshold and range boundaries defined for that Customer Account (e.g., if the Low Balance Level for a Customer Account is set to \$10 it cannot be set lower than \$10).
CAM-190	The BOS shall allow Customer Account Replenishment amounts calculated based on average use for a Configurable period of time.
CAM-191	The BOS shall allow automatic Customer Account Replenishments via the payment methods specified in the Payment Processing section and the Future Update Business Rules.
CAM-192	The BOS shall allow a hierarchical usage sequence for auto-replenishment methods for a Customer Account, such as primary method Visa Credit Card #1, secondary method Visa Credit Card #2, and tertiary method ACH with customer's bank.
CAM-193	The BOS shall provide a stepped approach to failed auto-replenishments where an attempt is made to collect from the primary replenishment method. Configurable number of times, followed by the secondary method and continuing until attempts have been made to replenish from all replenishment methods.
CAM-194	The BOS shall allow the automatic suspension of an auto-replenishment method because of a Configurable number of declines and decline reason codes (e.g., if the reason for a decline is a closed Customer Account, the number of retries would be zero).
CAM-195	The BOS shall automatically remove the suspension of an auto-replenishment method when there is an update to the Credit Card number, expiration date or any other related information.
CAM-196	The BOS shall automatically remove the suspension of an auto-replenishment method when there's an update to the ACH routing number, Customer Account number or any other related information.
CAM-197	The BOS shall check if the payment information is associated with another Customer Account, when setting up an auto-replenishment method, provide an Alert of such condition, and provide options to cancel or continue.
CAM-198	The BOS shall allow the manual replenishing of Customer Accounts, regardless of payment method, on both a one-time and recurring basis.
CAM-199	The BOS shall check Customer Account balances each time a transaction is posted to a Customer Account to determine if the Customer Account has reached the Low Balance Level in order to initiate an auto-replenishment.



Req. #	Requirement
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Automatic Payment (Postpaid)

Req. #	Requirement
CAM-200	The BOS shall allow one (1) or more payment methods within a Customer Account for all electronic payment methods.
CAM-201	The BOS shall provide Configurable payment timing parameters for all Customer Accounts, including but not limited to: <ul style="list-style-type: none"> <li>day of the month, and</li> <li>number of days after the MBS is generated.</li> </ul>
CAM-202	The BOS shall provide Configurable payment options where the Authorized User may select one of the following: <ul style="list-style-type: none"> <li>MBS amounts due</li> <li>MBS amount due plus outstanding balance</li> </ul>
CAM-203	The BOS shall allow automatic payments via the payment methods specified in the Payment Processing section and the Future Updated Business Rules.
CAM-204	The BOS shall allow a hierarchical usage sequence for payment methods for a Customer Account, such as primary method Visa Credit Card #1, secondary method Visa Credit Card #2, and tertiary method ACH with customer's bank.
CAM-205	The BOS shall provide for a stepped approach to failed payments, where an attempt is made to collect from the primary payment method a Configurable number of times, followed by the secondary method and continuing until attempts have been made to pay from all payment methods.
CAM-206	The BOS shall allow the automatic suspension of a payment method because of a Configurable number of declines and decline reason code (e.g., if the reason for a decline is a closed Customer Account, the number of retries would be zero).
CAM-207	The BOS shall automatically remove the suspension of a payment method when there is an update to the Credit Card number, expiration date or any other related information.
CAM-208	The BOS shall automatically remove the suspension of a payment method when there's an update to the ACH routing number, Customer Account number or any other related information.
CAM-209	The BOS shall check if payment information is associated with another Customer Account when setting up an automatic payment method, provide an Alert of such condition, and provide options to cancel or continue.
CAM-210	The BOS shall allow the manual payment, regardless of payment method, on both a one-time and recurring basis.
CAM-211	The BOS shall prevent an automatic payment if the amount due is \$0.00 or less than \$0.00.
CAM-212	The BOS shall post and record the payment against the MBS and outstanding transactions with any overpayment recorded in the Customer Account balance.

Automatic Credit Card Update

Req. #	Requirement
CAM-213	The BOS shall update the Customer Account's Credit Card number and expiration date based on the Credit Card updates from the Credit Card Update Service Provider.

Customer Account Changes

Req. #	Requirement
CAM-214	The BOS shall log all Customer Account changes and provide the capability to view details, including but not limited to: <ul style="list-style-type: none"> <li>what was changed,</li> <li>prior value,</li> <li>the new value,</li> <li>where the value was changed (i.e., Customer Portals, Walk Up Center, etc.),</li> <li>user ID,</li> <li>user ID of approver (if required),</li> <li>date/time of the change, and</li> <li>user information, such as BOS, Authorized User or customer.</li> </ul>



Req. #	Requirement
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**Transaction Aging  
Prepaid Customer Accounts**

Req. #	Requirement
CAM-215	The BOS shall support account-based statements on Customer Accounts where the MBS reflects the transactions that posted to the Customer Account during the statement cycle for a Customer Account that is prepaid.

**Postpaid Balance**

Req. #	Requirement
CAM-216	The BOS shall support account-based statements on Customer Accounts where the MBS reflects the transactions that posted to the Customer Account during the statement cycle for a Customer Account that is postpaid.
CAM-217	The BOS shall allow an Authorized User to define the workflow state where a Customer Account may transition to delinquent.
CAM-218	The BOS shall link the individual delinquent Customer Accounts to the original Customer Account with which the License Plate Data and/or Transponder were associated.

**Delinquent Customer Accounts**

Req. #	Requirement
CAM-219	The BOS shall flag the Customer Account delinquent if no payments are made and Customer Account remains unpaid for Configurable number of days based on the Future Updated Business Rules.
CAM-220	The BOS shall allow Authorized Users the capability for a Postpaid Customer Account to transition to a delinquent Customer Account, where unpaid transactions are considered delinquent.
CAM-221	The BOS shall allow a Postpaid Customer Account to transition to a delinquent Customer Account, where all unpaid transactions are considered delinquent automatically based on the Future Updated Business Rules.
CAM-222	The BOS shall create separate Customer Accounts for individual license plates, and unique registered owners, which are on delinquent Customer Accounts; these Customer Accounts shall be linked to the original Customer Account.
CAM-223	The BOS shall link the individual delinquent Customer Accounts to the original Customer Account(s), with which the License Plate Data and/or Transponder was associated.
CAM-224	The BOS shall perform the VRI lookup for each license plate that continues to use the facilities and associate the VRI against the Customer Account for each license plate.

**Bankruptcy**

Req. #	Requirement
CAM-225	The BOS shall support customers filing for bankruptcy.
CAM-226	The BOS shall allow an Authorized User to record bankruptcy information on a Customer Account, including but not limited to: <ul style="list-style-type: none"> <li>• bankruptcy type (e.g., 'Chapter 7'),</li> <li>• bankruptcy petition date,</li> <li>• bankruptcy case number,</li> <li>• bankruptcy status, and</li> <li>• bankruptcy claim number.</li> </ul>
CAM-227	Once the bankruptcy period is entered on a Customer Account, the BOS shall stop the aging of unpaid Financial Transactions and fees in the bankruptcy period and stop including those Financial Transactions and fees on any subsequent MBS. Note: Accounts Receivable outside of this period shall continue to age.



Req. #	Requirement
CAM-228	The BOS shall allow an Authorized User to act on the transactions, fees, and MBSs involved in the bankruptcy period and in manners that include but are not limited to: <ul style="list-style-type: none"> <li>supporting excusing some or every toll, fee and penalty within the bankruptcy period, and</li> <li>accepting and processing a partial or full payment amount for every toll and fee within the bankruptcy period.</li> </ul>
CAM-229	The BOS shall allow an Authorized User to terminate the bankruptcy.
CAM-230	When a bankruptcy is terminated, the BOS shall ensure that transactions, fees, and MBSs shall continue to age from the workflow they were in when the bankruptcy was entered.
CAM-231	The BOS shall allow an Authorized User to view, edit and add bankruptcy details.

## 2. Transaction Processing

### Transaction Processing General Requirements

Req. #	Requirement
TXN-001	The BOS shall record and track all BOS transaction activities; including, but not limited to: <ul style="list-style-type: none"> <li>when a transaction is received from the RTCS(s),</li> <li>when a transaction or adjustment is received from Interoperable Agencies,</li> <li>when a transaction or adjustment is received from a non-tolling location,</li> <li>when an adjustment is made to a transaction by the BOS,</li> <li>when an adjustment is made to a transaction by a Collection Agency,</li> <li>when an adjustment is made to a transaction by an Authorized User,</li> <li>when a fee or any transaction, which is not included in the original transaction or adjustment, is assessed;</li> <li>when a fee or any transaction, which is not included in the original transaction or adjustment, is collected;</li> <li>when a fee or any transaction, which is not included in the original transaction or adjustment, is waived, voided or otherwise reversed;</li> <li>when a fee or any transaction, which is not included in the original transaction or adjustment, is adjusted;</li> <li>when there is a change in the status or workflow stage of a fee or another transaction, which is not included in the original transaction or adjustment;</li> <li>voided transactions,</li> <li>voided fees,</li> <li>reversals, and</li> <li>refunds.</li> </ul>

### Traffic Transactions

#### Roadside Toll Collection System (RTCS) Transactions

Req. #	Requirement
TXN-002	The BOS shall provide an Interface to the RTCS, to obtain and acknowledge all transactions and images, in accordance with the RTCS-to-BOS ICD provided in volume III, and/or the ICD version which is currently in production at the time of BOS implementation.
TXN-003	The RTCS-to-BOS Interface shall be capable of the following, including but not limited to: <ul style="list-style-type: none"> <li>receiving transactions and images,</li> <li>receiving events and Notifications, and</li> <li>sending transaction reconciliation information.</li> </ul>
TXN-004	The BOS shall provide an Interface to future RTCSs and if and when required, shall be capable of sending Transponder Validation Lists (TVLs), at defined intervals.
TXN-005	The BOS shall provide the capability for a TSP2's authorized user to Configure and maintain the list of RTCS tolling locations, with which the BOS will interface to receive transactions.
TXN-006	The BOS shall maintain a listing of all RTCS facilities and lanes (including designation of direction), from which the BOS will receive transactions. All transactions received shall be verified against the facility, plaza and lane listing for each facility.
TXN-007	The BOS shall filter transactions that have failed verification and cannot be processed further in the BOS. Transactions shall be rejected by the BOS before being accepted into the BOS.
TXN-008	The BOS shall default facility and lane designations for transactions that do not belong to a location on the RTCS list, based on the location information in the transaction and automatically create the entry in the RTCS list.
TXN-009	The BOS shall provide a Notification when a transaction, or set of transactions, are received where their RTCS location is not defined.



Req. #	Requirement
TXN-010	The BOS shall provide the capability for a TSP2's authorized user to Configure duplicate transaction verification for each RTCS, based on various criteria; including, but not limited to: <ul style="list-style-type: none"> <li>location (including, but not limited to: facility and lane),</li> <li>direction of travel, and</li> <li>transaction time differential.</li> </ul>
TXN-011	The BOS shall reconcile transmitted transaction counts and errors, by receive date/time and transaction date/time.
TXN-012	The BOS shall categorize failed and filtered transactions into error categories, for reporting purposes.

#### Regional Interoperable Transactions

Req. #	Requirement
TXN-013	The BOS shall interface with, process data from, and transmit data to current and future Regional Interoperable (E-ZPass) Agencies, for the functionality described within these requirements.

#### National Interoperable Transactions

Req. #	Requirement
TXN-014	The BOS shall interface with, process data from, and transmit data to future national Interoperable Agencies, for the functionality described within these requirements.

#### Transaction Processing

Req. #	Requirement
TXN-015	The BOS shall provide the capability for Authorized Users to review transactions when License Plate Data is not available. The BOS shall retrieve all images, associated with the transactions, and make them available to the Authorized User for review. The Authorized User may take the following action(s) on the transactions, including but not limited to: <ul style="list-style-type: none"> <li>correction of the License Plate Data,</li> <li>removing from an incorrect Customer's Account, and</li> <li>posting of the transaction to an existing Customer Account.</li> </ul>

#### Traffic Transaction Filters Filters – General Requirements

Req. #	Requirement
TXN-016	The BOS shall support filtering transactions by a combination of criteria, including but not limited to: <ul style="list-style-type: none"> <li>Customer Accounts,</li> <li>Interoperable transactions,</li> <li>Account Attributes,</li> <li>Account Flags,</li> <li>transaction type (Transponder-based or image-based),</li> <li>transaction location,</li> <li>Transponder status,</li> <li>revenue type,</li> <li>Transponder ID,</li> <li>Transponder attributes,</li> <li>vehicle class,</li> <li>License Plate Data,</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>zip code,</li> <li>date,</li> <li>time of day, and</li> <li>aging level.</li> </ul>
TXN-017	<p>The BOS shall provide the capability for Authorized Users to Configure Internal Notifications for each Configured filter, including but not limited to:</p> <ul style="list-style-type: none"> <li>filter, <ul style="list-style-type: none"> <li>number of transactions,</li> <li>location of transactions,</li> <li>Transponders, and</li> <li>License Plate Data.</li> </ul> </li> </ul>
TXN-018	The BOS shall provide the capability for Authorized Users to Configure the frequency of occurrence (number per period), for a specified filter category and condition, that will trigger a manual review (e.g., if filtered license plate for a specified jurisdiction exceeds the Configurable frequency, then manual review and user action will be required).
TXN-019	<p>The BOS shall support various actions for filtered transactions, including but not limited to:</p> <ul style="list-style-type: none"> <li>stop pursuing a transaction and prevent it from moving through the process flow when certain conditions exist, such as an Image-Based Transaction is matched to an Exempt List, and</li> <li>place the transaction in queue, for a Configurable number of days, or until the reoccurrence threshold is reached.</li> </ul>
TXN-020	The BOS shall provide the capability for an Authorized User to select filtered transactions for reprocessing.

#### Filters – Exempt and Government Lists

Req. #	Requirement
TXN-021	The BOS shall provide the capability for Authorized Users to enter and maintain an Exempt List and Government List of License Plate Data for the BOS. This list applies to transactions from Configured tolling locations.
TXN-022	The BOS shall match, filter, and process the License Plate Data in the transactions received from the RTCS against the Exempt List and Government List.
TXN-023	The BOS shall check the License Plate Data against the Exempt List and Government List each time License Plate Data is modified, and it is reintroduced into the process.
TXN-024	The BOS shall automatically create, add to, and delete from the Exempt List and Government List based on License Plate Data criteria and Transponder number.

#### Traffic Transaction Posting Traffic Transaction Toll Rates

Req. #	Requirement
TXN-025	The BOS shall apply the toll rate based on various criteria, including but not limited to the transaction's date, time, vehicle classification and location and Account Attributes (current lane ICD does not result in fully formed transactions with toll rates assigned at the lane).
TXN-026	The BOS shall apply applicable discounts for Discount Plans, associated with the Customer Account, Transponder, or License Plate Data, to the transactions.
TXN-027	<p>The BOS shall post the appropriate toll rate and discounts to the transaction, based on various (Configurable) conditions, including but not limited to:</p> <ul style="list-style-type: none"> <li>location from where the transaction originated,</li> <li>type of transaction received from the RTCS or Interoperable Agency (i.e., exempt, Transponder-based or image-based),</li> <li>transaction attributes,</li> <li>Account balance,</li> <li>Account attributes,</li> <li>number of transactions,</li> <li>type of transaction at the time of posting (TBT, VToll, IBT, etc.),</li> <li>Flags on the Account (i.e., Excessive VTolls), and</li> <li>Attributes of the Account.</li> </ul>
TXN-028	For 2 shall apply updates to toll rates (no fewer times than yearly) as per the direction of the Joint Board Representatives. For 2, in conjunction with the Joint Board Representatives, shall test updates prior to the toll rates becoming effective and shall coordinate implementing toll rate updates with TSP4.
TXN-029	The BOS shall store and maintain a record of all toll rates, current and historic.



Req. #	Requirement
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**Traffic Transaction Posting – General**

Req. #	Requirement
TXN-030	The BOS shall process, and attempt to post image-based transactions in the following order: <ul style="list-style-type: none"> <li>• Home Customer Accounts; excluding rental car Account(s), if applicable</li> <li>• Interoperable (Away) Accounts, and</li> <li>• Home rental car Account(s), if applicable</li> </ul>
TXN-031	The BOS shall apply correct toll rates and discounts to the transactions received from the RTCS, based on; including, but not limited to: <ul style="list-style-type: none"> <li>• Tolling Location,</li> <li>• transaction type,</li> <li>• transaction date/time,</li> <li>• Account Attributes,</li> <li>• Account Flags, and/or</li> <li>• Account balance.</li> </ul>
TXN-032	The BOS shall transmit Interoperable transactions to Interoperable Agencies, to post to the respective Interoperable Agency's Accounts, per the applicable Interoperability ICD and Business Rules.
TXN-033	The BOS shall validate transactions from Interoperable Agencies and support posting transactions with Transponders.
TXN-034	The BOS shall provide the capability for an Authorized User to review transactions, which could not be posted to a specific Customer Account, in order to assist customers and collect tolls.
TXN-035	If a transaction cannot be posted to a Customer Account, the BOS shall reprocess the transaction, once Vehicle Registration Information is determined, or a Customer Account is updated.
TXN-036	The BOS shall attempt to post a transaction, which did not post to a Customer Account initially, at Configurable intervals, and for a Configurable amount of time, depending on where the transaction originated.
TXN-037	Toll transactions billed to the customer and eligible to be billed based on the Future Updated Business Rules, shall be billed to the customer at the appropriate toll rate.

**VTOLL Transaction Posting**

Req. #	Requirement
TXN-038	The BOS shall automatically, and manually, post image-based transactions to a Customer Account, based on a combination of factors; including, but not limited to: <ul style="list-style-type: none"> <li>• Account Attributes,</li> <li>• Account Flags,</li> <li>• the Account status at the time of the transaction,</li> <li>• current Account status,</li> <li>• Account open date,</li> <li>• effective date range for the license plate on the Account and associated with a Transponder,</li> <li>• Discount Plans associated with the Account, Transponder or license plate,</li> <li>• License Plate Data,</li> <li>• whether the license plate was on the Account, and associated to the Account, at the time of the transaction, and</li> <li>• Account balance.</li> </ul>
TXN-039	The BOS shall charge a different toll rate (Configurable) for transactions on a Customer Account, Transponders, or license plates flagged with Excessive VTolls, based on the Future Updated Business Rules.
TXN-040	The BOS shall provide the capability for a TSP2's authorized user to set up the Configurable parameters, that will trigger the application of the Excessive VToll rate, including but not limited to: <ul style="list-style-type: none"> <li>• number of consecutive days a VToll was posted to the Customer's Account,</li> <li>• percentage of the customer's transactions which are VTolls over a period of time,</li> <li>• number of days after the customer is notified, they may be charged a higher toll rate, and</li> <li>• when to reset the Excessive VToll Flag.</li> </ul>



Req. #	Requirement
TXN-041	The BOS shall include the capability of excluding Customer Accounts (based on an Account Flag) from the Excessive VToll calculation.

#### MToll Transaction Posting

Req. #	Requirement
TXN-042	The BOS shall provide the capability for an Authorized User to post MTolls to Customer Accounts, based on a combination of factors, including but not limited to: <ul style="list-style-type: none"> <li>the Account status at the time of the transaction,</li> <li>Account Attributes,</li> <li>Account Flags,</li> <li>current Account status,</li> <li>Account open date,</li> <li>date the license plate was added to the Account and associated with a Transponder,</li> <li>date the license plate was effective on the Account and associated with a Transponder,</li> <li>Transponder status at the time of the transaction,</li> <li>current Transponder status,</li> <li>Discount Plans associated with the Account, Transponder or license plate,</li> <li>License Plate Data, and</li> <li>Account balance.</li> </ul>
TXN-043	When manually posting MToll(s) to a Customer's Account, and the BOS shall charge only the appropriate and Configured toll rate for the respective transaction(s).
TXN-044	The BOS shall post MTolls to a Customer's Account, even when the license plate was added to the Account and associated to the Transponder after the time of the transactions.
TXN-045	The BOS shall track the number of MTolls during a Configurable period, and if the number is above a Configurable threshold, a Notification shall be sent to the customer and the Customer's Account flagged.
TXN-046	The BOS shall attempt to post MTolls to Interoperability Accounts, based on the Future Updated Business Rules.
TXN-047	The BOS shall provide the capability for Authorized Users to select other transactions, against the same license plate, and process them as Interoperable Agency transactions.

#### RiverLink Customers on Interoperable Agency Facilities

Req. #	Requirement
TXN-048	Transmission and exchange of all data and files between the BOS and Interoperable Agencies shall follow the Future Updated Business Rules and E-ZPass Agreements and Specifications.
TXN-049	The BOS shall receive and process transactions from the Interoperable Agencies.
TXN-050	The BOS shall validate that the transactions received from the Interoperable Agencies comply with the versions of the E-ZPass Agreements Specifications which are in production at the time of BOS implementation.
TXN-051	The BOS shall post the transactions received from the Interoperable Agencies based on the Future Updated Business Rules and E-ZPass Agreements and Specifications.
TXN-052	The BOS shall provide transaction disposition to Interoperable Agencies for each submitted transaction.
TXN-053	The BOS shall reprocess transactions resubmitted by Interoperable Agencies, in accordance with the Future Updated Business Rules and E-ZPass Agreements and Specifications.
TXN-054	The BOS shall reprocess corrected (adjusted) transactions submitted by Interoperable Agencies, in accordance with the Future Updated Business Rules and E-ZPass Agreements and Specifications.

#### Interoperable Customers on RiverLink Facilities

Req. #	Requirement
TXN-055	The BOS shall validate the Interoperable transactions from the Roadside System(s) (for Interoperable customers on RiverLink toll facilities).



Req. #	Requirement
TXN-056	The BOS shall transmit transactions to the appropriate Interoperable Agency, based on the versions of the E-ZPass Agreements and Specifications which are in production at the time of BOS implementation.
TXN-057	The BOS shall receive transaction dispositions, from the Interoperable Agencies, for each transmitted transaction.
TXN-058	The BOS shall resubmit the transaction, if necessary, based on the versions of the Future Updated Business Rules and E-ZPass Agreements and Specifications which are in production at the time of BOS implementation.

**Financial Transactions  
Adjustments**

Req. #	Requirement
TXN-059	The BOS shall provide the capability for Authorized Users to adjust transactions based on relevant criteria, including but not limited to: <ul style="list-style-type: none"> <li>Account Attributes,</li> <li>Account Flags,</li> <li>Account balance,</li> <li>location where the transaction originated,</li> <li>vehicle classification adjustments resulting in a toll adjustment, when applicable,</li> <li>incorrect toll charged adjustment,</li> <li>toll credit, and</li> <li>toll dismissal.</li> </ul>
TXN-060	The BOS shall require the Authorized User to enter an adjustment reason, when an adjustment is made.
TXN-061	For Adjustment transactions, the BOS shall track relevant information, including but not limited to: <ul style="list-style-type: none"> <li>Customer Account,</li> <li>amount of adjustment,</li> <li>reason for adjustment,</li> <li>adjustment date and time,</li> <li>adjustment authorization date/time,</li> <li>who initiated the adjustment,</li> <li>who authorized the adjustment, and</li> <li>what the adjustment was applied to, including but not limited to: <ul style="list-style-type: none"> <li>promotion balance,</li> <li>transaction,</li> <li>fee,</li> <li>MBS, and</li> <li>Payment Plan installment.</li> </ul> </li> </ul>
TXN-062	The BOS shall record adjustments in Customer Accounts.
TXN-063	The BOS shall apply adjustments to Customer Account balances, if applicable.
TXN-064	The BOS shall send a Notification when Credit Card payments are credited, based on Configurable settings.
TXN-065	The BOS shall display adjustments on relevant outputs including but not limited to: <ul style="list-style-type: none"> <li>transaction history screens and reports,</li> <li>MBSs, and</li> <li>any screen (including the website) or report related to transactions or adjustments.</li> </ul>
TXN-066	The BOS shall have the ability to allow an Authorized User to move money between Customer Accounts.
TXN-067	The BOS shall have the ability to apply toll credits to a Customer Account.
TXN-068	The BOS shall apply toll credits/adjustments automatically without manual intervention (applying frequent user discount for example).



Req. #	Requirement
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Reversals

Req. #	Requirement
TXN-069	The BOS shall track reversals.
TXN-070	The BOS shall track relevant information about reversals, including but not be limited to: <ul style="list-style-type: none"> <li>• Customer Account,</li> <li>• amount of reversal,</li> <li>• reason for reversal,</li> <li>• reversal request date and time,</li> <li>• reversal authorization date/time,</li> <li>• reversal issue date/time,</li> <li>• who requested the reversal,</li> <li>• who authorized the reversal, and</li> <li>• what the reversal was applied to (payment, adjustment or transaction).</li> </ul>
TXN-071	The BOS shall record reversals in Customer Accounts.
TXN-072	The BOS shall apply reversals to Customer Account balances.
TXN-073	The BOS shall send an Alert when Credit Card payments are reversed, based on Configurable settings.
TXN-074	The BOS shall display reversals on relevant outputs, including but not limited to: <ul style="list-style-type: none"> <li>• transaction history screens (including website) and reports,</li> <li>• MBSs, and</li> <li>• any screen or report related to transactions or reversals.</li> </ul>

Refunds

Req. #	Requirement
TXN-075	The BOS shall track relevant information about refunds, including but not limited to: <ul style="list-style-type: none"> <li>• Account,</li> <li>• amount of refund,</li> <li>• reason for refund,</li> <li>• refund request date and time,</li> <li>• refund authorization date/time,</li> <li>• refund issue date/time,</li> <li>• who requested the refund,</li> <li>• who authorized the refund,</li> <li>• refund method (i.e., check or Credit Card), and</li> <li>• Credit Card brand (if applicable).</li> </ul>
TXN-076	Refunds to customers shall be recorded in the Customer's Account.
TXN-077	The BOS shall apply refunds to (deducted from) the Customer's Account balance.
TXN-078	The BOS shall send a Notification when Credit Card payments are refunded, based on Configurable settings.
TXN-079	The BOS shall display refunds to customers on outputs including but not limited to: <ul style="list-style-type: none"> <li>• transaction history screens (including website) and reports,</li> <li>• MBSs, and</li> <li>• any screen or report related to transactions or refunds.</li> </ul>

Voiding/Written Off Transactions

Req. #	Requirement
TXN-080	The BOS shall provide the capability for an Authorized User to void/write off any transaction.



Req. #	Requirement
TXN-081	The BOS shall allow all voided/written off transactions to be viewed and payment applied to it once they have been voided/written off should a payment come into the system.
TXN-082	The BOS shall track relevant information about voided transactions, including but not be limited to: <ul style="list-style-type: none"> <li>• Customer Account,</li> <li>• transaction amount,</li> <li>• reason,</li> <li>• authorization date/time,</li> <li>• void date/time,</li> <li>• who performed the void,</li> <li>• who authorized the void, and</li> <li>• original transaction detail.</li> </ul>
TXN-083	After a transaction is voided, the BOS shall only provide the capability for Authorized Users to see the original transaction and the void of the transaction.
TXN-084	The BOS shall provide the capability for an Authorized User to void various types of transactions, including but not limited to: <ul style="list-style-type: none"> <li>• toll transactions,</li> <li>• administrative fees,</li> <li>• payments,</li> <li>• adjustments,</li> <li>• credit adjustments,</li> <li>• adjustments,</li> <li>• debits,</li> <li>• refunds,</li> <li>• reversals,</li> <li>• VTolls, and</li> <li>• MTolls.</li> </ul>
TXN-085	The BOS shall support a batch style write-off process once transactions have been identified.

#### Event Transactions

Req. #	Requirement
TXN-086	The BOS shall provide the capability for an Authorized User to record Event Transactions on Customer Accounts that are related to events including but not limited to: <ul style="list-style-type: none"> <li>• Account opening,</li> <li>• Account access,</li> <li>• Account closing,</li> <li>• updating of any Account information,</li> <li>• changing of Account status, Attributes or Flags,</li> <li>• requesting inventory, and</li> <li>• generating of Notifications and alerts.</li> </ul>
TXN-087	For Event Transactions, the BOS shall record relevant information including but not limited to: <ul style="list-style-type: none"> <li>• event,</li> <li>• event category,</li> <li>• date and time, and</li> <li>• created by.</li> </ul>
TXN-088	The BOS shall provide the capability for an Authorized User to record comments on one (1) or multiple Customer Accounts, based on but not limited to: <ul style="list-style-type: none"> <li>• Account Attributes,</li> <li>• Account Flags,</li> <li>• Account ID, and,</li> <li>• Account balance.</li> </ul>
TXN-089	The BOS shall record the same comment on each Customer Account, should multiple Customer Accounts be selected.
TXN-090	The BOS shall automatically record a Configurable comment, to a set of Customer Accounts, which are specified in a file (i.e., Excel file).

### 3. Image Processing Image Processing Requirements



Req. #	Requirement
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Image of Record Determination

Req. #	Requirement
IMP-001	The BOS shall include a fully integrated transaction-based Image Review (IR) System which shall determine the image for each image-based transaction processed (from the set of images associated with the transaction) as the Image of Record, if available, for License Plate Data extraction and downstream workflow steps.

Optical Character Recognition (OCR)

Req. #	Requirement
IMP-002	The IR System shall have the ability to utilize Optical Character Recognition (OCR) Software to reduce the number of manual image reviews.
IMP-003	The IR System shall process each image file, received through the OCR Software, to determine if manual image review shall be required, based on the Joint Board approved confidence value.
IMP-004	The BOS OCR Software shall provide the capability to skip sending an image file through the BOS OCR Software if and when the OCR value provided by the RTCS meets the minimum (Configurable) Joint Board approved confidence value.
IMP-005	The BOS OCR Software shall be capable of providing the following information for all images; including, but not limited to: <ul style="list-style-type: none"> <li>the License Plate characters,</li> <li>the License Plate type,</li> <li>the License Plate state/jurisdiction,</li> <li>the associated confidence levels for each of the above, and</li> <li>an overall confidence level.</li> </ul>
IMP-006	Based on the OCR information provided for all of the images associated with an image-based transaction, the BOS IR OCR Software shall be capable of providing the following information for each image-based transactions; including, but not limited to: <ul style="list-style-type: none"> <li>the License Plate characters,</li> <li>the License Plate type,</li> <li>the License Plate state/jurisdiction,</li> <li>the associated confidence levels for each of the above, and</li> <li>an overall confidence level.</li> </ul>
IMP-007	The BOS OCR Software shall be able to recognize: <ul style="list-style-type: none"> <li>alpha/numeric sequences,</li> <li>quantity of characters (e.g., a seven-character plate),</li> <li>symbols (e.g., handicapped/disabled driver symbol),</li> <li>stacked alpha/numeric characters, and</li> <li>character spacing.</li> </ul>
IMP-008	The BOS OCR Software shall optimize learning-system algorithms, based on data patterns to identify License Plate Data.
IMP-009	The BOS OCR Software shall provide the capability to utilize OCR results to filter license plates and images that match specified states and license plate types which cannot be processed.
IMP-010	The BOS OCR Software shall include the (Configurable) capability to compare OCR results from the RTCS and if the OCR results match, bypass any further image processing for the related image-based transaction.

Image Review (IR) and Processing Queue

Req. #	Requirement
IMP-011	The BOS IR System shall be transaction-based and the Image Reviewer shall have the ability to easily access all available images and, for each image-based transaction being processed, present all available images and OCR determined data for that transaction as a complete set defaulting to the highest OCR confidence image (if available) of the License Plate as the primary image for manual image review so that the Authorized User can determine the License Plate Data for the Image-Based Transactions.
IMP-012	The BOS IR System's image review functions shall include the capability for Authorized Users to efficiently and accurately identify, review and/or edit the License Plate Data.



Req. #	Requirement
IMP-013	The BOS IR System shall be designed and Configured in a way to reduce manual keying errors; e.g. double-blind verifications.
IMP-014	The BOS IR System shall provide configurable image queuing based on transaction data fields.
IMP-015	The BOS IR System shall provide the ability, for an Authorized User, to save the corrected License Plate Data, type and/or state once it has been updated.
IMP-016	The BOS IR System shall provide a capability, for an Authorized User, to be able to select, store and make available the optimal Region of Interest (ROI) image (for the image of record), for all downstream processes.
IMP-017	<p>The BOS IR System shall provide the capability, for an Authorized User, to select a Configurable disposition reason to reject an image during manual image review. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• temporary plate,</li> <li>• unreadable plate,</li> <li>• plate obscured,</li> <li>• no plate,</li> <li>• unidentifiable/unknown jurisdiction,</li> <li>• not a US, Mexico or Canadian plate,</li> <li>• camera Issue, and</li> <li>• multiple vehicles.</li> </ul>
IMP-018	The BOS IR System shall provide the capability, for an Authorized User, to select and/or mark a batch of transactions to no longer pursue or cancel the selection. Selection criteria for marked batches shall be based on transaction data elements.
IMP-019	<p>The BOS IR System shall allow an Authorized User to select the transactions into a queue for re-review, for potential edit of initial review results, in order, for example, to pursue the transaction. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• license plates identified as commonly mis-keyed plates,</li> <li>• un-matched transactions (transactions not matched to an owner),</li> <li>• out-of-state-plate transactions,</li> <li>• transactions with specific image reject reasons,</li> <li>• transactions from specific Roadside lanes, and</li> <li>• transactions reviewed by a specific user.</li> </ul>
IMP-020	The BOS IR System shall provide up-to-date, detailed information about the available roles, associated workflows and permissions.
IMP-021	The BOS IR System shall provide the capability to save images in open standard file architecture (i.e., .jpg, .gif or .tiff).
IMP-022	The BOS IR System shall be able to support transmission of uncompressed images, if necessary. The image resolution shall accommodate 2048 x 2048, at a minimum.
IMP-023	The BOS IR System shall provide the capability to track the rejected images, and generate IR System alerts, if rejected images are above a configurable threshold, for a configurable period of time and based on a reason code for, but not limited to, each lane and image reviewer.
IMP-024	The BOS IR System shall categorize rejected images according to the image review results.
IMP-025	The BOS IR System shall maintain the history of each image review, including the final disposition result.
IMP-026	<p>The BOS IR System shall provide the capability to automatically audit license plate transactions, and flag them for review where system analysis of the data identifies possible issues; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Image-Based Transactions and Transponder-Based Transactions that are rejected, and</li> <li>• the Vehicle Class provided by the lane system does not match the vehicle type (make and model) obtained from the VRI.</li> </ul> <p>The BOS IR System shall make such flagged transactions available to be reviewed and corrected through the QA process.</p>
IMP-027	The BOS shall allow for all coded off transactions to be re-reviewed another time to ensure no transactions were coded off erroneously. Re-review should be part of workflow and a regular process in the IR system.

#### IR Quality Assurance Process

Req. #	Requirement
IMP-028	The BOS IR System shall provide the capability, for an automated random selection of images for audit, and a manual selection of images for audit, based on specified selection criteria. The images selected for audit, and all available License Plate results, shall be presented to an Authorized User for review (i.e., all OCR results and manual review results).
IMP-029	Based on the audit performed, the BOS IR System shall automatically compute the error rates, and reject rates by image reviewer (human and OCR) and location.



Req. #	Requirement
<b>Other IR Requirements</b>	
Req. #	Requirement
IMP-030	The BOS IR System Software, and images being processed, shall allow for the IR audit to also be accessible to Authorized Users at remote locations, including third-party locations.
IMP-031	The BOS IR System shall be able to process images at forecasted volumes, at a minimum, throughout the period of the Contract and in accordance with the Requirements.
IMP-032	The BOS IR System shall have the ability to archive and delete images in accordance with the Joint Board's Retention Procedures.
IMP-033	The BOS IR System shall have the ability to rereview images for transactions where duplicate responses from DMV are provided. The rereview should include all vehicle information provided by the DMV to allow the reviewer to properly select the right registered owner.

#### 4. Vehicle Registration Information (VRI) VRI Processing Requirements

Req. #	Requirement
VRI-001	In accordance with the Future Updated Business Rules, the BOS shall interface with as many VRI sources (VRI Sources) as needed to obtain and process VRI, including but not limited to: <ul style="list-style-type: none"> <li>• KY MVL and OVIS (for KY license plates);</li> <li>• IN BMV, DOR, SOS, and DOA (for IN license plates);</li> <li>• 3rd party VRI Source(s) (for license plates from all other US, Canadian and Mexican jurisdictions); and</li> <li>• up to five (5) other direct VRI Sources, as directed by the Joint Board Representatives.</li> </ul>
VRI-002	The BOS shall include interfaces to automatically (i.e., via batch and/or web services), and manually (if a manual, on-line, real-time, single-request interface is available from the VRI Source) request/lookup and receive VRI data from VRI Sources based upon information including, but not limited to <ul style="list-style-type: none"> <li>• for requests/lookups: <ul style="list-style-type: none"> <li>○ license plate characters</li> <li>○ license plate type</li> <li>○ license plate jurisdiction</li> <li>○ Traffic Transaction date/time</li> </ul> </li> <li>• for responses, if available: <ul style="list-style-type: none"> <li>○ any and all current names, by category (e.g., owner, co-owner, lessor, etc.)</li> <li>○ any and all current addresses, by category (e.g., registration, renewal, etc.)</li> <li>○ current vehicle registration expiration date and/or renewal date</li> <li>○ current vehicle status (e.g., stolen)</li> <li>○ Vehicle Identification Number (VIN)</li> <li>○ vehicle description information (e.g., make, model, color, etc.)</li> </ul> </li> </ul>
VRI-003	The BOS shall automatically interface with appropriate VRI Sources to request current VRI when configurable thresholds for requesting VRI are met.
VRI-004	The BOS VRI interface(s) shall support real-time single VRI requests and responses and the BOS shall provide a user interface for Authorized Users to manually search VRI.
VRI-005	The BOS VRI interface(s) shall support automated batch file (multiple requests and responses per respective file) VRI requests and responses.
VRI-006	The BOS VRI interface(s) shall support automated web services-based VRI requests and responses.
VRI-007	The BOS shall track and provide details of the processing, status and final disposition, for every VRI record received.
VRI-008	For user-selected time period(s), the BOS shall provide detailed reconciliation which provide counts of VRI records received, processed successfully, or with exceptions.
VRI-009	The BOS shall process and load VRI received from all VRI Sources and retain all such information, including history.
VRI-010	The BOS shall provide the capability for Authorized Users to look up the VRI data received, processed and loaded by the BOS.
VRI-011	The BOS shall treat VRI obtained from all VRI Sources as Personally Identifiable Information (PII), especially regarding protection and retention.
VRI-012	The BOS shall provide the capability for Authorized Users to set the configurable length of time after which the previously obtained VRI for the specific License Plate Data is considered stale and needs to be rechecked/reacquired.
VRI-013	The BOS shall resubmit a VRI request/lookup a configurable number of times and after a configurable period of time if a no-match or error response is returned or no response is returned from the VRI Source.
VRI-014	The BOS shall store and be capable of utilizing any VRI Source provided current address.



Req. #	Requirement
VRI-015	The BOS shall create exception workflow(s) for Authorized Users to review and resolve issues with VRI records which the BOS was unable to automatically process and load into the BOS.
VRI-016	The BOS shall make the exception workflows configurable based on the source from which the VRI is received.

#### Other VRI Requirements

Req. #	Requirement
VRI-017	In accordance with the Future Updated Business Rules, the BOS shall automatically establish a customer Account for each license plate with VRI received if there are unpaid transaction(s) associated with the license plate and the license plate is not active on or does not match an existing BOS or Interoperable Account.
VRI-018	In accordance with the Future Updated Business Rules, the BOS shall update customer Accounts with VRI information received. This shall include ending ownership (i.e. name and address) and starting ownership (i.e., name and address) for the appropriate vehicles and/or license plates on Accounts.

### 5. Monthly Billing Statement (MBS)

#### MBS General Requirements

Req. #	Requirement
MBS-001	<p>The BOS shall allow an Authorized User to Configure which Accounts need to have a MBS generated, based on various parameters, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Account Attributes;</li> <li>• Account Flags;</li> <li>• Account balance;</li> <li>• valid delivery method (i.e., verified mailing address or email address);</li> <li>• number of transactions;</li> <li>• dollar amount threshold;</li> <li>• location of the tolling point in plain language (ex: I-65 South);</li> <li>• fixed time period;</li> <li>• transaction date/time;</li> <li>• combination of number of transactions and fixed time period;</li> <li>• combination of dollar amount threshold and fixed time period;</li> <li>• combination of number of transactions and dollar amount threshold;</li> <li>• new Account activity; including, but not limited to: <ul style="list-style-type: none"> <li>○ new transactions,</li> <li>○ adjustment, and</li> <li>○ payment;</li> </ul> </li> <li>• customer Notification preferences;</li> <li>• image availability; and</li> <li>• the Future Updated Business Rules.</li> </ul>

#### MBS Generation

Req. #	Requirement
MBS-002	<p>The BOS shall Configure the recurring date (Account's Anniversary Date) on which a MBS is generated for an Account based on various parameters, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Account Attributes,</li> <li>• Account Flags,</li> <li>• Account creation date,</li> <li>• date of first transaction,</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>as manually determined by an Authorized User,</li> <li>date of initial MBS,</li> <li>acceptable payment methods,</li> <li>acceptable payment channels, and</li> <li>customer-specified day of the month (BOS shall analyze volume/load to recommend available recurring generation dates in order to appropriately balance volume).</li> </ul>
MBS-003	The BOS shall provide the capability for an Authorized User to manually change the Anniversary Date on which a MBS is to be generated for one (1) or more Accounts.
MBS-004	<p>The BOS shall (Configurable) automatically change the Anniversary Date, on which a MBS is to be generated, for one (1) or more Accounts based on various parameters, including but not limited to:</p> <ul style="list-style-type: none"> <li>Account Attributes,</li> <li>Account Flags, and</li> <li>mailing/transmittal date of previously mailed MBSs.</li> </ul>
MBS-005	The BOS shall automatically change the MBS recurring generation date, when transactions are billed again, in place of an old statement that was canceled (e.g., if a MBS is issued on 1/5, and then returned by the USPS on 1/10, then regenerated on 1/15, reset the recurring generation date from 1/5 to 1/15, to give the customer enough time to pay the 1/15 MBS before sending the next one).
MBS-006	The BOS shall automatically set and adjust, when required, the MBS due date, based on the Future Updated Business Rules.
MBS-007	The BOS shall exclude days, and/or dates, to be considered for generating an MBS (i.e., MBS's will not be generated on specified days and/or dates based on the Future Updated Business Rules.
MBS-008	The BOS shall provide the capability to generate a MBS for a specified interval (Configurable) and for a specific Account or set of Accounts.
MBS-009	The BOS shall load balance the generation of MBSs over a period of time based on volume. The BOS shall ensure that the MBS volume/load is distributed appropriately across available generation dates and provide appropriate date options for Authorized Users looking to change existing generation dates (e.g., based on customer request for a specific generation date).

#### MBS Format

Req. #	Requirement
MBS-010	TSP2 shall work with the Joint Board Representatives during design workshops to design the MBS(s) and all aspects of the MBS(s) including, but not limited to, layout/format, wording, data content, and calculations. TSP2 shall provide the work product to the Joint Board Representatives for their review and approval during the design workshops.
MBS-011	Six (6) months after Go-Live, TSP2 shall work with the Joint Board Representatives during MBS re-design workshop(s) to re-design the MBS(s) and all aspects of the MBS(s) including, but not limited to, layout/format, wording, data content, and calculations. TSP2 shall provide the work product to the Joint Board Representatives for their review and approval during the design workshops.
MBS-012	<p>The BOS shall generate the appropriate type and format (Configurable) of an MBS based on parameters including, but not limited to:</p> <ul style="list-style-type: none"> <li>Account Attributes,</li> <li>Account Flags, and</li> <li>Account balance.</li> </ul>
MBS-013	<p>The BOS shall provide the detail (Configurable) of all Account activity posted during the MBS period on the MBS, including but not limited to:</p> <ul style="list-style-type: none"> <li>due date</li> <li>prior balances on the Account;</li> <li>Financial Transaction activity, including but not limited to: <ul style="list-style-type: none"> <li>toll transactions (with clear description of tolling Location and date/time)</li> <li>payments on the Account (replenishment and one-time payments),</li> <li>adjustments,</li> <li>debits,</li> <li>credits,</li> <li>discounts and rebates,</li> <li>addition of Transponders and purchase of inventory (possibly taxable) items, and</li> <li>fees assessed on the Account;</li> </ul> </li> <li>notice(s) of non-payment for previously billed amounts (e.g., aging/late notice(s));</li> <li>current balance on the Account;</li> <li>marketing offers (reserved space on the MBS);</li> <li>special notifications;</li> <li>calculated indication of "what you would have saved if Transponder was used";</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>vehicle license plate image(s);</li> <li>MBS ID and/or reference number;</li> <li>QR Code; and</li> <li>scan-able bar code.</li> </ul>
MBS-014	Each MBS, when generated, shall have a remittance coupon section with a scan-able bar code that includes/incorporates the Account number and Account balance to enable automated payment handling.
MBS-015	<p>The BOS shall (Configurable) provide the capability to add "free-form" type text to be included on the MBSs based on various parameters including, but not limited to:</p> <ul style="list-style-type: none"> <li>Account Attributes,</li> <li>Account Flags,</li> <li>Account balance,</li> <li>mailing zip code, and</li> <li>MBS generation date.</li> </ul>
MBS-016	The BOS shall provide a numbering methodology for MBSs for the purposes of proper lifecycle documentation, reporting, adjudication and customer service.
MBS-017	The BOS shall provide the capability (Configurable) to create sub-categories, for display of MBS information (e.g., MBS for a corporate Account may display information sub-categorized based on department (i.e., Sales, Maintenance or Finance)).
MBS-018	The BOS shall provide the capability to include or exclude (Configurable) image(s) of a license plate(s) on MBSs.
MBS-019	<del>The BOS shall provide the capability to specify which image(s) shall be included on an MBS, based on the Future Updated Business Rule (Configurable).</del>

#### MBS Delivery Method

Req. #	Requirement
MBS-020	<p>The BOS shall allow an Authorized User to select MBS Notification, including but not limited to:</p> <ul style="list-style-type: none"> <li>email,</li> <li>text, and</li> <li>through Account access (via the Self-Service Website).</li> </ul>
MBS-021	<p>The BOS shall allow an Authorized User to select MBS delivery methods, including but not limited to:</p> <ul style="list-style-type: none"> <li>email,</li> <li>mail, and</li> <li>through Account access (via the Self-Service Website).</li> </ul>
MBS-022	<del>The BOS shall allow an Authorized User to determine an order of preference for the MBS delivery method based on the Future Updated Business Rules.</del>

#### MBS Aging

Req. #	Requirement
MBS-023	The BOS shall age previously billed transactions, which remain unpaid, to the appropriate level of an MBS with a notice of non-payment (fee), in accordance with the Future Updated Business Rules.
MBS-024	<p>The BOS shall provide the capability for an Authorized User to Configure aging of unpaid transactions to multiple levels of notice of non-payment, to be generated based on a Configurable set of aging criteria, along with the addition of a Configurable fee amount, for each level of notice of non-payment as per the Future Update Business Rules. The levels of notice of non-payment shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>first notice of non-payment (if any balance still outstanding and unpaid at 1st subsequent MBS)</li> <li>second notice of non-payment (if any balance still outstanding and unpaid at the 2nd subsequent MBS)</li> <li>third notice of non-payment (if any balance still outstanding and unpaid at the 3rd subsequent MBS)</li> </ul>
MBS-025	When aging MBSs to the appropriate notice of non-payment, the BOS shall include (at a non-detailed, summary, unpaid balance level) only the appropriate set of transactions which remain unpaid and meet the aging criteria, along with the addition of associated fee(s), based on the Future Updated Business Rules.
MBS-026	<p><del>The BOS shall automatically send unpaid transactions to collections processing, based on various Configurable parameters, including but not limited to:</del></p> <ul style="list-style-type: none"> <li>Account Attributes,</li> <li>Account Flags,</li> <li>Account balance, and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>level of notice of non-payment (i.e., aging level).</li> </ul>
MBS-027	The BOS shall provide the capability for Authorized Users to approve certain activities (Configurable) before they progress to the next stage of aging (e.g., sending transactions to Collections), based on the Future Updated Business Rules.
MBS-028	<p>The BOS shall set and maintain various MBS generation and transaction aging parameters (Configurable), including but not limited to:</p> <ul style="list-style-type: none"> <li>Grace Period for aging unpaid transactions on an Account (e.g., a five (5) day Grace Period is applied before transactions are aged due to non-payment);</li> <li>Account balance due date constraints (e.g., if the due date is on a Business Day which is a federal or state Holiday, then the due date shall be the first Business Day after the Holiday);</li> <li>Regeneration due to bad address;</li> <li>payment thresholds based on a percentage of amount owed for each status or workflow stage (e.g., if one-hundred (100) percent of the MBS is not paid, the amount owed will be considered past due); and</li> <li>payment thresholds based on the underpayment amount for each status or workflow stage (e.g., if an MBS is underpaid by less than \$0.25, then the amount owed is considered closed).</li> </ul>
MBS-029	The BOS shall provide the capability for an Authorized User to force selected transactions from one (1) stage to another and bypass the aging criteria (e.g., from first notice of non-payment to second notice of non-payment, or progress selected unpaid transaction(s) on a postpaid Account).
MBS-030	<p>The BOS shall provide the capability (Configurable), at each status or workflow stage, to perform various actions, including but not limited to:</p> <ul style="list-style-type: none"> <li>identify the transactions that are eligible for MBS billing,</li> <li>add applicable fees,</li> <li>add applicable advisory language,</li> <li>generate next MBS for the time frame established, and</li> <li>transmit the MBS to the customer.</li> </ul>
MBS-031	<p>The BOS shall, automatically via the BOS or via Authorized User action, provide the capability to place an "aging suspension" (i.e., the aging process is suspended) based on various parameters (Configurable), including but not limited to:</p> <ul style="list-style-type: none"> <li>Account Attributes,</li> <li>Account Flags,</li> <li>Account balance,</li> <li>individual Account number/ID,</li> <li>individual transaction level, and</li> <li>Disputes, including request for Administration Hearing</li> </ul>
MBS-032	The BOS shall provide the capability for an Authorized User to Configure duration of aging hold.
MBS-033	The BOS shall provide the capability for an Authorized User to schedule the release or immediately release an aging hold.
MBS-034	The BOS shall continue aging a Configurable number of days after an aging hold is released.
MBS-035	The BOS shall provide the capability for an Authorized User to configure aging rules and criteria, at the Account level and the license plate level.
MBS-036	The BOS shall provide the capability to restart the aging timeline a Configurable number of days after the issuance of the dispute rejected Notification.

#### MBS Fees

Req. #	Requirement
MBS-037	The BOS shall provide the capability to assess fees for an MBS automatically (Configurable), and manually via Authorized User action.
MBS-038	<p>The BOS shall set and maintain MBS fees based on various parameters (Configurable), including but not limited to:</p> <ul style="list-style-type: none"> <li>fee structure (i.e., the fees to be assessed and whether or not the fees are to be assessed at the MBS level or transaction level), and</li> <li>fee based on statement delivery method.</li> </ul>
MBS-039	The BOS shall adjust the fees (Configurable) assessed on an MBS based on the timing of payment (i.e., fees are adjusted depending on when payment is received), based on the Future Updated Business Rules.
MBS-040	<p>The BOS shall suppress assessment of fees based on various parameters (Configurable), including but not limited to:</p> <ul style="list-style-type: none"> <li>Account Attributes;</li> <li>Account Flags;</li> <li>Account balance, and;</li> <li>delivery method validity (i.e., status of mailing address and/or email address is "bad").</li> </ul>
MBS-041	The BOS shall provide the capability for an Authorized User to create (Configurable) new fees for an MBS that apply automatically or manually.

#### MBS Address



Req. #	Requirement
Req. #	Requirement
MBS-042	The BOS shall automatically flag Account mailing address(es) as “bad address”, from various mailing address verifications based on the Future Updated Business Rules, including but not limited to: <ul style="list-style-type: none"> <li>National Change of Address (NCOA),</li> <li>Vehicle Registration Information (VRI) Source,</li> <li>United States Postal Service (USPS),</li> <li>accepted customer dispute'</li> <li>returned mail, and</li> <li>Skip Tracing.</li> </ul>
MBS-043	The BOS shall regenerate (Configurable) a MBS when a new mailing address is subsequently found for an Account that was flagged as having a “bad address” and shall take various actions, including but not limited to: <ul style="list-style-type: none"> <li>retain the new mailing address,</li> <li>regenerate the MBS to the new mailing address and either maintain the aging level of the transactions or to force the transactions to the level of “transaction not previously billed” (Configurable), and</li> <li>regenerate the MBS to the new mailing address and with a new statement (MBS generation) date and a new due date.</li> </ul>
MBS-044	The BOS shall, automatically via the BOS and via an Authorized User action, enter a forwarding mailing address obtained from returned mail communicated via an Interface from an external vendor or manual input, which will result in the re-generation of the MBS and its associated transactions.
MBS-045	The BOS shall display, on a regenerated MBS, that it was regenerated because of retrieval of a new mailing address. Regeneration shall include newly calculated due date
MBS-046	The BOS shall display on the Customer Account, where an MBS was regenerated because of retrieval of a new mailing address.
MBS-047	The BOS shall utilize various mailing addresses (Configurable) on the Account for mailing MBS's, based on the Future Updated Business Rules.
MBS-048	The BOS shall define an order of priority (Configurable), for using multiple mailing addresses, based on the source from which the addresses were received (i.e., VRI Source, Skip Tracing or NCOA), based on the Future Updated Business Rules.

#### MBS Exception Handling

Req. #	Requirement
MBS-049	The BOS shall prevent transmittal of MBSs to customers based on various exceptions criteria (Configurable), including but not limited to: <ul style="list-style-type: none"> <li>missing image,</li> <li>rejected image,</li> <li>bad address,</li> <li>problem license plate, and</li> <li>other errors on the MBS.</li> </ul>
MBS-050	The BOS shall create and manage a workflow of MBS exception items (Configurable), to be resolved prior to transmission to customers.
MBS-051	The BOS shall provide the capability for an Authorized User to regenerate, transmit (e.g., for mailing), , cancel and/or postpone (Configurable) the MBS if necessary, after being worked through the exceptions handling workflow and charge the applicable fee(s) (Configurable), based on the Future Updated Business Rules.
MBS-052	The BOS shall provide the capability for an Authorized User to designate one (1) or more MBSs to be sent into the exceptions handling workflow for resolution.

#### MBS Reconciliation

Req. #	Requirement
MBS-053	The BOS shall capture and maintain a history of MBS generation details for each MBS, including but not limited to: <ul style="list-style-type: none"> <li>MBS identifier/ID,</li> <li>MBS generation date,</li> <li>MBS transmittal/ mailing date,</li> <li>MBS delivery method,</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>MBS delivery status (i.e., generated and not sent to the customer, delivered or returned mail),</li> <li>MBS exceptions, and</li> <li>MBS status in exceptions handling workflow.</li> </ul>

#### Other MBS Requirements

Req. #	Requirement
MBS-054	The BOS shall generate, reprint and/or re-mail an MBS manually, such as when specifically requested by the customer, in any format available for BO generated Notifications and charge the applicable fee(s) (Configurable), based on the Future Updated Business Rules.
MBS-055	<p>The BOS shall provide the capability to include customer notification inserts (Configurable), with MBSs, based on Authorized User-selected criteria including but not limited to:</p> <ul style="list-style-type: none"> <li>zip code,</li> <li>Account Attributes,</li> <li>Account Flags, and</li> <li>MBS generation date.</li> </ul>
MBS-056	The BOS shall ensure that historical data about customers and previous MBSs transmitted to customers does not change (i.e., data remains in origin form) regardless of changes in the parameters.

#### 6. Payment Processing General Payment Processing Requirements

Req. #	Requirement
PAY-001	The BOS shall comply with all applicable merchant card association agreements, and other applicable regulations, for the exchange of Credit Card payments.
PAY-002	The BOS shall comply with the National Automated Clearing House Association (NACHA) operating rules, and other applicable regulations, for the exchange of Automated Clearing House (ACH) payments.
PAY-003	<p>The BOS shall process payment related transactions, including but not limited to:</p> <ul style="list-style-type: none"> <li>overpayments,</li> <li>full payments,</li> <li>split payments,</li> <li>partial payments,</li> <li>multiple payment methods,</li> <li>sales,</li> <li>chargebacks,</li> <li>chargeback reversals,</li> <li>returned payments (i.e., returned checks),</li> <li>reversals,</li> <li>voids,</li> <li>fees related to Credit Cards,</li> <li>fees related to Non-Sufficient Funds (NSFs),</li> <li>adjustments, and</li> <li>refunds via the original payment method or check refunds.</li> </ul>
PAY-004	<p>The BOS shall process all payments and Account replenishments, including but not limited to:</p> <ul style="list-style-type: none"> <li>prepaid balance;</li> <li>tolls;</li> <li>fees;</li> <li>inventory purchases, including Transponder sales;</li> <li>Transponder deposits;</li> <li>Monthly Billing Statements; and</li> <li>Payment Plans.</li> </ul>
PAY-005	The BOS shall provide near real-time, fully automated, payment clearing and processing, for all electronic payment methods.



Req. #	Requirement
PAY-006	The BOS shall interface with one (1) or more Merchant Service Providers, for settling Credit Card and ACH transactions.
PAY-007	The BOS shall provide a proven and reliable method of communicating with the Merchant Service Provider(s).
PAY-008	The BOS shall send Account Replenishment requests to, and capture the results returned from, the Merchant Service Provider(s), and update Accounts accordingly.
PAY-009	Account Replenishments should be attempted a configurable number of times before the Credit Card is marked as "bad."
PAY-010	The BOS shall identify and process overpayments and take various related actions, including but not limited to: <ul style="list-style-type: none"> <li>• re-assignment to an alternate Account;</li> <li>• apply to unpaid transactions;</li> <li>• apply to unpaid fees;</li> <li>• apply to unpaid MBSs;</li> <li>• apply to unpaid inventory purchases, including Transponders;</li> <li>• apply to unpaid Payment Plans;</li> <li>• refund overpaid amounts; and</li> <li>• apply overpaid amounts to Account balance.</li> </ul>
PAY-011	The BOS shall provide the capability for an Authorized User to apply multiple payment methods for a single payment (e.g., for a \$30.00 amount due, allow payment of \$20.00 from a Credit Card associated with the Account and \$10.00 cash).
PAY-012	The BOS shall provide the capability for an Authorized User to reverse payments, which shall result in the items paid being marked as unpaid, having the same effect as if those items had never been paid.
PAY-013	The BOS shall use all available Account balance as payment for transactions and inventory items, and present detailed payments any time payment information is displayed (i.e., when payments are displayed to customers on the web and on customer MBSs).
PAY-014	Should a payment or prepaid balance not pay for an entire transaction, the BOS shall mark the transaction as partially paid, and the unpaid amount will age based on the Future Updated Business Rules.
PAY-015	The BOS shall enable the payment process to prevent double-payments (i.e., prevent an Authorized User or customer from making two (2) payments at the same time for the same transaction(s) or MBS(s) due).
PAY-016	The BOS shall enable the payment process to prevent an Authorized User or customer from making payments in excess of a certain Configurable amount, based on the Future Updated Business Rules.
PAY-017	The BOS shall enable the Account Replenishment process, to prevent payments in excess of a certain Configurable amount, based on the Future Updated Business Rules.
PAY-018	The BOS shall enable the recurring payment process, to prevent payments in excess of a certain Configurable amount. This Configurable amount shall include, but not be limited to: a dollar amount, or a dollar amount in excess of what is due.
PAY-019	The BOS shall display a confirmation page, which includes payment method details (Credit Card or ACH numbers masked) and amount to be paid prior to the Authorized User being allowed to submit a payment.
PAY-020	The BOS shall provide summary, and detail data, by payment type, on the processing status of all transactions, including a description of all failures.
PAY-021	The BOS shall provide Authorized Users detailed reasons for Credit Card declines, as received from the Merchant Service Provider(s).
PAY-022	The BOS shall provide the capability for an Authorized User to set a Configurable payment hierarchy for Accounts, based on the Account Attributes, that determines the order in which payments are applied; including, but not limited to: <ul style="list-style-type: none"> <li>• by Posting Date then Transaction Date, and</li> <li>• the Future Updated Business Rules.</li> </ul>
PAY-023	The BOS shall allow the default posting order to be manually overridden by Authorized Users.
PAY-024	The BOS shall provide the capability for an Authorized User to accept payments, for specific items, as requested by the Authorized User (and allowed under the Future Updated Business Rules).
PAY-025	The BOS shall provide the capability for an Authorized User to direct their payment, to be applied to a specific transaction, fee, Account, MBS, or Payment Plan installment, based on the Future Updated Business Rules.
PAY-026	The BOS shall record, report and reconcile every payment.
PAY-027	The BOS shall produce receipts, for all payments, in both real-time (on-demand) and automatically.
PAY-028	The BOS shall provide the capability for an Authorized User to reprint receipts. Reprinted receipts shall be exact copies of the original receipt and include the date of the reprint (i.e., the reprinted receipt shall be marked "COPY", and indicate the date of the copy, with the original receipt date also reflected on the document).
PAY-029	The BOS shall prevent payments from being recorded at the Merchant Service Provider and not in the BOS, or in the BOS and not at the Merchant Service Provider.
PAY-030	The BOS shall ensure that all receipts shall contain a payment reference number, traceable through the entire payment clearing process.
PAY-031	The BOS shall accept payments by various channels, including but not limited to: <ul style="list-style-type: none"> <li>• in-person at a Walk Up Center,</li> <li>• Retail locations,</li> <li>• over the phone with a CSR,</li> <li>• over the phone via the IVR,</li> </ul>



Req. #	Requirement
PAY-031	<ul style="list-style-type: none"> <li>via mail,</li> <li>via the Self-Service Website,</li> <li>via Collection Agency (3rd party),</li> <li>automatic Account Replenishment, and</li> <li>automatic payments.</li> </ul>
PAY-032	<p>The BOS shall calculate the required payment, during the Account establishment process, based on various parameters, including but not limited to:</p> <ul style="list-style-type: none"> <li>the pre-paid funds requirements per the Future Updated Business Rules,</li> <li>cost of inventory items (e.g., Transponders),</li> <li>outstanding transactions, and</li> <li>outstanding fees.</li> </ul>
PAY-033	During the Account establishment process, the BOS shall prompt the user by providing an option to store the payment method for future payments.
PAY-034	The BOS shall provide the capability for customers to store payment for future one-time payments (i.e., permit customers to enter Credit Card information once and then use that stored Credit Card to make future one-time payments on their Account without being required to rekey the Credit Card information), within the boundaries of PCI-DSS compliance.
PAY-035	The BOS shall provide the capability for an Authorized User to add payment information on a postpaid Account and automatically process a payment when a Configurable amount of time has elapsed after the MBS generation date.
PAY-036	<p>The BOS shall provide the capability for Authorized Users to specify the date to pay the MBS based on various parameters, including but not limited to:</p> <ul style="list-style-type: none"> <li>a Configurable number of days after the MBS generation date,</li> <li>a Configurable number of days before the MBS due date,</li> <li>a specific day of the month, and</li> <li>the Configured default.</li> </ul>
PAY-037	Should the automatic payment of an MBS fail, the BOS shall continue to retry the payment method and alternate payment methods, based on the Future Updated Business Rules.
PAY-038	<p>The BOS shall accept payments for various purposes, including but not limited to:</p> <ul style="list-style-type: none"> <li>one-time payments;</li> <li>recurring fixed amount payments;</li> <li>recurring varying amount payments;</li> <li>recurring maximum replenishment amount per payment method on the Account (e.g., if the replenishment amount is \$10,000, but maximum replenishment allowed for that Credit Card is \$1,000, there should be ten (10) \$1,000 replenishments on the same day);</li> <li>recurring payments on a fixed day of the month;</li> <li>recurring payments every "X" number of days (e.g., every twenty-eight (28) days);</li> <li>recurring payments for postpaid Accounts as Configurable, fixed number of days after the invoice is issued; and</li> <li>recurring payments triggered by Account balance.</li> </ul>
PAY-039	The BOS shall accept and post customer payments and adjustments, transmitted from a Third-Party Service Provider (e.g., Collection Agency).
PAY-040	The BOS shall transmit payment and adjustment information to the Collections Agency(ies) for Accounts or transactions in 'Collections' status.
PAY-041	<p>The BOS shall accept the various types of payments made in-person at all approved locations or by mail, including but not limited to:</p> <ul style="list-style-type: none"> <li>cash (by mail shall be accepted discouraged),</li> <li>personal check,</li> <li>cashier's check,</li> <li>certified check,</li> <li>money order,</li> <li>Automated Clearing House (ACH) (not available by mail),</li> <li>Credit Card (not available by mail),</li> <li>Apple Pay (not available by mail),</li> <li>Google Pay (not available by mail), and</li> <li>PayPal (not available by mail).</li> </ul>
PAY-042	<p>The BOS shall accept various types of payments made via the CCC, IVR, and Self-Service Website, including but not limited to:</p> <ul style="list-style-type: none"> <li>Automated Clearing House (ACH),</li> <li>Credit Card,</li> <li>Apple Pay,</li> <li>Google Pay, and</li> <li>PayPal (websites only).</li> </ul>
PAY-043	The BOS shall provide the capability for an Authorized User to accept Credit Card payments, via POS devices, for payments made in-person.
	<p>The BOS shall accept payments electronically and process payment information from various channels, including but not limited to:</p> <ul style="list-style-type: none"> <li>a bank or other financial institution(s) (for ACH clearing),</li> </ul>



Req. #	Requirement
PAY-044	<ul style="list-style-type: none"> <li>Merchant Service Provider(s),</li> <li>Third Party Service Providers (e.g., retailers),</li> <li>Collection Agency(ies), and</li> <li>the BOS payment processing staff (i.e., Authorized Users via the BOS).</li> </ul>
PAY-045	The BOS shall provide the capability for an Authorized User to correct or reverse various payments applied in error, including but not limited to payments applied to multiple transactions or Accounts.
PAY-046	The BOS shall provide the capability to require approvals for payment corrections (Configurable).
PAY-047	The BOS shall provide the capability to prevent corrections to or reversals of payments which have already been refunded (i.e., payments that have been reversed entirely cannot be reversed again or refunded).
PAY-048	The BOS shall ensure all adjustments to payments are shown on the Account and are reconciled.
PAY-049	The BOS shall provide the capability to re-process a chargeback on a payment if the previous chargeback was reversed.
PAY-050	The BOS shall provide the allowed number of payment corrections, as a Configurable number, per payment method.
PAY-051	The BOS shall provide additional tracking of payments, based on the Future Updated Business Rules.
PAY-052	The BOS shall provide the capability for an Authorized User to direct payment to any set of transactions, or fees on an Account, based on the Updated Business Rules.
PAY-053	BOS shall have the ability to track and mark a payment as a bulk payment.
PAY-054	The BOS shall provide the capability for an Authorized User to enter and process a bulk payment.
PAY-055	The BOS shall reconcile the bulk payment amount with the Accounts or MBSs the payment is applied to and ensure the bulk payment reconciles.
PAY-056	The BOS shall include the functionality to accept payment, and report on, items which have been Written-Off.

#### Credit Card Processing

Req. #	Requirement
PAY-057	The BOS shall detect the type of Credit Card based on the Credit Card number entered by the Authorized User.
PAY-058	The BOS shall provide a secure interface to the Merchant Service Provider(s) for Credit Card payments.
PAY-059	The BOS shall provide the capability to issue refunds to Credit Cards.
PAY-060	The BOS shall provide the capability for Authorized Users to process Credit Card chargebacks and permit investigation of the details.
PAY-061	The BOS shall provide the capability for an Authorized User to reverse Credit Card chargebacks.
PAY-062	The BOS shall credit Accounts immediately upon a successful Credit Card payment authorization.
PAY-063	The BOS shall update Customer Accounts with the results from the Merchant Service Provider (i.e., a Credit Card transaction failed to authorize).

#### ACH Processing

Req. #	Requirement
PAY-064	The BOS shall provide an interface to the Automated Clearing House (ACH) and/or bank for ACH payments.
PAY-065	The BOS shall provide the capability to process both ACH debits and ACH credits with the ACH or bank.
PAY-066	The BOS shall provide a selection for "Checking" and "Savings" account designations when ACH is selected for replenishment and ensure transmission to the bank carries such information.
PAY-067	The BOS shall verify the customer bank account information with the ACH, prior to initiating an ACH debit.
PAY-068	The BOS shall provide the ability to verify routing numbers.
PAY-069	The BOS shall credit Customer's Account, immediately upon initiating an ACH debit, or after receiving the disposition from the ACH, per the Updated Business Rules.
PAY-070	The BOS shall receive payments via ACH from Third-Party Service Providers.
PAY-071	ACH payments from Third-Party Service Providers shall be automatically reconciled with the Accounts where the individual payments were applied.
PAY-072	Reconciliation anomalies for ACH payments and bulk payments, where the detail of the payment does not equal the payment, shall automatically generate an internal Alert.

#### Check/Money Order Processing

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Req. #	Requirement
Req. #	Requirement
PAY-073	The BOS shall accept checks (personal, cashier's and/or certified) as a form of payment.
PAY-074	The BOS shall accept money orders as a form of payment.
PAY-075	The BOS shall provide scanning capability at the initial check or money order receiving and processing point. The resulting image shall be stored in the BOS, and be available to Authorized Users, and be electronically transmitted to the bank for deposit.
PAY-076	The BOS shall mask bank account information, including the Magnetic Ink Character Recognition (MICR) line, for stored check images.
PAY-077	The BOS shall automatically populate the check or money order number field, via a check scanner, when accepting check or money order payments.
PAY-078	The BOS shall apply the payment immediately when a check or money order is accepted as payment.
PAY-079	The BOS shall provide the capability for an Authorized User to associate checks received at the BOS to the proper Account.
PAY-080	The BOS shall reverse or bounce all forms of check or money order payment(s) if declined or returned by the bank and assess the applicable fees.

### Cash Processing

Req. #	Requirement
PAY-081	The BOS shall accept cash as a form of payment.
PAY-082	The BOS shall credit the customer Account immediately upon receipt of cash payment.
PAY-083	The BOS shall process cash payment reversals.
PAY-084	The BOS shall set Configurable threshold amounts, and role-based limits, for cash payment reversals.
PAY-085	The BOS shall require approval for cash payment reversals.

### Third Party Service Providers

Req. #	Requirement
PAY-086	The BOS shall provide a portal for Third-Party Service Providers to enter ACH and Credit Card payments (BOS will directly process).
PAY-087	The BOS shall provide a portal for Third-Party Service Providers to accept and enter cash and check payments. TSP2 shall ensure that the accepted cash and checks are settled/deposited into the bank on a periodic basis, no less frequently than monthly.
PAY-088	The BOS shall post a payment to the customer's Account based on the payment from the Third-Party Service Provider.
PAY-089	The BOS shall apply the payment to the correct items in the customer's Account, based on the payment from the Third-Party Service Provider.

### Refunds

Req. #	Requirement
PAY-090	The BOS shall provide a process for refunds, based on the original transaction, and ensure such refunds are shown on the Account history and are reconciled.
PAY-091	The BOS shall provide the capability for an Authorized User to configure various parameters related to refunds, including but not limited to: <ul style="list-style-type: none"> <li>type of payments that are not eligible for refund;</li> <li>the criteria for refunds, by payment methods (Credit Card, check, cash, or money order);</li> <li>the hold period for Credit Card refunds and check refunds;</li> <li>maximum (Configurable role-based) allowable refund payment, by payment type (e.g., a refund of more than \$1,000 might require manager review and approval of eligible refunds before processing the refunds);</li> <li>minimum (role-based) allowable refund payment, by payment type; and</li> </ul>
PAY-092	The BOS shall determine eligibility, and issue refund requests to customers, based on various activities on the Account, including but not limited to: <ul style="list-style-type: none"> <li>closure of an Account, and</li> <li>overpayment where no outstanding MBSs or unbilled tolls exist for a pre-defined period of time or amount (configurable).</li> </ul>
PAY-093	The BOS shall provide the capability for Authorized Users to review and process all eligible refunds and initiate the refund process.



Req. #	Requirement
PAY-094	The BOS shall provide the capability for Authorized Users to issue refunds using the same method in which the payment was received (e.g., a check payment will be refunded by check and a Credit Card payment will be refunded to the same Credit Card).
PAY-095	The BOS shall provide the capability for Authorized Users to issue refunds by check, when the Credit Card which was used for the original payment method has been deactivated, or upon customer request, based on the Future Updated Business Rules.
PAY-096	The BOS shall provide automated processing of refunds in the event of successful Account closure and there is a remaining balance on the account that exceeds a Configurable threshold.
PAY-097	The BOS shall provide the capability for recording various details regarding any check refund issued, including but not limited to: <ul style="list-style-type: none"> <li>• check number,</li> <li>• check amount,</li> <li>• date check was issued,</li> <li>• check payee details,</li> <li>• the date the check cleared the bank, and</li> <li>• the reference number.</li> </ul>
PAY-098	The BOS shall prevent refunds of specific types of non-refundable balances, including but not limited to: <ul style="list-style-type: none"> <li>• promotions, and</li> <li>• promotional credits issued to Account.</li> </ul>
PAY-099	The BOS shall provide the capability for an Authorized User to manually override the refund payee information (e.g., when a refund is due to deceased customer's estate).

#### Shift Management

Req. #	Requirement
PAY-100	The BOS shall track and reconcile Authorized User's shifts, by Configurable location.
PAY-101	The BOS shall associate the appropriate location with each shift opened/closed by an Authorized User.
PAY-102	The BOS shall provide cash change fund management functionality, including but not limited to: <ul style="list-style-type: none"> <li>• beginning balance recording,</li> <li>• ending balance recording, and</li> <li>• reconciliation.</li> </ul>
PAY-103	The BOS shall provide the capability to automatically open a shift for an Authorized User at the time of first applicable transaction avoiding the need to open a shift if no applicable transaction is performed.
PAY-104	The BOS shall prompt an Authorized User for the beginning balance of the cash drawer (including option to list denominations).
PAY-105	The BOS shall automatically prompt to close a shift at logout time if an open shift exists.
PAY-106	The BOS shall display and reconcile all transactions and activity in a shift.
PAY-107	The BOS shall separate transactions that affect the Authorized User's deposit (e.g., cash, check, Credit Card, or ACH payment), from transactions that affect the BOS balances (e.g., waiving a fee for a customer).
PAY-108	The BOS shall provide for the reconciliation of Transponders and other inventory items issued.
PAY-109	The BOS shall provide feedback to an Authorized User if the shift does not balance.
PAY-110	The BOS shall provide the capability for an Authorized User to attempt to balance the shift a Configurable number of times.
PAY-111	The BOS shall allow any Authorized User to escalate the shift to another Authorized User for research and closing after a Configurable number of unsuccessful attempts has been reached.
PAY-112	The BOS shall provide Configurable settings to either display or not display the shift variance dollar amount to the Authorized User during shift closing.
PAY-113	The BOS shall provide Configurable settings to either display or not display the shift inventory (Transponders and other inventory items) variance amount to the Authorized User during shift closing.
PAY-114	The BOS shall provide the capability for Authorized Users, to configure all relevant parameters related to closing a shift, with a default value which can be overridden, based on unique user ID, including but not limited to: <ul style="list-style-type: none"> <li>• the number of times the Authorized User can attempt to balance the shift,</li> <li>• the amount of allowed variance by dollars, and</li> <li>• the amount of allowed variance by percentage.</li> </ul>
PAY-115	The BOS shall provide the capability for an Authorized User to close a shift once it is balanced.
PAY-116	The BOS shall record and track all monetary details and shift balancing discrepancies (i.e., overages and shortages).
PAY-117	The BOS shall provide the capability for an Authorized User to force close an unbalanced shift based upon User Roles and shall record unbalance variances.
PAY-118	The BOS shall escalate shifts which remain open at the end of the Business Day to the Authorized User, based upon User Roles.



Req. #	Requirement
PAY-119	The BOS shall provide Authorized Users with an accounting of all shift activity with detailed and summarized financial information.
PAY-120	The BOS shall provide Authorized Users a real-time Dashboard which reflects various shift information split by operating unit location (e.g., Walk Up Center), including but not limited to: <ul style="list-style-type: none"> <li>Open, Closed and Force Closed Shifts,</li> <li>End of Day (EOD) reconciliation status, and</li> <li>historical discrepancy values for each balance attempt.</li> </ul>
PAY-121	The BOS shall facilitate EOD reconciliation by displaying Configurable discrepancies.
PAY-122	The BOS shall enable Authorized Users to re-enter (when applicable) EOD dollar totals, when force closing a shift. If new EOD shift values are entered, the BOS shall recalculate the shift variances and proceed with EOD reconciliation.
PAY-123	The BOS shall ensure activity associated with a shift cannot be modified once the shift has been closed or force-closed.

#### Bank Deposits

Req. #	Requirement
PAY-124	The BOS shall provide an Interface for Authorized Users to create the deposit.
PAY-125	The BOS shall allow Authorized User to select the closed shifts to be included in the deposit being created.
PAY-126	The BOS shall provide the capability for an Authorized User to enter blind counts for the deposit and have the BOS compare the counts to the shifts selected for deposit.
PAY-127	The BOS shall provide the capability for an Authorized User to resolve bank deposit discrepancies.
PAY-128	The BOS shall not allow the same shift to be included in multiple deposits.
PAY-129	The BOS shall create the bank deposit and associated deposit paperwork.
PAY-130	The BOS shall allow for paper checks to be counted in lump sum or entered by check and amount unless deposited electronically, which is the preferred method.
PAY-131	The BOS shall ensure that financial activity for open shifts is not included in a bank deposit.
PAY-132	The BOS shall allow for cash totals to be entered for all available bill denominations (\$).
PAY-133	The BOS shall support a double-blind entry Bank Deposit Reconciliation process, as follows: <ul style="list-style-type: none"> <li>a bank deposit shall be "Created" by a user, and "Confirmed" by a different user. The Bank Deposit must be successfully "Confirmed", before it can be deposited at the bank;</li> <li>two (2) consecutive, distinct-user entered bank deposit totals, shall match, before a bank deposit can be "Confirmed";</li> <li>first user "Creates" a bank deposit when their entered amounts match the system-expected amounts, based on shift financial activity. Totals must match for a bank deposit to be created;</li> <li>if the deposit amounts, entered by the user creating the bank deposit, do not match the system-expected amounts based on shift financial activity, and the user is unable to resolve the discrepancy by re-entering totals that match, the BOS shall provide a list of Configurable reasons for the user to select to create the bank deposit with a "Variance";</li> <li>second user "Confirms" a bank deposit when their entered amounts match the amounts entered by the first user who created the bank deposit. Totals must match for a bank deposit to be "Confirmed";</li> <li>the user confirming the bank deposit has only one (1) attempt to successfully confirm the bank deposit. If amounts do not match the created bank deposit, the user who was unsuccessful at confirming the bank deposit, can save the bank deposit and a third user, different than the user who created the bank deposit, and the user unsuccessful in confirming the bank deposit, shall be required to confirm the bank deposit, and;</li> <li>user(s) who have either created the bank deposit, or attempted unsuccessfully to confirm the bank deposit, shall not be allowed another attempt to confirm the bank deposit (i.e., a different user will be required or the user who created the bank deposit can delete it and start over. The delete function shall be a Logical Delete).</li> </ul>
PAY-134	The BOS shall provide the capability for an Authorized User to delete a "Created" bank deposit, which has not been "Confirmed". When a bank deposit is deleted, the shifts included in the deleted bank deposit shall become available to be included in a subsequent bank deposit.
PAY-135	The BOS shall provide the capability to create bank deposits, based on a Configurable Business Date. In such instances, the BOS shall automatically collate all closed and force closed shifts, for the user-specified Business Date, into a bank deposit.
PAY-136	The BOS shall provide the capability to create separate bank deposits (Configurable), for each day, and each location, or to create consolidated bank deposits for multiple days and multiple locations.
PAY-137	The BOS shall ensure that every closed or force closed shift that requires a deposit is included in a deposit.
PAY-138	The BOS shall provide an Internal Notification if a shift has not been included in a bank deposit and the shift has been closed for more than one (1) Business Day (Configurable).

#### Point of Sale (POS)



Req. #	Requirement
PAY-139	The BOS shall provide the capability for accepting Credit Card payments via POS devices for payments made in-person at all Walk Up Centers.
PAY-140	The standard POS devices shall contain card swipe capabilities with option for Mastercard and Visa (EMV) chip integrated circuit card and mobile contactless Near Field Communication (NFC) devices. The VSI shall ensure compliance with EMV chip guidelines for chip card transactions and ISO/IEC 18092 specifications for contactless NFC transactions.

#### Fleet Payments

Req. #	Requirement
PAY-141	The BOS shall provide the capability to transmit MBS information to fleet companies based on the Future Updated Business Rules.
PAY-142	The BOS shall provide the capability to process an automatic payment for the amount due on a Fleet company's MBS based on the Future Updated Business Rules.

#### 7. Collections General Collections Requirements

Req. #	Requirement
COL-001	The BOS shall track payment statuses and aging of Traffic Transactions, including toll and fee transactions, and MBSs.
COL-002	The BOS shall provide the capability for an Authorized User to apply a payment to, Waive or make an Adjustment to amounts due on Traffic Transactions, and/or MBSs that are in Collections and the BOS shall automatically communicate this information near real-time with the appropriate Collection Agency via the interface.
COL-003	The BOS shall assess Configurable Collection fees based on the age of the Traffic Transaction.
COL-004	The BOS shall allow for customers to make payments online against Traffic Transactions in Collections.
COL-005	The BOS shall maintain the history of past due statuses related to all Traffic Transactions and MBSs.
COL-006	The BOS shall provide the capability for Authorized User to determine when Traffic Transactions and/or MBSs are sent to Collections using Configurable criteria including, but not limited to: <ul style="list-style-type: none"> <li>aging level,</li> <li>filters,</li> <li>Customer Account Attributes,</li> <li>Customer Account Flag(s),</li> <li>grace period,</li> <li>total amount owed,</li> <li>number of transactions,</li> <li>amount in tolls owed,</li> <li>amount in fees owed,</li> <li>whether customer is in-state or out-of-state as determined by the jurisdiction of the license plate on which the Traffic Transaction was based,</li> <li>Customer Account status,</li> <li>amount owed on the past due MBSs, and</li> <li>Customer Account balance.</li> </ul>
COL-007	The BOS shall automatically set the status on a Customer Account to "Collections" once any unpaid Traffic Transaction or MBS associated with the Customer Account has been placed with a Collection Agency.

#### External Collections

Req. #	Requirement
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Req. #	Requirement
COL-008	The BOS shall support the use of multiple Collection Agencies, and place eligible Traffic Transactions and/or MBSs in Collections based on Configurable criteria, including but not limited to: <ul style="list-style-type: none"> <li>percentages based on both volume and dollar amount (e.g., sixty (60) percent to Collection Agency 1 and forty (40) percent to Collection Agency 2)</li> <li>past due amount on the Customer Account, MBSs and/or Traffic Transactions eligible for Collections,</li> <li>prior Collections Placements (by customer name, Customer Account number, and License Plate Data),</li> <li>Customer Account Attributes,</li> <li>Customer Account Flags,</li> <li>specified frequency,</li> <li>address,</li> <li>zip code, and</li> <li>Vehicle Registration Information (VRI).</li> </ul>
COL-009	Once a Customer Account has been sent to a particular Collection Agency, any new Traffic Transactions and/or MBSs aging to Collections shall be sent to the same Collection Agency to prevent separate collection notices being sent to the same customer.
COL-010	The BOS shall provide the capability to assess a collection's fee (i.e., charge a fee to a Customer's Account for each Collections Placement) based on various parameters including, but not limited to: <ul style="list-style-type: none"> <li>Configurable flat fee per Collections Placement, assessed by the BOS and transmitted to Collection Agency,</li> <li>Configurable flat fee per Collections Placement, assessed by the Collection Agency and transmitted back to the BOS,</li> <li>Configurable percentage, of amount of Collections Placement, assessed by the BOS and transmitted to Collection Agency,</li> <li>Configurable percentage of amount placed, assessed by Collection Agency and transmitted back to the BOS,</li> <li>Configurable per transaction fee, assessed by Collection Agency and transmitted back to the BOS, and</li> <li>any combination of the above.</li> </ul>
COL-011	The BOS shall provide auditable functionality, through the electronic Interface, for the Collection Agencies to transmit data to the BOS, and for the BOS to transmit data to the Collection Agencies, for Customer Accounts, MBSs and/or Traffic Transactions in Collections and assigned to that Collection Agency including, but not limited to: <ul style="list-style-type: none"> <li>demographic information obtained through Skip Tracing and VRI updates,</li> <li>payments received (full and partial),</li> <li>reversal of payments made on the Collections Placement,</li> <li>Customer Account balances,</li> <li>fees on the Collections Placement,</li> <li>suspension of Collections activities due to dispute or administrative review,</li> <li>resolution of the Collections Placement by Traffic Transaction,</li> <li>cancellation of the Collections Placement due to recall by the Joint Board Representatives,</li> <li>Collection Placement balances, and</li> <li>expiration of the collection period for that Collections Placement.</li> </ul>
COL-012	In the event of an out-of-balance condition with Collections Placements, the BOS shall display to Authorized User, the Customer Accounts and/or Traffic Transactions that are creating the out-of-balance condition.
COL-013	The BOS shall provide the capability for an Authorized User to recall all or part of a Collections Placement.
COL-014	The BOS shall provide the capability for an Authorized User to manually send a transaction and MBS, to Collections when they do not meet the minimum eligibility requirements for Collections.
COL-015	The BOS shall automatically display an Internal Notification, to an Authorized User, when the Customer Account is in Collections. The Notification shall contain Collection information including, but not limited to: <ul style="list-style-type: none"> <li>Collection Agency,</li> <li>date of the Collections Placement,</li> <li>Collections current amount due, and</li> <li>Payment Plan status.</li> </ul>
COL-016	The BOS shall provide the capability to associate all correspondence transmitted to the Customer, from the Collection Agency, to the Customer Account.
COL-017	The BOS shall accept updated addresses from the Collection Agency and update Customer Accounts with the new addresses provided.
COL-018	The BOS shall automatically reassign transactions and MBSs to Collections anytime a payment, used to pay the transaction or MBS that was in Collections, is reversed in the BOS or Collection Agency.
COL-019	The BOS shall provide the capability to automatically, or manually by an Authorized User, add and remove Collection Agencies, and to reassign Collections Placement to another Collections Agency.
COL-020	The BOS Collections Interface shall provide an Authorized User the capability to set Configurable options, including, but not limited to: <ul style="list-style-type: none"> <li>sending or not sending Customer Accounts that have invalid delivery methods (i.e. bad mailing address), and</li> <li>sending or not sending unpaid Traffic Transactions or MBS's.</li> </ul>



Req. #	Requirement
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## 8. Vehicle Registration Holds

Req. #	Requirement
HLD-001	The BOS shall identify Registration Holds on eligible vehicles (license plates), based on the Future Updated Business Rules and qualifyin Configurable criteria, including but not limited to: <ul style="list-style-type: none"> <li>jurisdiction of the license plate (e.g., KY or IN),</li> <li>one (1) unpaid Traffic Transactions after one-hundred and twenty (120) days (Configurable) for the license plate, and;</li> <li>Registration Hold of the license plate does not already exist.</li> </ul>
HLD-002	The BOS shall place a Flag on the Customer Account when a Registration Hold has been placed on a license plate assigned to the Customer Account.
HLD-003	The BOS shall track the number of times a Customer Account and a vehicle license plate is designated with a Registration Hold.
HLD-004	The BOS shall track start and end dates of Registration Hold statuses on Customer Accounts.
HLD-005	The BOS shall track the various data elements related to Registration Hold data including, but not limited to: <ul style="list-style-type: none"> <li>start date,</li> <li>release date,</li> <li>Transaction Date of earliest qualified Traffic Transaction,</li> <li>total amount due,</li> <li>toll amount due,</li> <li>fee amount due,</li> <li>dispute date,</li> <li>dispute reason,</li> <li>resolution/outcome,</li> <li>vehicle registration county,</li> <li>Administrative Hearing request date, and</li> <li>Administrative Hearing reason.</li> </ul>
HLD-006	The BOS shall provide the capability for an Authorized User to receive an internal Alert of Registration Hold statuses.
HLD-007	The BOS shall provide the capability for an Authorized User to view various information related to Registration Holds including, but not limited to: <ul style="list-style-type: none"> <li>Registration Hold status,</li> <li>date Registration Hold is determined eligible,</li> <li>date the Registration Hold is applied,</li> <li>date the Registration Hold is removed,</li> <li>Payment Plan details,</li> <li>date of the Administrative Hearing, and</li> <li>Administrative Hearing result.</li> </ul>
HLD-008	The BOS shall interface with both Kentucky and Indiana VRI Sources that support Registration Holds. Interface shall also be established with any futur states in which a reciprocal enforcement agreement has been established.
HLD-009	The BOS shall provide the capability for an Authorized User to set and maintain the maximum number of license plates per batch to be sent fo Registration Hold, at Configurable time intervals by state (e.g., one thousand (1,000) license plates on a daily basis for Indiana). Batch deliver timeframe shall be dictated by each DMV.
HLD-010	The BOS shall provide the capability for an Authorized User to prioritize license plates, subject to Registration Holds, in the event the number of licens plates exceeds the maximum number of license plates which can be sent on a daily basis.
HLD-011	The BOS shall automatically create and exchange Registration Holds and Releases with the responsible entities.
HLD-012	The BOS shall initiate Registration Holds at least daily (Configurable) with the responsible entities.
HLD-013	The BOS shall automatically re-try the Registration Hold and Release, in the event of a failure, based on the type of error.
HLD-014	The BOS shall automatically re-request the Registration Hold, if a payment that was received resulted in the release of a Registration Hold (Release) and then the payment is subsequently reversed (e.g., if a check is returned or if a chargeback is received).
HLD-015	The BOS shall provide the capability for an Authorized User to manually initiate the Registration Release without resolution of past due amounts.
HLD-016	The BOS shall support Registration Hold statuses (statuses the Registration Hold goes through) including, but not limited to: <ul style="list-style-type: none"> <li>Registration Hold pending,</li> <li>Registration Hold sent to DMV,</li> <li>Registration Hold approved by DMV,</li> <li>Registration Hold rejected by DMV,</li> <li>Registration Hold not placed due to error,</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>Registration Hold release pending,</li> <li>Registration Hold release performed by DMV, and</li> <li>Registration Hold not released due to error.</li> </ul>
HLD-017	The BOS shall automatically display Flags on all Customer Account screens, based upon current Registration Hold status.
HLD-018	The BOS shall create a Case if the Registration Hold request is rejected by the DMV for any reason.
HLD-019	The BOS shall accommodate multiple dates and reject reasons, in the Registration Hold history, for multiple past due amounts, and potentially multiple license plates.
HLD-020	The BOS shall generate and communicate a Registration Hold release request to the appropriate DMV within five (5) (Configurable) minutes from when a successful payment has been received on the unpaid Traffic Transactions resulting in the Registration Hold. Additional unpaid Traffic Transactions that have not yet aged to the required timeframe will not delay the submission of the Registration Hold release request.

## 9. Administrative Hearings

Req. #	Requirement
ADM-001	<p>The BOS shall provide the capability for an Authorized User to define a Configurable Administrative Hearing workflow and to create an Evidence Package containing all necessary data and correspondence including, but not limited to:</p> <ul style="list-style-type: none"> <li>Customer Account summary sheet including VRI,</li> <li>BOS and manual notes recorded on the Customer Account,</li> <li>Cases created and their outcome for the Customer Account,</li> <li>Transponder status change history,</li> <li>customer contacts,</li> <li>history of non-payment,</li> <li>all customer Notifications and notices,</li> <li>all previous and outstanding Cases,</li> <li>previous resolutions,</li> <li>detailed toll transaction data associated with the Administrative Hearing,</li> <li>related video or photographic images including time, date, and location of the crossing, and</li> <li>evidence of the license plate look up and registration records for the agency responsible for registration information in the state where the vehicle is registered, and</li> <li>all related notes.</li> </ul>
ADM-002	The BOS shall create the evidence package no more than ten (10) days after the date of the request for Administrative Hearing. Evidence package shall be printed and/or uploaded to the desired location.
ADM-003	<p>The BOS shall provide the capability for an Authorized User to add/edit Administrative Hearing statuses (Configurable) including, but not limited to:</p> <ul style="list-style-type: none"> <li>Hearing request received,</li> <li>Hearing request in review,</li> <li>Final order issued,</li> <li>Hearing request rejected,</li> <li>Hearing scheduled,</li> <li>failure to appear, and</li> <li>Hearing complete.</li> </ul>
ADM-004	The BOS shall provide the capability for an Authorized User to manually update the status of an Administrative Hearing.
ADM-005	Once an Administrative Hearing has been requested, the Customer Account shall be placed on Hold automatically until resolution.
ADM-006	After the Administrative Hearing, the final order issued by the hearing officer shall be uploaded to the Customer's Account for future reference, and the remedy shall be undertaken (for example Waive or Adjust toll amounts, Waive or Adjust fees, release Registration Hold, etc.)

## 10. Payment Plans

Req. #	Requirement
PPL-001	The BOS shall provide the capability for an Authorized Users to create, edit and cancel a Payment Plan.
PPL-002	The BOS shall provide the capability for an Authorized User to accept a customer's request for a Payment Plan.
PPL-003	The BOS shall provide the capability for an Authorized User to configure Payment Plan eligibility, based on the unpaid Traffic Transactions aging level.



Req. #	Requirement
PPL-004	The BOS shall provide the capability for an Authorized User to extend Payment Plan due dates.
PPL-005	The BOS shall provide the capability for an Authorized User to select multiple MBSS, and/or unpaid Traffic Transactions to be included in a Payment Plan.
PPL-006	The BOS shall alert an Authorized User that a Payment Plan exists on a Customer Account.
PPL-007	The BOS shall track and store Payment Plan statuses including, but not limited to: <ul style="list-style-type: none"> <li>• active,</li> <li>• paid,</li> <li>• amount outstanding,</li> <li>• number of late payments,</li> <li>• closed,</li> <li>• blocked, and</li> <li>• default.</li> </ul>
PPL-008	The BOS shall provide the capability for an Authorized User to place selected multiple unpaid MBSSs or Traffic Transactions on hold, while included in an active Payment Plan.
PPL-009	The BOS shall continue aging unpaid MBSSs and/or Traffic Transactions that are included in a Payment Plan from the point they were at when they were added to the Payment Plan.
PPL-010	The BOS shall provide the capability for an Authorized User to set up Payment Plan parameters including, but not limited to: <ul style="list-style-type: none"> <li>• eligibility based on Account Attributes,</li> <li>• eligibility based on Account Flags,</li> <li>• maximum duration,</li> <li>• minimum number of payment months,</li> <li>• maximum number of payment months,</li> <li>• minimum amount customer can pay,</li> <li>• maximum amount customer can pay,</li> <li>• to place a Payment Plan on hold, and</li> <li>• to select and place the unpaid Traffic Transactions on a Payment Plan on hold (unselected transactions continue to age).</li> </ul>
PPL-011	The BOS shall provide the capability for an Authorized User to define when a Payment Plan is delinquent.
PPL-012	The BOS shall provide the capability to send delinquent Payment Plan details to a Collection Agency.
PPL-013	The Collection Agency shall send Payment Plan details to the BOS such that accounts are updated within the BOS allowing CSRs to see the most current status.
PPL-014	The BOS shall store the following Payment Plan details including, but not limited to: <ul style="list-style-type: none"> <li>• license plates,</li> <li>• total amount of Payment Plan,</li> <li>• fees owed,</li> <li>• tolls owed,</li> <li>• total amount paid,</li> <li>• amount outstanding,</li> <li>• number of payments,</li> <li>• monthly payment amount,</li> <li>• start date of Payment Plan,</li> <li>• end date of Payment Plan,</li> <li>• number of active Payment Plans on Account,</li> <li>• date last payment received,</li> <li>• number of delinquent payments,</li> <li>• provide/identify all MBSSs and unpaid Traffic Transactions included within a Payment Plan, and</li> <li>• include multiple Customer Accounts.</li> </ul>
PPL-015	Customers shall be able to see status and details of their Payment Plans, regardless of the status of the Customer Account.

## 11. Notifications

### Notifications – General Requirements

Req. #	Requirement
NOT-001	The BOS shall provide the capability for Authorized Users to manually generate and distribute Notifications, either individually or in bulk via any Notification Channel.



Req. #	Requirement
NOT-002	The BOS shall provide the capability to schedule or automatically generate and distribute Notifications, either individually or in bulk via any Notification Channel.
NOT-003	The BOS shall provide the capability to automatically initiate Customer Notifications, based on the following, including but not limited to: <ul style="list-style-type: none"> <li>• Customer Account status,</li> <li>• Customer Account changes,</li> <li>• Customer Account activity,</li> <li>• Customer Account balance,</li> <li>• Case status,</li> <li>• Transponder status,</li> <li>• payment activity,</li> <li>• transaction activity,</li> <li>• Credit Card status,</li> <li>• Vehicle Registration Hold eligibility,</li> <li>• undeliverable mail or email, and</li> <li>• refund issued.</li> </ul>
NOT-004	The BOS shall provide the capability to distribute and track Notifications through multiple Notification Channels.
NOT-005	The BOS shall assign a default Notification Channel, per Notification, if a preferred Notification Channel is not selected by the customer.
NOT-006	The BOS shall provide the capability for a Notification item to be distributed using multiple Notification Channels.
NOT-007	The BOS shall provide the capability for generating and sending Notifications to multiple addresses and/or contacts.
NOT-008	The BOS shall provide the capability to define an order of priority, for using multiple mailing addresses, based on the source from which an address was received (i.e., VRI, Skip Tracing and/or NCOA).
NOT-009	The BOS shall provide the capability to read and create the USPS Intelligent Mail Barcode (IMB) for outgoing mail.
NOT-010	The BOS shall provide the capability to prevent Notifications from being sent to an address marked as undeliverable.
NOT-011	The BOS shall provide the capability to automatically resend Notifications, after Skip Trace activities return a new address.
NOT-012	The BOS shall provide the capability to send a Notification to a customer, regarding an undeliverable mail or email situation, by using a different Notification Channel.
NOT-013	The BOS shall provide the capability for an Authorized User to mark phone numbers, addresses or email addresses as bad, after a Configurable number of failed contact attempts.
NOT-014	The BOS shall provide the capability for an Authorized User to manually select Notifications to be resent; i.e., when a new address has been provided.
NOT-015	The BOS shall update the mailing date, upon successful mailing of the Notification, as verified and provided by the primary Third-Party Service Provider.

#### Notification Configuration Requirements

Req. #	Requirement
NOT-016	The BOS shall provide Authorized Users with a user Interface for Notification management and creation.
NOT-017	The BOS shall utilize standard templates for all outgoing Notifications that are editable by Authorized Users for each Notification item, which shall be approved by the Joint Board Representative.
NOT-018	The BOS shall allow graphics, images and/or text on any Notification, as required by the Joint Board Representative.
NOT-019	The BOS shall add a barcode, scan line, or quick response code (QR Code), to each outgoing Notification (excluding text and email body) and envelope, so the returned Notification can be scanned and automatically associated with the proper Customer Account, and if applicable, Case.
NOT-020	The BOS shall create and assign version numbers and revision dates to Notification item templates.
NOT-021	The BOS shall store the actual mailing date for each Notification item in the Customer Account.
NOT-022	The BOS shall provide the capability for Authorized Users to view all current and historical versions of each Notification item template that shows date of modification in the Customer Account.
NOT-023	The BOS shall provide the capability to select a target audience for a Notification, using the following criteria, including but not limited to: <ul style="list-style-type: none"> <li>• date of transactions,</li> <li>• use of a particular toll location (overall or by direction),</li> <li>• use of a particular Payment Method,</li> <li>• customer demographic information i.e. zip code;</li> <li>• Traffic Transactions by Vehicle Class,</li> <li>• Traffic Transactions by Customer Account Attribute,</li> <li>• Traffic Transactions by Customer Account Flag(s),</li> <li>• Traffic Transactions by Discount Plan, and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>Traffic Transactions by Transaction Type.</li> </ul>
NOT-024	The BOS shall provide the capability to set a fee to be charged to a Customer Account, for certain Notifications and/or Notification delivered by certain Notification Channels.
NOT-025	The BOS shall display fees to the Authorized User, when selecting the Notification Channel, advising that by selecting "opt-in" they are authorizing the fee be charged when the Notification is generated.
NOT-026	The BOS shall provide the capability for Authorized Users to setup the Configurable parameters that will trigger Notifications.

#### Notification Customer Account Management Requirements

Req. #	Requirement
NOT-027	The BOS shall provide Authorized Users with the ability to see Notification(s) sent to a Customer, while viewing the Customer Account.
NOT-028	The BOS shall provide the capability for Authorized Users to set "opt-in" and "opt-out" options on an Account, for certain Notification items.
NOT-029	The BOS shall provide the capability for Authorized Users to select their preferred Notification Channels for each Notification.
NOT-030	The BOS shall ensure historical Notifications, associated with Customer Accounts, do not change (maintain original form and content), regardless of any changes that are subsequently made to the template for that Notification.
NOT-031	The BOS shall provide the capability for Authorized Users to suppress the generation of all or a particular Notification, for a specific Customer Account.
NOT-032	The BOS shall provide the capability to suspend all Notifications for a specific Customer Account, for a Configurable number of days, and up to a Configurable maximum number of days, with auto-expiration. Authorized Users shall be able to override the Notification suspension.
NOT-033	The BOS shall provide the capability to automatically associate a copy of the Notification, with the Customer Account, upon successful distribution of the Notification so that Authorized Users can access historical Notifications generated and distributed for the Customer Account.
NOT-034	The BOS shall produce a receipt, for every activity where the customer may have a retail-type transaction, or a transaction which may or may not affect the balance on the Customer Account. Receipts shall be displayed, with option to print or delivered via email or SMS/Text Message.

#### Notification Tracking and Distribution Requirements

Req. #	Requirement
NOT-035	The BOS shall provide the capability to track a Notification delivery response for each individual Notification.
NOT-036	The BOS shall provide the capability to send a follow-up Notification, via the same Notification Channel previously used or a different Notification Channel if an unsatisfactory response is received.
NOT-037	The BOS shall provide the capability to assign a status to each Notification.
NOT-038	<p>The BOS shall provide the capability to create a Notification record for each Notification generated, including but not limited to:</p> <ul style="list-style-type: none"> <li>Notification Channel,</li> <li>Notification type,</li> <li>date the Customer Account triggered to have that Notification generated,</li> <li>date the Notification was generated,</li> <li>date the Notification was sent to the Third-Party Service Provider,</li> <li>due date (if applicable),</li> <li>date the Notification was printed,</li> <li>date the Notification was mailed,</li> <li>date the Notification was identified as undeliverable,</li> <li>date the Notification was delivered,</li> <li>date the Notification was re-queued, and</li> <li>date the Notification was reissued.</li> </ul>

#### 12. Case Management Case Creation

Req. #	Requirement
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Req. #	Requirement
CAS-001	<p>The BOS shall provide the capability to create, manage and support activities as Cases. Types of Cases shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• logging, tracking and managing the resolution of any customer or non-customer dispute, issue or request received by TSP2 (if cannot be resolve immediately);</li> <li>• logging, tracking and managing the research of undeliverable email,</li> <li>• logging, tracking and managing the research of undeliverable mail,</li> <li>• logging, tracking and managing the resolution of subpoena requests,</li> <li>• logging, tracking, and managing the resolution of requests from the Joint Board Representatives,</li> <li>• logging, tracking and resolving payment exceptions,</li> <li>• scheduling and tracking requests for Administrative Hearings and evidence packages,</li> <li>• logging requests for inventory items, and</li> <li>• logging, tracking and managing returns.</li> </ul>
CAS-002	<p>The BOS shall track Cases by Case attributes that include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• notification channel (i.e., walk-in, phone or email),</li> <li>• Case type (i.e., request for a payment plan or bankruptcy),</li> <li>• escalation information,</li> <li>• date and time of Case creation and closure,</li> <li>• identity of Authorized User (or BOS, if system-generated) initiating the Case,</li> <li>• Case ID,</li> <li>• customer name,</li> <li>• customer contact information,</li> <li>• Customer Account number,</li> <li>• license plate,</li> <li>• Notification number,</li> <li>• Monthly Billing Statement ID,</li> <li>• priority,</li> <li>• comments (based on Configurable drop-down selection and free form text),</li> <li>• Case status (Configurable) and Case status history,</li> <li>• outcome of Case when completed,</li> <li>• tolling location,</li> <li>• follow-up activities,</li> <li>• Authorized User who performed the follow-up activities,</li> <li>• description of follow-up action,</li> <li>• assigned to,</li> <li>• estimated completion timeline,</li> <li>• actual completion timeline, and</li> <li>• customer satisfaction feedback.</li> </ul>
CAS-003	The BOS shall allow Cases to be created using the Self-Service Website, email or IVR.
CAS-004	The BOS shall provide the capability for Authorized Users to create Cases manually.
CAS-005	The BOS shall provide the capability for an Authorized User to initiate a Case from within a Customer Account.
CAS-006	The BOS shall provide the capability to associate a Case, with an account, after the Case has been created.
CAS-007	The BOS shall automatically assign a unique Case ID for each new Case.
CAS-008	The BOS shall provide the capability for an Authorized User to define and create Case templates, and workflows, for each type of Case.
CAS-009	<p>The BOS shall provide the capability for an Authorized User to set attributes, by Case type, related to Case management including, but not limited to:</p> <ul style="list-style-type: none"> <li>• required fields, including user-defined fields;</li> <li>• assignment rules,</li> <li>• priority,</li> <li>• Case workflow logic,</li> <li>• Case queue display order (e.g., by date opened or priority),</li> <li>• drop-down lists,</li> <li>• all relevant parameters related to Case escalation (e.g., number of dormant days before escalation, and number of days from Case creation to escalation), and</li> <li>• Case templates creation and modifications.</li> </ul>
CAS-010	The BOS shall provide the capability for an Authorized User to access a Case, through a Case Management, or through the associated account.



Req. #	Requirement
CAS-011	The BOS shall associate all related customer notifications and correspondence with a single Case, and associate it with the appropriate account, as needed; including, but not limited to: <ul style="list-style-type: none"> <li>• call records,</li> <li>• recorded calls,</li> <li>• emails,</li> <li>• electronic documents (MBS for example), pdfs, and files in standard graphics file formats;</li> <li>• chat,</li> <li>• text messages, and</li> <li>• scanned items.</li> </ul>
CAS-012	The BOS shall automatically insert information from the Case source, into the Case creation screen, to expedite Case creation (e.g., importing the name, address and contact information from the account or notification with which the Case is associated).
CAS-013	The BOS shall provide the capability for an Authorized User to place a Case on hold, pending a specific occurrence, or to enter a date when the Case will be presented again to be worked. Depending on the Case type, the Case may affect the account as well.
CAS-014	The BOS shall provide an automated correspondence capability, whereby the customer can be kept informed of Case progress/status, from opening through closure, depending on the type of Case. This capability shall be Configurable, such that certain Case progress/status changes would generate a customer notification, and others would not.
CAS-015	The BOS shall provide the capability for an Authorized User to export Case information in an exportable, printable format.
CAS-016	The BOS shall provide the capability for an Authorized User to transmit Case information via email.

#### Case Assignment, Tracking and Reporting

Req. #	Requirement
CAS-017	The BOS shall automatically place open Cases in the appropriate Case type queue, such that Authorized Users and workgroups may access their assigned queue, review Case information, and take action on each Case.
CAS-018	The BOS shall provide the capability for Authorized Users to reopen closed Cases, if and when required.
CAS-019	The BOS shall provide the capability for Case(s) to be worked by multiple Authorized Users.
CAS-020	The BOS shall ensure that an active Case is not orphaned, by remaining in a queue with no Authorized User assigned to that queue or Case.
CAS-021	The BOS shall provide the capability for Authorized Users to merge two (2) or more Cases.
CAS-022	The BOS shall track historical action type data, by action taken to work the Case including, but not limited to: <ul style="list-style-type: none"> <li>• creation,</li> <li>• closure,</li> <li>• reopening,</li> <li>• reassign,</li> <li>• placed on hold /establish a "work again date",</li> <li>• awaiting customer action, and</li> <li>• received customer satisfaction feedback.</li> </ul>
CAS-023	The BOS shall provide the capability to link and track an unlimited number of Cases to a single Customer Account, including historical Cases.
CAS-024	The BOS shall provide the capability to associate a Case to one (1) or multiple Customer Accounts.
CAS-025	The BOS shall provide the capability to track, record and review follow-up activity on Cases.
CAS-026	The BOS shall provide the capability for Authorized Users to edit data within a Case, Configurable by Case type.
CAS-027	The BOS shall provide the capability for an Authorized User to group Cases and perform the same action(s) on the group of Cases.
CAS-028	In instances where a Case is to be created automatically by the BOS, the BOS shall prevent the creation of duplicate Cases.
CAS-029	The BOS shall provide the capability to automatically (Configurable) send a notification (Configurable) to the customer, relative to a Case, indicating additional information or documentation is required.

#### Workflow Management

Req. #	Requirement
CAS-030	The BOS shall provide Configurable Case workflow and routing.
	The BOS shall provide the capability to assign Cases in Configurable ways including, but not limited to:



Req. #	Requirement
CAS-031	<ul style="list-style-type: none"> <li>• manual assignment of a Case to a particular Authorized User or group of users,</li> <li>• automatic assignment by customer or account criteria,</li> <li>• automatic assignment by Case type,</li> <li>• automatic assignment by status,</li> <li>• automatic assignment by priority level, and</li> <li>• automatic assignment by role.</li> </ul>
CAS-032	The BOS shall provide the capability for an Authorized User to manually reassign any Case to a new workflow, at any point within that workflow.
CAS-033	<p>The BOS shall provide the capability for special handling and tracking of Cases in Configurable ways including, but not limited to:</p> <ul style="list-style-type: none"> <li>• providing the capability to send an Alert regarding specific Cases that meet Configurable criteria (i.e., Cases in "open" status that have not been worked on in "X" number of days),</li> <li>• automatically send internal notifications for overdue Cases,</li> <li>• providing the capability to pre-define sets of activities, or procedures, for specified Case types,</li> <li>• providing the capability to automatically escalate Cases determined as representing repeated complaints,</li> <li>• providing the capability to define activities that require authorization from Authorized Users,</li> <li>• providing the capability to automatically reassign Cases based on queue size and time to resolution,</li> <li>• providing the capability to automatically reassign Cases based on user "time off" schedule (i.e., assigned user is out of the office), and</li> <li>• providing the capability to track Cases that need to meet associated compliance requirements.</li> </ul>

#### Other Case Management Requirements

Req. #	Requirement
CAS-034	<p>The BOS shall provide an automated mechanism to identify, send an Alert and escalate (Configurable) Cases that represent the same issue, resulting in multiple Cases; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• same customer has complained multiple times regarding one (1) issue which has been worked, and closed previously, via multiple Cases, and</li> <li>• multiple customers have Cases opened with the same issue (i.e., one (1) issue is affecting multiple customers).</li> </ul>
CAS-035	The BOS shall provide the capability for an Authorized User to define reason codes, to be specified for each Case that is closed (Configurable).
CAS-036	The BOS shall provide (Configurable) a mechanism to schedule "promise-to-pay" events (example of a Case type or Case action), based on whether a customer's next MBS will either follow the regular aging process, or not, depending on whether or not customer makes promised payment and the date/timing of payment.
CAS-037	The BOS shall include a Configurable real-time Case management dashboard that displays key Case management statistics.
CAS-038	The BOS shall include a dropdown list of available categories for Case assignment. These categories shall available to be reported on.
CAS-039	The BOS shall place a Traffic Transaction on hold from aging (and mark it accordingly on the MBS) when a dispute is filed and shall remove it from hold when it is resolved.

#### 13. Self-Service Website General Requirements

Req. #	Requirement
WEB-001	TSP2 shall provide, and the BOS shall include, a secure self-service website (Self-Service Website) for customers (domain to be reviewed and approved by the Joint Board Representatives) to access and perform various customer service functions as specified herein, in English, online via the Internet.
WEB-002	The Self-Service Website shall be mobile responsive or mobile friendly, and the Self-Service Website content, design and performance shall be functionally similar on a variety of devices and screen sizes, including desktops, laptops, smartphones and tablets.
WEB-003	TSP2 shall interface with the Joint Board Representatives' managed home page <a href="http://www.riverlink.com">www.riverlink.com</a>
WEB-004	<p>The Self-Service Website shall be compatible with the browser versions most utilized by the public, and future version releases of the following browsers including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Microsoft Internet Explorer,</li> <li>• Mozilla Firefox,</li> <li>• Google Chrome,</li> <li>• Apple Safari,</li> <li>• Microsoft Edge, and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>up to two (2) additional web browsers which are not currently in this list and are in the top five (5) web browsers used in the United States, at the time of BOS implementation.</li> </ul>
WEB-005	<p>The Self-Service Website shall support the latest versions of mobile operating systems including, but not limited to:</p> <ul style="list-style-type: none"> <li>Apple iOS,</li> <li>Android web operating system,</li> <li>Windows Phone operating system, and</li> <li>up to two (2) additional mobile operating systems, which are not currently in this list, and are in the top five (5) mobile operating systems used in the United States at the time of the BOS implementation.</li> </ul>
WEB-006	<p>The Website shall support the latest versions of mobile browsers including, but not limited to:</p> <ul style="list-style-type: none"> <li>Microsoft Internet Explorer,</li> <li>Mozilla Firefox,</li> <li>Google Chrome,</li> <li>Apple Safari,</li> <li>Microsoft Edge,</li> <li>Opera, and</li> <li>up to two (2) additional mobile web browsers, which are not currently in this list, and are in the top five (5) mobile web browsers used in the United States, at the time of BOS implementation.</li> </ul>
WEB-007	<p>The Self-Service Website shall incorporate best practices and standards prevalent in the software industry and in use at the time of implementation including, but not limited to:</p> <ul style="list-style-type: none"> <li>design,</li> <li>"look-and-feel" and aesthetics,</li> <li>usability (including usability with screen-reader devices),</li> <li>security,</li> <li>performance, and</li> <li>reporting and analytics.</li> </ul>
WEB-008	TSP2 shall work in conjunction with the Joint Board Representatives to finalize the Self-Service Website aesthetics and usability aspects during the design workshops.
WEB-009	The Self-Service Website shall support the expiration of cookies.
WEB-010	The Self-Service Website shall detect and advise users if the browser used is not up-to-date, or not supported, and direct users to where updates can be obtained.
WEB-011	<p>TSP2 shall provide web analytics tools for the measurement, collection, analysis and reporting of internet data, for the purposes of understanding and optimizing Website usage, business and market research, and to assess and improve the effectiveness of the Self-Service Website. The web analytics tools shall track all usage on the Self-Service Website including, but not limited to:</p> <ul style="list-style-type: none"> <li>number of individual hits by screen,</li> <li>number of page views,</li> <li>time spent per page viewed,</li> <li>number of repeat visitors versus new visitors,</li> <li>bounce rate,</li> <li>abandonment rate,</li> <li>abandonment page and area,</li> <li>website traffic statistics, and</li> <li>Click rates to links within web page</li> </ul>
WEB-012	The Self-Service Website shall allow a third-party website, or application, to connect via API (or web services or equivalent) to the BOS, in a way that real-time information and updates can take place without major development.
WEB-013	The Self-Service Website shall provide the capability for Authorized Users to define and manage a comprehensive and Configurable list of help sections, including videos and links.
WEB-014	The Self-Service Website shall provide the capability for Authorized Users to define and manage a comprehensive and Configurable list of FAQs, including videos and links.
WEB-015	The Self-Service Website shall support the addition and revision of marketing and advertising content approved by the Joint Board Representatives (content will be provided in English).
WEB-016	The Self-Service Website shall utilize Search Engine Optimization (SEO) to ensure high rankings on Search Engine results.

#### Account Creation

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Req. #	Requirement
Req. #	Requirement
WEB-017	The Self-Service Website shall provide a Customer Account creation process which leads a customer through all the necessary steps to create Customer Account.
WEB-018	The Self-Service Website shall allow customers to select configurable Account Attributes and account preferences during the creation of a Customer Account, and after the Account is created.
WEB-019	The Self-Service Website shall include the terms and conditions for establishing and utilizing a RiverLink account and require that the RiverLink terms and conditions are acknowledged, and that a record of that acknowledgment shall be saved in the BOS prior to establishing an Account. The BOS shall save an "exact snapshot" of the terms accepted by the customer (e.g., saved in a pdf document or a standard graphics file format).
WEB-020	The Self-Service Website shall provide the capability to update the terms and conditions, over time, as needed, and require the Self-Service Website to prompt for acknowledgement by the customer. The BOS shall track a version history of all terms and conditions, and their associated versions, and acknowledgements per Account.
WEB-021	The Self-Service Website shall ensure that initial input of mailing address, and all subsequent updates, shall utilize real-time address normalization and standardization services and best practices.
WEB-022	The Self-Service Website shall provide the capability for the customer to accept, and/or reject, the recommended changes, provided during address validation or standardization.
WEB-023	The Self-Service Website shall provide the capability for customers to set and modify preferred Notification channels.
WEB-024	The Self-Service Website shall perform email address validation during the Account creation process. Upon validation, the BOS shall allow for the Account creation process to be completed.
WEB-025	The Self-Service Website shall provide an Account summary to the customer, upon a successful Account creation process.
WEB-026	The Self-Service Website shall provide the capability for customers to enter one (1) or more promotional codes (i.e. "refer-a-friend" code) during the Account creation process.
WEB-027	The Self-Service Website shall allow for customers to be asked a series of Configurable marketing questions.

#### Account Access and Security

Req. #	Requirement
WEB-028	TSP2 shall implement Account access and security requirements to follow and be consistent with the industry best practices.
WEB-029	The Self-Service Website shall allow for a customer with an existing Account to setup online Account access and create a username, password, and Multi-Factor Authentication (MFA) and recovery information.
WEB-030	Upon the first logon, the Self-Service Website shall require the customer to establish three (3) Configurable security challenge questions and answer for use in future validation for Account access.
WEB-031	The Self-Service Website shall allow customers to recover their password.
WEB-032	The Self-Service Website shall allow customers to reset their password.
WEB-033	The Self-Service Website shall allow customers to recover their username.
WEB-034	The Self-Service Website shall allow customers to manage their security challenge questions.
WEB-035	The Account passwords shall be implemented with strong cryptographic salts.

#### Customer Information

Req. #	Requirement
WEB-036	The Self-Service Website shall allow for a customer to perform activities including, but not limited to: <ul style="list-style-type: none"> <li>edit personal information such as mailing address, email address and phone number, and</li> <li>submit a request to change a name on an Account, along with the online submittal of required documentation.</li> </ul>
WEB-037	The Self-Service Website shall validate any additional mailing addresses added, subsequent to the mailing address established at Account creation utilizing real-time address normalization/standardization service and best practices.
WEB-038	The Self-Service Website shall validate any additional email addresses added, subsequent to the email address established at Account creation, to follow an email address validation process prior to finalizing the entry on the Account. A message shall be displayed indicating the email address will not be added until the validation process is complete.

#### Vehicles, License Plates, and Transponders



Req. #	Requirement
Req. #	Requirement
WEB-039	The Self-Service Website shall provide the capability for a customer to perform activities including, but not limited to: <ul style="list-style-type: none"> <li>• add a vehicle,</li> <li>• remove a vehicle,</li> <li>• edit vehicle information,</li> <li>• request update of vehicle ownership dates with online submittal of required documentation, and</li> <li>• request transfer of a vehicle with online submittal of required documentation.</li> </ul>
WEB-040	The Self-Service Website shall provide the capability for customers to add, delete and manage subscription periods; e.g., a customer may wish to add a vehicle on the Account for a limited amount of time (subscription period).
WEB-041	The Self-Service Website shall provide the capability for customers to add multiple license plates and associated vehicle information to their Account.
WEB-042	The Self-Service Website shall provide the capability (Configurable by Account Type) for customers to upload a file, with vehicle and associated information, using an intuitive and user-friendly process that supports multiple data formats, including delimiter-separated data or Microsoft Excel. Functionality shall include, but not be limited to: <ul style="list-style-type: none"> <li>• validation of the file prior to import (invalid files shall not be imported and an error message shall be presented),</li> <li>• virus scan/check to ensure file(s) being uploaded are virus-free,</li> <li>• on-screen feedback of successful processing (e.g., by indicating the number of vehicles imported), and</li> <li>• email Notification of a successful import.</li> </ul>
WEB-043	The Self-Service Website shall provide detailed instructions regarding the process to upload a file containing vehicle information.
WEB-044	The Self-Service Website shall provide a downloadable, sample vehicle file, and data definition document with instructions for each supported file format.
WEB-045	The Self-Service Website shall warn the customer when the license plate(s) they are attempting to add to their Account is active on another Account (other than a rental car/fleet account), and prevent addition of such a license plate to the Account. The BOS shall also automatically create a Case for this activity.
WEB-046	The Self-Service Website shall provide the capability for a customer to perform activities including, but not limited to: <ul style="list-style-type: none"> <li>• add Transponder to existing vehicle,</li> <li>• add Transponder to new vehicle,</li> <li>• replace Transponder on existing vehicle,</li> <li>• inactivate a Transponder, and</li> <li>• report lost or stolen Transponder.</li> </ul>
WEB-047	The BOS shall prevent customers from requesting Transponders via the Self-Service Website in excess of a Configurable (based on Account Attributes) number of Transponders.

#### Account Preferences

Req. #	Requirement
WEB-048	The Self-Service Website shall provide the capability for a customer to edit Account preferences.
WEB-049	The Self-Service Website shall provide the capability for customers to set "opt-in" and "opt-out" options for certain Notification types including, but not limited to: <ul style="list-style-type: none"> <li>• Monthly Billing Statements, and</li> <li>• marketing/newsletters.</li> </ul>
WEB-050	The Self-Service Website shall provide the capability for customers to set Notification preferences that determine how the customer receives Notifications (i.e., emails, text message and/or USPS) along with an order of preference. Any Notification resulting in an additional cost (physical mailing for example) will result in an additional processing fee (Configurable) to be added to the Customer's Account when applicable.

#### Account Information and Notifications

Req. #	Requirement
WEB-051	The Self-Service Website shall provide the capability for customers to view and print past Monthly Billing Statements or to generate an on-demand Account activity listing.



Req. #	Requirement
WEB-052	The Self-Service Website shall provide the capability for customers to view, download and/or print any Notifications (pdf format) associated with their Account.
WEB-053	The Self-Service Website shall display Configurable message(s) including, but not limited to: <ul style="list-style-type: none"> <li>allowable Flags (Configurable) related to the Account,</li> <li>Transponder in certain status (i.e. lost or stolen),</li> <li>dispute status, and</li> <li>customer advisories.</li> </ul>
WEB-054	The Self-Service Website shall provide the capability for customers to obtain the detailed Account activity history, in pdf, Microsoft Excel, or CSV formats (Account history shall include a "running" Account balance).
WEB-055	The Self-Service Website shall provide the capability for customers (Configurable) to view the primary image associated with each IBT.

#### Payment Method and Payment Processing Requirements

Req. #	Requirement
WEB-056	The Self-Service Website shall provide the capability for a customer to perform activities including, but not limited to: <ul style="list-style-type: none"> <li>add/edit/remove payment method,</li> <li>add/edit/remove payment preferences,</li> <li>update Auto-Replenishment amount,</li> <li>update Low Balance Level,</li> <li>make one-time payment, and</li> <li>schedule a recurring payment.</li> </ul>
WEB-057	The Self-Service Website shall allow Authorized Users to setup payment methods available, including but not limited to: <ul style="list-style-type: none"> <li>Credit Card,</li> <li>ACH,</li> <li>Apple Pay,</li> <li>Google Pay, and</li> <li>PayPal.</li> </ul>
WEB-058	The Self-Service Website shall provide the capability for customers to make payments to their Accounts, even if the account is in "Collections" status.
WEB-059	The Self-Service Website shall validate payment method details entered are consistent with the format requirements (e.g., Credit Card information must be 16 or 17 digits and begin with the appropriate digit for the card type, or the ACH's bank routing number is the correct length).
WEB-060	The Self-Service Website shall display a confirmation page, which includes payment method details (Credit Card and ACH numbers obscured) and the amount to be paid, prior to customer being allowed to submit a payment.
WEB-061	The Self-Service Website shall provide the capability for customers to request a Payment Plan with the submittal of required documentation.

#### Other Self-Service Website Requirements

Req. #	Requirement
WEB-062	The Self-Service Website shall allow for customers to request that their Account(s) be closed.
WEB-063	The Self-Service Website shall provide the capability for a customer to upload a file of one (1) of the following types including, but not limited to: <ul style="list-style-type: none"> <li>pdf,</li> <li>rtf,</li> <li>doc,</li> <li>docx,</li> <li>also,</li> <li>xlsx,</li> <li>csv,</li> <li>jpg,</li> <li>bmp,</li> <li>png,</li> <li>gif, and</li> <li>tif</li> </ul>



Req. #	Requirement
	and have it associated to the Account. Such uploads shall be structured within a specific process, where a category can be assigned, and a Case opened, for an Authorized User to verify; e.g., additional evidence for a dispute or a copy of a marriage certificate to change the customer's last name.
WEB-064	The BOS shall be able to accept files uploaded via the Self-Service Website up to 20MB (Configurable) per file.
WEB-065	The Self-Service Website shall provide the capability for customers to enroll in various Discount Plans, if available.
WEB-066	The Self-Service Website shall provide the capability to collect customer feedback using surveys. Participation in a survey should be offered after a customer contacts via the Self-Service Website.
WEB-067	The Self-Service Website shall provide web chat capabilities, where customers can exchange instant messages in real-time with an Authorized User during business hours.
WEB-068	The Self-Service Website shall allow for customers to transition from one (1) Account Attribute to another (e.g., transition from a postpaid Account to prepaid Account) based on the Future Updated Business Rules.
WEB-069	The Self-Service Website shall allow for customers to print and reprint receipts.
WEB-070	The Self-Service Website shall allow for customer conversion offers.
WEB-071	The Self-Service Website shall provide the capability for the customer to login to the Self-Service Website directly from the RiverLink homepage.
WEB-072	Data input from the Self-Service Website shall be reflected real-time to the BOS, and vice-versa.
WEB-073	The Self-Service Website shall be compliant with the "Americans with Disabilities Act", to meet the most current version of requirements prescribed by the U.S. Department of Health and Human Services.
WEB-074	The Self-Service Website shall be implemented with "robotic detection" to prevent "screen scraping" (e.g., to prevent parties external to the Project from extracting data from human-readable output).



Req. #	Requirement
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#### 14. Inventory Management

##### General Inventory Management Requirements

Req. #	Requirement
INV-001	The BOS shall provide functionality for inventory management that tracks items including, but not limited to: <ul style="list-style-type: none"> <li>• Transponders,</li> <li>• starter kits,</li> <li>• retail kits,</li> <li>• invoice inserts,</li> <li>• mounting strips,</li> <li>• mounting instructions, and</li> <li>• read prevention sleeves / shielded envelopes.</li> </ul>
INV-002	The BOS shall provide functionality for inventory management including, but not limited to: <ul style="list-style-type: none"> <li>• monitoring inventory levels by inventory type and location,</li> <li>• ordering inventory,</li> <li>• receiving inventory,</li> <li>• distributing inventory to customer service center and walk-up locations, including Third-Party Service Providers and customers,</li> <li>• fulfilling inventory requests,</li> <li>• produce documentation/reports to support making payment for inventory,</li> <li>• produce documentation/reports to support making payment for services provided by external Locations,</li> <li>• inventory reconciliation,</li> <li>• inventory reporting to support operations, finance and reconciliation functions,</li> <li>• configuring internal and external inventory locations,</li> <li>• configuring inventory thresholds,</li> <li>• providing inventory level Alerts, and</li> <li>• Return Materials and Returned Material Authorizations (RMAs).</li> </ul>
INV-003	The BOS shall automatically create order requests based on location, inventory levels, inventory type, and projected inventory distribution.
INV-004	The BOS shall provide the capability for Authorized Users to assign inventory to various locations.
INV-005	The BOS shall be able to track two (2) types of Transponders separately in inventory (example: 6C and E-ZPass Transponders).

##### Specific Tolling Requirements

Req. #	Requirement
INV-006	The BOS shall create and track inventory types, with or without a serial number.
INV-007	The BOS shall validate Transponder serial numbers against the ranges which already exist, to ensure there are no duplicates.
INV-008	The BOS shall allow Authorized Users to search the history of specific Transponder/inventory items entered in the BOS.
INV-009	The BOS shall provide the capability for Authorized Users to enter other individual inventory item attributes including, but not limited to: <ul style="list-style-type: none"> <li>• configurable purchase price (i.e. the Joint Board's price),</li> <li>• configurable customer sales price,</li> <li>• configurable per item fee,</li> <li>• Transponder agency ID number(s), when applicable, and</li> <li>• Transponder serial number(s), when applicable.</li> </ul>
INV-010	The BOS shall provide the capability for Authorized Users to enter bulk inventory, by entering the starting and ending Transponder serial numbers.
INV-011	The BOS shall provide the capability for Authorized Users to audit the physical inventory, at Configurable intervals, and record the results of the audit.
INV-012	The BOS shall provide the capability for an Authorized User to accept Transponders into inventory, which are in a different format from the Transponders currently in use.

##### Inventory Fulfillment

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Req. #	Requirement
Req. #	Requirement
INV-013	The BOS shall support the creation of an inventory item sale transaction, when an inventory order is filled, including a Configurable sales price.
INV-014	The BOS shall distinguish orders for first-time customers, separate from existing customers, in case additional literature is to be included with the order.
INV-015	The BOS shall perform verification that the correct model of Transponder is assigned to each vehicle.
INV-016	The BOS shall alert Authorized Users when the vehicle requires an externally mounted Transponder or special mounting location.
INV-017	The BOS shall track customer inventory orders, as a single order, regardless of the number of items requested (e.g. a customer wants two (2) of type A inventory items, and two (2) of type B inventory items, that order will be a single customer inventory order.
INV-018	The BOS shall partially fill customer inventory; i.e., while there may not be enough of a certain type of inventory item to complete the order, those that are available can be fulfilled.
INV-019	The BOS shall automatically create a backorder for customer-ordered items not currently in inventory, and automatically trigger the fulfillment of the customer-ordered items when stock is available in inventory.
INV-020	The BOS shall allow Authorized Users to make modifications to the inventory orders prior to filling them; i.e., an Authorized User may need to change the Transponder type because the customer's vehicle requires an externally mounted Transponder (license plate Transponder), or add another Transponder to the order, based on a customer request.
INV-021	The BOS shall provide the capability for Authorized Users to use a reader to scan the bar code on a Transponder and automatically associate that Transponder ID a Customer Account during the fulfillment process.
INV-022	The BOS shall provide a single customer fulfillment receipt, detailing the entire order. This receipt shall show the License Plate Data, vehicle make & model, Transponder(s) (including which Transponder is associated with which vehicle), or other inventory item(s) quantities, backordered quantities, sale amounts, payment amount and any associated Discount Plan(s), if applicable, for each Transponder included in the order.
INV-023	The BOS shall generate a mailing label, or print directly on the mailing envelope, when filling inventory orders by mail, as well as provide the ability to mail a Transponder, or other item, to an address other than the one listed on the Customer Account.
INV-024	The BOS shall batch Transponder distribution to improve the efficiency of the order fulfillment process including, but not limited to: <ul style="list-style-type: none"> <li>• identify open Transponder orders and assign Transponders to the Customer Accounts automatically,</li> <li>• create batches by inventory type and order type (new, replacement or additional),</li> <li>• transmit data to the mailing services to generate mailing labels by batch, and</li> <li>• spool and print letters overnight.</li> </ul>
INV-025	The BOS shall activate Transponders as soon as they are assigned to the Customer Account.
INV-026	The BOS shall allow Authorized Users to return inventory items to stock and update the related fulfillment request (if applicable), while preserving full traceability; i.e., if a Transponder comes back in returned mail, the BOS shall retain the history of the Customer Account, the Transponder was added to, and that it came back undeliverable.
INV-027	The BOS shall age fulfillments, initiate a Case, and automatically send an alert when a fulfillment request has exceeded a Configurable amount of time.

#### Inventory Locations

Req. #	Requirement
INV-028	The BOS shall allow Authorized Users to enter, modify, activate, deactivate and delete inventory locations.
INV-029	The BOS shall allow Authorized Users to set the inventor location parameters including, but not limited to: <ul style="list-style-type: none"> <li>• name,</li> <li>• point of contact,</li> <li>• location name,</li> <li>• physical address,</li> <li>• shipping address,</li> <li>• phone numbers,</li> <li>• status (active or inactive),</li> <li>• inventory items allowed to be stocked,</li> <li>• price per inventory item (sale to location),</li> <li>• restock threshold,</li> <li>• restock source,</li> <li>• preferred restock frequency, and</li> <li>• restock quantity.</li> </ul>
INV-030	The BOS shall allow Authorized Users to set the inventory location type.



Req. #	Requirement
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#### Retail Fulfillment

Req. #	Requirement
INV-031	The BOS shall provide the capability for a Retail Service Provider performing Transponder fulfillment to manage their relationship, via an online portal separate from the BOS Self-Service Website including, but not limited to: <ul style="list-style-type: none"> <li>• order inventory items,</li> <li>• check order status,</li> <li>• modify contact information,</li> <li>• enter Transponder activation codes,</li> <li>• update sales/current inventory level,</li> <li>• make payments, and</li> <li>• view order history.</li> </ul>
INV-032	The BOS shall send and receive files/data containing fulfillment orders, inventory assignments, and other information required to support the Retail Service Provider performing Transponder fulfillment.
INV-033	The BOS shall provide the capability for Authorized Users to create an invoice, for Transponders sold to the Retail Service Provider performing Transponder fulfillment.
INV-034	The BOS shall track inventory returns from the Retail Service Provider performing Transponder fulfillment.

#### Transponder Replacement/Recall Program

Req. #	Requirement
INV-035	The BOS shall provide the capability for Authorized Users to identify and view details, for Transponders eligible for recall/replacement, based on the following Configurable criteria; including, but not limited to: <ul style="list-style-type: none"> <li>• Transponder manufacturer,</li> <li>• Transponder style,</li> <li>• Transponder type,</li> <li>• Transponder ID range,</li> <li>• warranty period end date,</li> <li>• end of life date,</li> <li>• manufactured date,</li> <li>• recall from manufacturer,</li> <li>• indication from the lane (low Handshake Counts),</li> <li>• date the Transponder was assigned to the Account, and</li> <li>• purchase date (from the manufacturer).</li> </ul>
INV-036	The BOS shall recall and replace Transponders that meet the recall/replacement criteria.
INV-037	The BOS shall send customer Notification regarding the recall/replacement process.
INV-038	The BOS shall recall/replace all Transponders on a Customer Account, if one (1) qualifies for replacement; i.e., if two (2) Transponders qualify for replacement and the Customer Account has three (3) Transponders, all three (3) shall be replaced to reduce customer confusion.

### 15. Finance and Reconciliation

#### General Financial Requirements

Req. #	Requirement
FIN-001	The BOS shall record all Financial Transactions that occur in the BOS, by functional areas defined in these requirements; including, but not limited to account management, transaction processing, MBSs, payment processing, Collections and inventory management.
FIN-002	The BOS shall provide an audit trail for each Financial Transaction from inception to final disposition.
FIN-003	The BOS shall maintain and utilize Configurable Subsidiary Ledgers (SL) and a General Ledger (GL) for recording all Financial Transactions.
	The BOS shall maintain and utilize a Chart of Accounts (COA) that uses the following Configurable fields; including, but not limited to:



Req. #	Requirement
FIN-004	<ul style="list-style-type: none"> <li>GL account number,</li> <li>GL account name,</li> <li>effective start/end date, and</li> <li>notes/comments.</li> </ul>
FIN-005	<p>The BOS shall use SLs that provide detailed transactions that reconcile to accounts in the GL. SLs should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>Accounts Receivable (AR),</li> <li>Accounts Payable (AP), and</li> <li>Inventory (i.e. Transponders).</li> </ul>
FIN-006	<p>The BOS shall provide the capability for Authorized Users to perform maintenance to the COA, SLs, and GL including, but not limited to:</p> <ul style="list-style-type: none"> <li>adding,</li> <li>editing,</li> <li>inactivate,</li> <li>printing, and</li> <li>exporting.</li> </ul>
FIN-007	The BOS shall provide the capability for an Authorized User to map all Financial Transactions to a GL account and/or a SL.
FIN-008	The BOS shall assign all Financial Transactions to a GL account and/or SL.
FIN-009	<p>The BOS shall not allow the following; including:</p> <ul style="list-style-type: none"> <li>duplicate GL numbers,</li> <li>the same SL number being mapped to more than one GL account at the same time (no overlapping effective dates),</li> <li>multiple GL accounts with identical fields, and</li> <li>multiple SL accounts with identical fields.</li> </ul>
FIN-010	The BOS shall support maintaining more than one COA (multi-agency setup).
FIN-011	The BOS shall ensure that each debit entry has a corresponding credit entry into the GL/SL.
FIN-012	TSP2 shall setup and maintain financial activity mapping to the GL and/or SL as part of the design process and ongoing maintenance of the system.
FIN-013	TSP2 shall follow the revenue and control agreement, and support the functions to comply with it.

#### Disbursements

Req. #	Requirement
FIN-014	<p>The BOS shall have the capability to process disbursements including, but not limited to:</p> <ul style="list-style-type: none"> <li>customer refunds,</li> <li>settlement with Interoperable Agencies, and</li> <li>settlement with Third-Party Service Providers.</li> </ul>
FIN-015	<p>The BOS shall provide the capability for an Authorized User to Configure Third-Party Service Provider fees for each provider (i.e. fees paid to Collection Agency) including, but not limited to:</p> <ul style="list-style-type: none"> <li>fee per action taken by third-party, and/or</li> <li>fee percentage based on amount collected by the third-party.</li> </ul>
FIN-016	The BOS shall provide the capability for Authorized User to set and edit effective dates for fees due to Third-Party Service Providers.
FIN-017	The BOS shall calculate fees due to Third-Party Service Providers, based on the agreements.

#### Write-Offs

Req. #	Requirement
FIN-018	<p>The BOS shall provide the capability for an Authorized User to define the Configurable criteria which identify receivables for Write-Off, as approved by the Joint Board Representatives. Configurable criteria shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>Customer Account Attributes,</li> <li>Customer Account Flags,</li> <li>Customer Account balances,</li> <li>Traffic Transaction,</li> <li>MBS date, and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>MBS escalation stage.</li> </ul>
FIN-019	The BOS shall provide the capability to perform Write-Offs, based on a Configurable schedule or on-demand.
FIN-020	The BOS shall support a Configurable approval process that requires an Authorized User and/or Joint Board Representative to “accept” or “reject” Traffic Transactions, Financial Transactions, and amounts to be written-off.
FIN-021	<p>The BOS shall provide the capability for an Authorized User and/or Joint Board Representative to review and approve the selected items for Write-Off including, but not limited to:</p> <ul style="list-style-type: none"> <li>Traffic Transactions;</li> <li>tolls;</li> <li>fees; and/or</li> <li>MBSs.</li> </ul>
FIN-022	The BOS shall provide the capability for an Authorized User to view the written off item’s status, including all receivables associated with the item once a Write-Off is applied.
FIN-023	The BOS shall support and utilize Configurable Write-Off codes, which shall record the Write-Off reason, for each written off item.
FIN-024	The BOS shall have the capability to remove an item from escalation or collection efforts following Write-Off.
FIN-025	The BOS shall provide the capability for an Authorized User to see and make a payment on the toll and/or fee amount that has been written off.
FIN-026	The BOS shall have the capability to automatically record a note on an Account to reflect the application of a Write-Off, viewable by an Authorized User.

#### Reconciliation and Settlement – General Requirements

Req. #	Requirement
FIN-027	The BOS shall track and reconcile one-hundred percent (100%) of the Traffic Transactions it receives from the Roadside System
FIN-028	The BOS shall provide reconciliation and reporting for both Revenue Day and Posting Date.
FIN-029	<p>The BOS shall support daily, weekly and monthly reconciliation for the following items including, but not limited to:</p> <ul style="list-style-type: none"> <li>bank deposits,</li> <li>Third-Party Service Providers,</li> <li>Interoperability,</li> <li>Credit Card,</li> <li>cash,</li> <li>ACH, and</li> <li>Lockbox.</li> </ul>
FIN-030	TSP2 shall provide the capability to investigate and correct all exceptions and discrepancies identified during the reconciliation and settlement process.

#### General Ledger (GL) Reconciliation Requirements

Req. #	Requirement
FIN-031	<p>The BOS shall support reconciliation between BOS activity and the amounts recorded in the GL including, but not limited to:</p> <ul style="list-style-type: none"> <li>(prepaid toll balance,</li> <li>billed receivables,</li> <li>unbilled receivables, and</li> <li>accounts payable.</li> </ul>
FIN-032	<p>The BOS shall support reconciliation by Configurable criteria including, but not limited to:</p> <ul style="list-style-type: none"> <li>Transaction Date,</li> <li>Transaction Type,</li> <li>Payment location,</li> <li>payment method, and</li> <li>disbursement.</li> </ul>

#### System Reconciliation Requirements

Req. #	Requirement
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Req. #	Requirement
FIN-033	TSP2 shall provide the capability to reconcile all financial activity, including but not limited to: <ul style="list-style-type: none"> <li>• deposits,</li> <li>• credits,</li> <li>• deposit corrections,</li> <li>• disbursements,</li> <li>• returned items, and</li> <li>• chargebacks.</li> </ul>
FIN-034	The BOS shall automatically open or allow an Authorized User to open a Case when a discrepancy is identified during the automatic reconciliation process.
FIN-035	The BOS shall provide the capability for an Authorized User to trace each payment made into the system and associate it to the following; including, but not limited to: <ul style="list-style-type: none"> <li>• prepaid balances,</li> <li>• tolls,</li> <li>• fees,</li> <li>• MBSSs,</li> <li>• Discount Plans, and</li> <li>• Payment Plans.</li> </ul>

#### Reconciliation with Bank

Req. #	Requirement
FIN-036	The BOS shall provide the capability to import bank deposit information from the bank accounts to reconcile bank deposits within the system
FIN-037	Bank deposits must be balanced and reconciled on a daily basis and monthly basis.

#### Reconciliation and Settlement with Merchant Service Provider (MSP)

Req. #	Requirement
FIN-038	The BOS shall provide an automated Interface to reconcile transactions the system and the MSP(s).

#### Reconciliation and Settlement with Interoperable Agencies

Req. #	Requirement
FIN-039	Payments or other dispositions shall be posted to the system within 24 hours from the date payment is received from the Interoperable Agency.
FIN-040	The BOS shall provide the capability for Authorized Users to track payables and receivables between the BOS and Interoperable Agencies.
FIN-041	The BOS shall provide the capability for Authorized Users to perform reconciliation of activity and transactions, on a frequency with the Interoperable Agencies in accordance with the applicable Interoperability Agreement(s).
FIN-042	The BOS shall provide the capability for Authorized Users to record settlement payments received from Interoperable Agencies and apply each payment to the specific Traffic Transactions related to the payment.

#### Reconciliation and Settlement with Third-Party Service Providers

Req. #	Requirement
FIN-043	The BOS shall provide the capability for Authorized Users to track payables and receivables between the BOS and Third-Party Service Providers.
FIN-044	The BOS shall provide the capability for Authorized Users to perform reconciliation of fees and transactions, at a frequency with and in accordance to the applicable Third-Party Service Provider agreement(s).



Req. #	Requirement
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## 16. Reporting

Req. #	Requirement
RPT-001	TSP2 shall work with the Joint Board Representatives during design workshops to define each report and all aspects of the reports including, but not limited to, criteria, format, data content and definition, data accessibility, calculations, Authorized User(s) and how the report can be accessed. TSP2 shall provide the work product to the Joint Board Representatives for their review and approval during the design workshops.
RPT-002	The BOS shall have the capability to report on any data element that is required to be captured in Form K, including current and historical data.
RPT-003	TSP2 shall provide BOS reports optimized for performance. Data shall be organized and summarized in a manner to allow for report generation in a reasonable time. TSP2 shall provide simulated report execution times to the Joint Board Representatives for their review and approval during the design workshops.
RPT-004	TSP2 shall support additions and/or modifications to reports and the reporting database after the deployment and implementation of the BOS.
RPT-005	The BOS shall provide a consistent user interface for all report selection criteria, where applicable, including, but not limited to: <ul style="list-style-type: none"> <li>• date range,</li> <li>• time period,</li> <li>• toll location,</li> <li>• Transaction Type,</li> <li>• payment type,</li> <li>• Authorized User, and</li> <li>• IAG/Interoperable Agency.</li> </ul>
RPT-006	The BOS shall provide reporting output (including charts, graphs and maps), in various formats (both compressed and uncompressed), for every report, including, but not limited to: <ul style="list-style-type: none"> <li>• Portable Document Format (PDF),</li> <li>• Plain Text format (TXT),</li> <li>• Rich Text format (RTF),</li> <li>• Microsoft Excel (2013 version or later),</li> <li>• Comma-Separated Values format (CSV),</li> <li>• Hypertext Markup Language (HTML), and</li> <li>• output to the screen.</li> </ul>
RPT-007	The BOS shall provide the capability for an Authorized User to schedule the automatic execution and delivery of reports using various delivery methods including, but not be limited to: <ul style="list-style-type: none"> <li>• internal and external email addresses,</li> <li>• direct to printer,</li> <li>• Uniform Naming Convention (UNC) paths,</li> <li>• File Transfer Protocol (FTP),</li> <li>• external document repositories, and</li> <li>• Secure File Transfer Protocol (SFTP).</li> </ul>
RPT-008	The BOS shall provide security for report access and data.
RPT-009	The BOS shall provide the capability for an Authorized User to schedule the automatic execution and delivery of reports based on a number of configurable conditions including, but not limited to: <ul style="list-style-type: none"> <li>• date and time range (various),</li> <li>• report delivery method,</li> <li>• report format, and</li> <li>• frequency of report.</li> </ul>
RPT-010	The BOS reports shall meet the general objectives including, but not limited to: <ul style="list-style-type: none"> <li>• data elements shall be consistent through similar reports,</li> <li>• quantities and amounts shall reconcile with other reports that report on the same activity and timeframe,</li> <li>• report generation shall allow for flexible selection and sort criteria that allow Authorized Users to obtain related information through a single report,</li> <li>• all reports shall allow for the input of any identified criteria to be selected by range (i.e., date from and to, Account number from and to, transaction dates from and to, and by multi-list selection, where applicable).</li> </ul>
RPT-011	Every BOS summary report shall have a corresponding detail report that an Authorized User can drill down to when a report is displayed on a screen.
RPT-012	The BOS shall display reporting exceptions, including 'no data available', to the Authorized User who ran the report, when they occur as a result of the requested submission.



Req. #	Requirement
RPT-013	The BOS shall provide the following report functionality including, but not limited to: <ul style="list-style-type: none"> <li>include sub-totals, totals and grand totals,</li> <li>percentages where applicable, and</li> <li>sort the data elements in the report within each grouping of data.</li> </ul>
RPT-014	The BOS shall provide the capability to report on every transaction that occurs in the RTCS from inception through final disposition.
RPT-015	The BOS shall ensure that every transaction and its history shall be tracked and available for reporting or viewing by an Authorized User.
RPT-016	TSP2 shall provide a reporting tool that provides/supports Business Intelligence (BI) and allows Authorized Users to create and execute custom reports from the reporting database.
RPT-017	TSP2 shall allow Authorized Users to access, copy, update, and execute predefined reports (determined during design workshops) or ad-hoc queries from the reporting database.
RPT-018	TSP2 shall provide a reporting database environment that allows data to be collected and stored from multiple data sources (e.g. RTCS, BOS, phone system, customer satisfaction survey, etc.) and reporting application interface for Authorized Users to run and view reports.
RPT-019	TSP2 shall provide a comprehensive Data Dictionary that defines the structure of all databases in the production environment and in the reporting database.
RPT-020	TSP2 shall provide the capability for Authorized Users to have access to and be able to use all data from all production and reporting databases.
RPT-021	TSP2 shall coordinate with Joint Board Representatives on the development of 75 reports during the design workshops that will include financial, transactional, operational, and KPI reports.
RPT-022	TSP2 shall provide a daily operations report detailing the various operational aspects of the system.
RPT-023	TSP2 shall provide a data analytics solution that works in conjunction with the reports database. The solution shall provide Authorized Users the capability of doing self-service analysis and produce output in either a tabular and/or graphical format. <ol style="list-style-type: none"> <li><b>Roadside Traffic Transactions</b> including traffic and revenue(indicated) by location (zone and lane) date, time of day down to single transaction and summarized from 15-minute interval, hours, days, weeks, months and years.</li> <li><b>Invoices</b> to be billed and billed by the customer that allows the States to determine trends in payments. This view shall include data for account, invoice, tolls, fees, debtor and aging for the customer to allow the States to track current account receivables.</li> <li><b>Account Management</b> Data including cases that account types, accounts opened, cases opened by customers, time to resolve cashes</li> <li><b>Payments</b> – including payments by channel, user, amount, location of POS, amount dispersed at the transaction level and summarized by any of the attributes above.</li> <li><b>Financials Dashboard</b> that provides indicated and actual revenues for the states to be able to track disbursements, reversals, adjustments and credits and debits to Prepaid and Postpaid Accounts.</li> </ol>
RPT-024	TSP2 shall provide a solution that allows Authorized Users to create Dashboards to monitor and audit operations (personnel and/or processes). The solution should be designed with the flexibility to add, delete or modify Dashboards at the request of an Authorized User. The Dashboards shall allow Authorized Users to aggregate data for summary level and detailed level views for Traffic Transactions and Financial Transactions. The Dashboards shall allow Authorized Users to add or remove fields designated in the views, create visualizations based on data views and perform “what if” analysis. Any licenses for COTS tools shall be transferable to the Joint Board

## 17. Interfaces

### General Requirements

Req. #	Requirement
INT-001	The BOS shall include and utilize electronic automated interfaces in accordance with these requirements.
INT-002	The BOS shall include the configurable capability to enable or disable one (1) or more Interfaces (e.g., an interface is no longer needed).
INT-003	The BOS shall provide for one-hundred percent (100%) reconciliation of the transmitted, received, and processed data and files.
INT-004	The BOS shall provide the capability for Authorized Users to access and view the contents of interface files, in a readable format, including compressed or encrypted files that are exchanged with the BOS. Authorized Users shall have the capability to save the contents of such files.
INT-005	TSP2 shall provide tools for viewing data and/or contents of interface files (compressed or encrypted).
INT-006	The BOS shall provide the capability to transmit and receive multiple interface files during each scheduled batch.
INT-007	The BOS shall provide the capability to transmit and receive multiple interface files in a day.
INT-008	The BOS and interfaces shall provide for verified transmission of all received and sent files and data for all interfaces using an automated verification and acknowledgement process. The BOS shall validate records and identify errors in the received interface data and/or files related to various elements including, but not limited to: <ul style="list-style-type: none"> <li>mandatory fields,</li> <li>data formats,</li> <li>data validity (e.g., customer Account number not found in the BOS),</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>• duplicate records,</li> <li>• unexpected response,</li> <li>• file header and file trailer verification,</li> <li>• check sum and record count verification, and</li> <li>• incorrect status.</li> </ul>
INT-009	The BOS shall provide the capability to correct and re-transmit interface data and/or files manually or through the scheduler and request the retransmission of such missing records/transactions/images.
INT-010	The BOS shall provide the capability to process re-transmitted interface data and/or files.
INT-011	The BOS shall provide the capability to transmit the error details to the transmitting entity.
INT-012	<p>The BOS shall provide the means to identify interface issues by validating various elements regarding the file transmission process, including but not limited to:</p> <ul style="list-style-type: none"> <li>• creation and transmission of data and/or a file at the scheduled time, even if there are no records to transmit;</li> <li>• determination that the data and/or a file was transmitted or received at the scheduled time; and</li> <li>• comparing the size of the file to the most recently received file and preventing processing if the file increase or decrease exceeds a Configurable threshold.</li> </ul>
INT-013	<p>The BOS shall provide an automated scheduler that supports interface data transmissions, including but not limited to:</p> <ul style="list-style-type: none"> <li>• status and history of scheduled executions, and</li> <li>• comprehensive scheduling of file transmissions.</li> </ul>
INT-014	The BOS shall provide interface data and/or file transmission and reconciliation reports.
INT-015	<p>The BOS shall ensure that all responses received from third-party interfaces and all actions required of the third party for a file transmitted by the BOS shall be associated with the original transaction, including but not limited to:</p> <ul style="list-style-type: none"> <li>• notifications to customers transmitted by the Collection Agency,</li> <li>• comments and dispositions transmitted in the response file, and</li> <li>• emails received from the customer related to a specific transaction.</li> </ul>
INT-016	<p>The BOS shall track and report on the progress of data and/or file transmissions through each stage and their acknowledgements by the receiving entity based on various elements including, but not limited to:</p> <ul style="list-style-type: none"> <li>• date/time stamp for a specified period,</li> <li>• file and/or data created with file name,</li> <li>• file and/or data transmitted,</li> <li>• file and/or data received,</li> <li>• file and/or data accepted,</li> <li>• file and/or data rejected,</li> <li>• file and/or data re-transmitted,</li> <li>• number of records in the file and/or data set,</li> <li>• number of unique Customer Accounts, and</li> <li>• number of failed records.</li> </ul>
INT-017	The BOS shall provide the capability for Authorized Users to configure the parameters related to file and/or data transmission for each interface.
INT-018	The BOS shall monitor the disk capacity where files are deposited and send an alert if storage space is near capacity (configurable) or full.
INT-019	The BOS shall conform to any existing ICDs, including any updates required, and all new ICDs that are required. It is the TSP2's responsibility to ensure all ICDs are accurate, updated, and meet these requirements before developing the interfaces. Industry standard-based interfaces shall be used when available, and all interfaces shall be approved by the Joint Board Representatives. For all interfaces, TSPS2 shall also comply with the Joint Board Representatives' direction on whether to utilize the ICD(s) to be developed during Project Design and/or the version of the ICD(s) provided in the Appendix, and/or the version of the ICD(s) in production at the time of the BOS implementation. In addition, TSP2 shall coordinate and work with entities being interfaced to in the design (if applicable), development and testing of the respective interface.



Req. #	Requirement
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#### Interface with Roadside Toll Collection System(s)

Req. #	Requirement
INT-020	The BOS shall provide the interface with the Roadside Toll Collection System (RTCS) in accordance with the ICD(s) provided in the Exhibits and/or the version of the ICD(s) in production at the time of the BOS implementation.
INT-021	The BOS shall provide the interface with the RTCS to obtain and acknowledge all Traffic Transactions and their related images.
INT-022	The BOS shall provide the capability to interface with future RTCSs.

#### Interface with Vehicle Registration Information (VRI) Providers

Req. #	Requirement
INT-023	The BOS shall provide the interface(s) with VRI Sources for the functionality described in these requirements and in accordance with the ICD(s) to be developed during Project Design, and/or the ICD(s) provided in the Appendix, and/or the version of the ICD(s) in production at the time of the BOS implementation.
INT-024	The BOS shall implement the VRI interface(s) as batch lookup, file-based, web-services, real-time, single VRI requests and responses, and/or online exchange methodology, as approved by the Joint Board Representatives during Project Design.

#### Interface for Registration Holds and Releases

Req. #	Requirement
	The BOS shall provide the vehicle Registration Hold and Release interface(s) for the functionality described within these requirements, and in accordance with the ICD(s) to be developed during Project Design, and/or the ICD(s) provided in the Appendix, and/or the version of the ICD(s) in production at the time of the BOS implementation.

#### Interface with Fleet Customers

Req. #	Requirement
INT-026	The BOS shall provide the interface with Fleet customers for the functionality described within these requirements, and in accordance with the ICD(s) to be developed during Project Design.
INT-027	The BOS shall provide the capability to schedule and automatically send periodic (configurable) detailed Fleet Account toll transaction files to Fleet customers.
INT-028	The BOS shall provide the capability to receive and process (i.e., add, update, etc.) vehicle information from Fleet customers.
INT-029	The BOS shall provide the capability to transmit invoice information to Fleet customers.

#### Interface with Merchant Service Provider(s)

Req. #	Requirement
INT-030	The BOS shall provide the interface(s) with the Merchant Service Provider(s) for the functionality described within these requirements and in accordance with ICD(s) to be developed during Project Design and/or the version of the ICD(s) in production at the time of BOS implementation.
INT-031	The interface(s) with the Merchant Service Provider(s) shall support accepting payments from customers by Credit Cards, ACH and mobile payments, including Apple Pay, Google Pay and PayPal.
	The BOS shall provide an automated interface to transmit, receive and reconcile various payment related transactions initiated with the Merchant Service Provider(s), by (configurable) Merchant ID, including but not limited to: <ul style="list-style-type: none"> <li>chargebacks,</li> <li>chargeback reversals,</li> </ul>



Req. #	Requirement
INT-032	<ul style="list-style-type: none"> <li>• refunds,</li> <li>• payments,</li> <li>• payment reversals,</li> <li>• adjustments, and</li> <li>• voids.</li> </ul>

#### Interface with Credit Card Update Service Provider(s)

Req. #	Requirement
INT-033	The BOS shall provide the interface(s) with the Credit Card update service provider(s) for the functionality described within these requirements and in accordance with the ICD(s) to be developed during Project Design and/or the version of the ICD(s) in production at the time of the BOS implementation.
INT-034	The BOS shall generate Credit Card update request file(s) that shall be transmitted to the Merchant Service Provider(s) on a periodic (configurable, but no later than daily) basis.
INT-035	The BOS shall provide the capability to receive Credit Card update response file(s) that is transmitted by the Credit Card update service provider(s) on a periodic (configurable, but no later than daily) basis.
INT-036	The BOS shall generate Account update file(s) that shall be transmitted to the Credit Card update service provider(s) on a periodic (configurable, but no later than daily) basis.
INT-037	<p>The BOS shall accept the following Credit Cards at a minimum:</p> <ul style="list-style-type: none"> <li>• Visa,</li> <li>• Mastercard,</li> <li>• American Express, and</li> <li>• Discover.</li> </ul>

#### Interface with Bank(s)

Req. #	Requirement
	The BOS shall provide the interface(s) with the bank(s) to support bank reconciliation functionality described within these requirements and in accordance with the ICD(s) to be developed during Project Design and/or the version of the ICD(s) provided in the Appendix, and/or the version of the ICD(s) in production at the time of the BOS implementation.

#### Interface with Collection Agency(ies)

Req. #	Requirement
INT-039	The BOS shall provide the interface(s) with the Collection Agency(ies) for the functionality described within these requirements and in accordance with the ICD(s) to be developed during Project Design and/or the version of the ICD(s) in production at the time of BOS implementation.

#### Interface with Address Validation Service Provider(s)

Req. #	Requirement
INT-040	The BOS shall provide the interface(s) with third-party Address Validation Service Provider(s) for the functionality described within these requirements and in accordance with the ICD(s) to be developed during Project Design and/or the version of the ICD(s) in production at the time of BOS implementation.
INT-041	The BOS shall provide the capability to obtain and store addresses from the third-party Address Validation Service Provider(s) while preserving the full address history.
INT-042	<p>The interface(s) with the Address Validation Service Provider(s) shall support various address adjustment functionality that includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• verification that an address is valid;</li> <li>• standardization for US addresses, such as "Drive" becomes "Dr."; and</li> <li>• selection from all potential address results (configurable).</li> </ul>



Req. #	Requirement
INT-043	The BOS shall provide the capability to accept or reject the recommended changes provided during address validation (configurable).
INT-044	The BOS shall provide the capability via the Self-Service Website for the customer to accept and/or reject the recommended changes provided during address validation or standardization.
INT-045	The BOS shall provide the capability for the Authorized User to accept or reject the recommended changes provided during address validation or standardization.
INT-046	<p>The BOS shall provide for a configurable real-time validation of all mailing addresses (using the Address Validation Service Providers) for all points of address entry into the BOS, including but not limited to:</p> <ul style="list-style-type: none"> <li>Account Management,</li> <li>Customer Portals, and</li> <li>addresses from third-party interfaces such as with VRI providers.</li> </ul> <p>The real-time validation of mailing addresses shall prevent entry into BOS of:</p> <ul style="list-style-type: none"> <li>invalid mailing address (i.e., mailing address does not exist), and</li> <li>bad address (i.e., not the correct mailing address for the customer).</li> </ul>

#### Interface with Email Address Validation Service Provider

Req. #	Requirement
INT-047	The BOS shall provide the interface with a third-party Email Address Validation Service Provider for the functionality described within these requirements, and in accordance with the ICD(s) to be developed during Project Design and/or the version of the ICD(s) in production at the time of BOS implementation.
INT-048	The BOS shall provide the capability to obtain and store email addresses from the third-party Email Address Validation Service Provider, while preserving the full email address history.
INT-049	The interface with the Email Address Validation Service Provider Interface shall support email address adjustment functionality that includes, but is not limited to, verification that the email address is valid.
INT-050	The BOS shall provide for a configurable real-time validation of all email addresses, using the external email address validation service.

#### Interface with Customer Service Survey Service Provider

Req. #	Requirement
INT-051	The BOS shall provide the interface with the Customer Survey Service Provider for the functionality described within these requirements and in accordance with the ICD(s) to be developed during Project Design and/or the version of the ICD(s) in production at the time of BOS implementation.
INT-052	The interface with the Customer Survey Service Provider shall support exchanging customer Account information that uniquely identifies each customer per survey request.

#### Interface to Future API-based System Requirements

Req. #	Requirement
	The BOS shall provide the capability to interface to the BOS Modules, routines, sub-routines, data structures, and/or object classes, through an Application Programming Interface (API), for the development of real-time services.

#### Interface with Interoperable Agencies

Req. #	Requirement
INT-054	The BOS shall provide the capability to interface with Interoperable Agencies in accordance with the existing E-ZPass Agreements and Specification (including ICD(s)) and/or the version of the E-ZPass Agreements and Specifications (including ICD(s)) in production at the time of BOS implementation.
INT-055	The BOS shall provide the capability to transmit Transponder Validation List (TVL) files to the Interoperable Agencies and process the corresponding acknowledgement files.
INT-056	The BOS shall provide the capability to receive and acknowledge Transponder Validation List (TVL) files for each Interoperable Agency.



Req. #	Requirement
INT-057	The BOS shall provide the capability to transmit one-hundred percent (100%) of the Interoperable Agency Traffic Transaction files to the Interoperable Agencies, and process the corresponding acknowledgement files.
INT-058	The BOS shall provide the capability to receive and acknowledge one-hundred percent (100%) of the Traffic Transaction files from the Interoperable Agencies.
INT-059	The BOS shall provide the capability to transmit reconciliation files to the Interoperable Agencies, and process the corresponding acknowledgement files.
INT-060	The BOS shall provide the capability to receive and acknowledge reconciliation files from the Interoperable Agencies.
INT-061	The BOS shall provide the capability to interface with future Interoperable Agencies for the functionality described within, and in accordance with approved ICDs and business rules.

#### Interface to Future National Interoperability Agencies

Req. #	Requirement
INT-062	The BOS shall provide the capability to interface with National Interoperable Agencies and existing and future national Hubs, for the functionality described within these requirements, and in accordance with the version of the National Interoperability ICD(s) in production at the time of BOS implementation, and the Future Updated Business Rules.

### 18. Alerts

#### General Requirements

Req. #	Requirement
ALR-001	The BOS shall provide the capability for an Authorized User to configure alerts to be sent to user(s) or group(s) of users that are using the BOS application.
ALR-002	The BOS shall allow for each Authorized User to turn their Alerts on/off per communication method by time period.
ALR-003	The BOS shall provide the capability for an Authorized User to create, configure, schedule, modify, prioritize and cancel Alerts.
ALR-004	The BOS shall send Alerts to an Authorized User through one or more selected Configurable delivery method(s) (e.g., email or text).
ALR-005	The BOS shall include the capability to generate automated Alerts.
ALR-006	The BOS shall constantly monitor the system and user inputs, and automatically generate various Alerts including, but not limited to: <ul style="list-style-type: none"> <li>high (Configurable) number of VRI files which are not loaded/processed by the BOS,</li> <li>high (Configurable) number of IBTs posting to Customer Accounts with valid Transponders,</li> <li>high (Configurable) number of image review rejects due to a specific reject reason, and</li> <li>high (Configurable) number of missing images within a user-defined Configurable period of time.</li> </ul>
ALR-007	The BOS shall provide the capability for Transponder inventory monitoring and automatically send an Alert when a fulfillment request threshold has exceeded a Configurable threshold.
ALR-008	TSP2 shall assist Authorized Users in investigations of Alerts and adjusting Alerts Configuration parameters.

#### Transaction and Image Processing Alerts

Req. #	Requirement
ALR-009	The BOS shall provide the capability to Alert when Traffic Transactions are not received from the RTCS or the Interoperable Agencies within a Configurable period of time.
ALR-010	The BOS shall constantly monitor for lane issues and automatically generate various performance related alerts including, but not limited to: <ul style="list-style-type: none"> <li>lanes with poor image quality,</li> <li>lanes with missing images,</li> <li>lanes with high image reject rates,</li> <li>lanes with low OCR confidence values (if applicable), and</li> <li>lanes with high-level of vehicle class issues.</li> </ul>
ALR-011	The BOS shall provide the capability to track rejected images and automatically generate Alerts if the rejected images are above a Configurable threshold, per image reviewer, for a Configurable timeframe, and based on specific reject reason codes.
ALR-012	The BOS shall provide the capability to track and alert an Authorized User if the image reviewer is entering the same value repeatedly over a Configurable period of time, or if the image reviewer is inputting data beyond pre-determined thresholds.



Req. #	Requirement
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#### Customer Account Alerts

Req. #	Requirement
ALR-013	The BOS shall provide the capability to generate alerts when protected Accounts (e.g., VIP) are accessed, or attempted to be accessed, including w accessed the Account.
ALR-014	The BOS shall provide the capability to generate Alerts when Customer Accounts reach various configurable thresholds including, but not limited to: <ul style="list-style-type: none"> <li>balance less than a Configurable value,</li> <li>MBS amount due exceeds a Configurable value,</li> <li>refund requested method is different from the replenishment or payment method,</li> <li>same Customer Account requesting multiple chargebacks, and</li> </ul>
ALR-015	The BOS shall provide the capability to send an Alert when a Case has met the Configurable reassignment threshold.
ALR-016	The BOS shall provide the capability to send an Alert when an Authorized User has met the configurable number of open Cases.
ALR-017	The BOS shall provide Alerts when Case volumes are trending higher, based on defined thresholds, or based on prior period Case volume (Configurable).
ALR-018	Alerts shall be configured based on Case type.

#### Other Alerts

Req. #	Requirement
ALR-019	The BOS shall provide automated and timely Alerts when any component (full or partial (threshold Configurable by interface)) of an external interface fails or is not completed in a Configurable period of time including, but not limited to: <ul style="list-style-type: none"> <li>VRI file does not completely load (issue loading all the records into the BOS),</li> <li>auto-replenishment job fails,</li> <li>Credit Card/ACH payment processing does not complete,</li> <li>MBS generation fails,</li> <li>incoming external Interface processing files which are not loaded/processed in the BOS, and</li> <li>outgoing files processed, by the BOS, which are not delivered to or acknowledged by the associated external Interface.</li> </ul>
ALR-020	The BOS shall track quantities (number/percentage) for VTolls during a Configurable period and generate an alert if the number/percentage is above Configurable threshold on any Customer Account.
ALR-021	The BOS shall generate Alerts when un-applied payments remain after a Configurable number of days from the payment date.
ALR-022	The BOS shall generate Alerts regarding any failure in the processes which interface with an MSP or with the communications to an MSP.
ALR-023	The BOS shall generate an Alert if duplicate ACH payments for the same bank account number occur within a Configurable period of time.
ALR-024	The BOS shall generate an Alert when a Configurable number of auto-replenishment failures occurs on a Customer Account.

#### 19. Audit and Compliance

Req. #	Requirement
AUD-001	The BOS shall provide fully auditable tracking of an Authorized User and system actions.
AUD-002	The BOS shall log and store Authorized User navigation history for a Configurable period of time.
AUD-003	The BOS shall provide comprehensive audit capability for all areas by date and time including, but not limited to: <ul style="list-style-type: none"> <li>all BOS events,</li> <li>all BOS Alerts/Notifications,</li> <li>authorizations,</li> <li>file processing,</li> <li>transaction processing,</li> <li>changes to all BOS Configurable settings,</li> <li>creation and changes to User Accounts, including password changes, disabling, reactivating, and changes to roles and permissions;</li> <li>authentication of all credentials,</li> </ul>



Req. #	Requirement
	creation and changes to Customer Accounts, and log success and failure information regarding data management activities.

#### Functional Internal Audits

Req. #	Requirement
AUD-004	The BOS shall provide the capability for an Authorized User to perform a financial audit and reconciliation, of all Financial Transactions generate through or by, including but not limited to: the Website, individual Authorized Users, automatic account replenishment and automatic payments, Merchant Service Provider(s), Lockbox, Third-Party Service Providers, and Interoperable Agencies.
AUD-005	The BOS shall provide the capability to provide audit reporting, for all Financial Transactions by various dates and times including, but not limited to: Transaction Date, Revenue Day, Posting Date, payment date, Transmission Date, related to Lockbox, ACH and EFT/wire, MBS date, receive date, Reconciliation Date, deposit date, and TSP2 authorized user shift date.
AUD-006	The BOS shall provide the capability to track returned funds for the following payment methods including, but not limited to: EFT/wire, ACH, Credit Card, and check.
AUD-007	The BOS shall provide detailed tracking of all Financial Transactions including, but not limited to: Traffic Transactions, payments, Transaction Date, Post Date, Reversals, Adjustments, Waives, refunds, and Account Replenishment.
AUD-008	The System shall provide detailed tracking of payments by payment methods including, but not limited to: cash, check, cashier's check, certified check, money order, ACH, Credit Card (by card brand), and EFT/wire.
	The BOS shall provide detailed tracking of payments and account replenishments including, but not limited to: prepaid balance, tolls,



Req. #	Requirement
AUD-009	fees, MBS, Discount Plans, and Payment Plans.
AUD-010	The BOS shall provide detailed tracking of payments by Payment location including, but not limited to: Walk-up Center, Self-Service Website, Lockbox, and Collection Agencies.

#### Audits and Assessments

Req. #	Requirement
AUD-011	TSP2 shall hire an independent certified public accounting firm to perform a Service Organization Control (SOC 1) Type 2 audit annually in accordance with Statement on Standards for Attestation Engagement No.18 (SSAE 18).
AUD-012	TSP2 shall coordinate, support and provide information to auditors, including during the annual SOC-1 SSAE-18 Type 2 audit for the fiscal period ending June 30 <sup>th</sup> .
AUD-013	TSP2 shall provide the SOC 1 SSAE-18 Type 2 report within 60 days from the June 30th fiscal year end to the Joint Board.
AUD-014	TSP2 shall coordinate with and support assessments performed by the Toll Service Advisor annually or more frequently as requested, by the Joint Board Representatives. Coordination and support shall include, but not be limited to: provide data as requested by the Toll Service Advisor, participate in meetings, provide physical access to all TSP2 operated facilities, and other assessment related requests made by Toll Service Advisor.
AUD-015	TSP2 shall be responsible for correcting all deficiencies related to their work discovered during any audits, at TSP2's expense.
AUD-016	TSP2 shall provide a detailed remediation plan, which includes all "out of compliance" items in the audit findings, within thirty (30) Calendar Days including, but not limited to: <ul style="list-style-type: none"> <li>detailed plan, including schedule,</li> <li>test plan, and</li> <li>post implementation validation.</li> </ul>
AUD-017	TSP2 shall institute corrective measures related to deficiencies noted during all audits and as scheduled in the remediation plan as soon as practicable, but no later than by the close of the current fiscal year, or as otherwise required and directed by the Joint Board Representatives.

## 20. Global System Requirements

### Graphical User Interface (GUI)

#### GUI General Requirements

Req. #	Requirement
GSR-001	The GUI design shall include generally accepted computer industry design standards for ease of readability, understanding and appropriate use of menu-driven operations, user customization and intuitive operation.
GSR-002	The GUI shall provide standardization, configurability and operational efficiency across all BOS screens.
GSR-003	The GUI shall be secure and 100% browser-based for the Self-Service Website.
GSR-004	The GUI shall adhere to accepted development standards and specifications; including, but not limited to: World Wide Web Consortium (W3C), HTML5, and/or most current standard.
GSR-005	TSP2 shall provide a browser-based BOS application, compatible with the approved versions at time of Go-Live, for the following browsers; including, but not limited to: Microsoft Internet Explorer, Microsoft Edge, Google Chrome,



Req. #	Requirement
	Mozilla Firefox, and Apple Safari.
GSR-006	The BOS shall be web navigation optimized for speed, including identical screen presentation and user experience, regardless of the web browser used. The BOS application shall detect and advise if the browser being used is out-of-date or not supported.
GSR-007	The GUI shall be Americans with Disabilities Act (ADA) compliant.
GSR-008	The GUI design and development shall incorporate human factors and usability engineering, be optimized for speed, as well as provide the following controls; including, but not limited to: menus (such as drop-down, pop-up, cascading, leveling); windows (allowing for multiple windows within the application), informational messages, data commit warnings, such as when navigation away, or exiting from, a screen with unsaved changes; e.g. "Account will not be updated, do you wish proceed"; positive feedback, such as highlighting icons when the mouse hovers over them, or a flashing bar in a cell that has the focus; exception handling and error dialogs, including logging the error; control icons, links, radio buttons and action buttons; data entry fields, combo boxes and check boxes; mandatory data entry fields indicator, display (read-only) fields, and general and context-specific help menus.
GSR-009	The GUI shall support Authorized User Configurable online help screens, properly formatted for either viewing or printing.
GSR-010	The GUI help screens shall be context sensitive, at least down to the screen-level, such that when a help screen is requested, it shall present help for the currently viewed application screen.
GSR-011	Each GUI help screen shall fully and clearly describe the application screen, to which it refers, including all display and user-entered fields, as well as any actions that may be taken by the user and the potential results of such actions.
GSR-012	The BOS workflow and application help menus shall integrate seamlessly into the GUI, such as using split screen and pop-up windows to present help topics within the browser workspace.
GSR-013	The BOS help menus shall contain clear descriptions and walk-through procedures for all standard application tasks.
GSR-014	The GUI shall support Authorized User configurable field level "tooltips" or other interactive help that provides specific guidance on any field presented including, but not limited to: alpha/numeric fields, special characters, username and password, length restrictions, license plate fields, Transponder fields, email address fields, zip or postal code fields, bank routing number field, bank account number fields, Vehicle Identification Number (VIN), and tax identification number.
GSR-015	The GUI data entry screens, with Authorized User configurable mandatory fields, shall require data entry prior to continuing through the process.
GSR-016	The GUI shall support Authorized User configurable field level input masks, that require specific formatting on applicable fields, including, but not limited to: date/time, License Plate Data, driver's license number and state, Transponder ID, telephone number, email address, zip or postal code,



Req. #	Requirement
	ACH account number, Credit Card number, bank routing number and account number, Vehicle Identification Number (VIN), and tax identification number.
GSR-017	The GUI shall support Authorized User configurable field-level validation, and format verification errors upon exiting data fields, applicable to pre-defined formats or standards; including, but not limited to: alpha/numeric, date/time, special characters, License Plate Data, Transponder IDs, telephone number, email address, zip or postal codes, check-digit, check sum, Mod-10 or other verification algorithms for fields, such as bank routing number and bank account number, and additional formatting masks, which can be applied to other fields, as required by the Joint Board.
GSR-018	The BOS shall provide clear and specific error messages (e.g. when form data cannot be validated or when an action is not allowed).
GSR-019	The GUI shall provide Authorized Users with configuration screens, to set thresholds and ranges for applicable relevant BOS parameters, such as pick list choices, sort order, and to identify defaults for applicable drop-down menus.
GSR-020	The BOS shall provide the capability for Authorized Users to maintain drop down lists; including, but not limited to:  add items, deactivate items, set effective activate and deactivate times, modify items, toggle item visibility on/off, set the display order, change the display order, set the default value, and change the default value.
GSR-021	The GUI shall navigate or drill-down to related screens or reports that contain more detailed information, as appropriate for the displayed result records or result record field values.
GSR-022	The BOS shall be optimized and streamlined for viewing, managing and updating Accounts with a large number of records, such as vehicles, license plates, transactions, and/or Transponders. This shall include, but not be limited to the selection and/or deselection of: single items for an action, multiple contiguous items for an action, multiple non-contiguous items for an action, groups of items for an action, and all items for an action.

**Talking Point Script**

Req. #	Requirement
GSR-023	The BOS shall include menu accessible, scripted talking-point screens that a Customer Service Specialist (CSS) can use while speaking to customers, by phone or in-person. The talking-point screen topics shall be configurable and include, but not be limited to: Prepaid and Postpaid Accounts; Transponder and Image-Based Transactions; Interoperability; customer contact points, including Self-Service Website; tolling locations; and operations.
GSR-024	The BOS shall enable the talking-point content to be edited by Authorized Users.



Req. #	Requirement
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#### System Logging

Req. #	Requirement
GSR-025	TSP2 shall provide a robust, enterprise-grade logging system, specifically geared towards optimally addressing all logging Requirements under the PCI scope and audit requirements.
GSR-026	The BOS shall provide comprehensive, system-wide application logging capabilities, ensuring any and all application activity is logged.
GSR-027	The BOS shall provide logging of user searches conducted; including, but not limited to: search criteria used, date/time stamp of search, and User ID that performed the search.
GSR-028	The BOS shall log all user activities and customer Accounts, viewed or updated (even if no Account action or changes are made to the Account), by a specific User ID, and with a date/time stamp.
GSR-029	The BOS shall create a log entry, when a User Role is assigned, changed or removed from a User ID.
GSR-030	The BOS shall log all user login attempts; including, but not limited to: User ID, first and last name, originating IP address, date/time, and login success/failure.
GSR-031	The BOS shall log all changes (view, add, delete, modify) made to Cardholder Data (CHD), regardless of whether CHD is maintained within the BOS, or hosted by a Third-Party, if utilizing tokenization.
GSR-032	The BOS shall generate an Alert when debug logging levels are enabled, or disabled, within the Production Environment.
GSR-033	The BOS shall prevent tampering with logged data and log all attempts to access logged data.
GSR-034	The BOS shall create a log of all changes to system configurations, or settings, and record the details; including, but not limited to: User ID, first and last name, date/time, IP address from which the change was made, and change made; e.g. User ID X created an administrator account and User ID X changed the Y configuration setting.
GSR-035	The BOS shall provide alphanumeric search capability within the log entries; including, but not limited to search for: name, Account number, License Plate Data, Transponder ID, and transaction ID.
GSR-036	The BOS shall provide the Authorized User configurable capability to log specific suspicious user activities; including, but not limited to: users accessing their own Account(s), based on matching first name and last name to User ID first name and last name; conducting an Authorized User Configurable number of searches, over an Authorized User Configurable time period; e.g. ten (10) or more searches within an hour; same User ID accessing the same Account, an Authorized User Configurable number of times, over an Authorized User Configurable time period, and; customers trying to game the system by repeatedly changing license plate information associated to their RiverLink Transponder account and disputing video rates.

#### Searches

##### Search General Requirements

Req. #	Requirement
GSR-037	The BOS shall provide comprehensive multi-field search criteria on all screen searches. Search criteria shall include all fields and related attributes found in the search results displayed.



Req. #	Requirement
GSR-038	The BOS shall perform field-level validation on search entry criteria, and reject incorrect entries; e.g. only numbers may be entered for a phone number field. The validation shall be done on each field immediately upon exiting the field.
GSR-039	The BOS shall provide comprehensive on-screen drill-down capabilities, from summary levels down through the most detailed transaction level, including images, if available.
GSR-040	The BOS shall provide a quick search tool to allow the user to initiate a search, from any screen in the BOS, and automatically return to that location after completing the search.
GSR-041	The BOS shall provide the capability to select a record from the search results, view its details, and then return to the results to view additional items without having to re-enter the search criteria or re-run the search.
GSR-042	The BOS shall allow the user to select a record from the search results to use for the next action; e.g. obtaining detailed record information from the search results.
GSR-043	The BOS shall allow the user to manipulate the pre-defined fields in the results for all searches; including, but not limited to: drag and drop fields and columns to shift the order they appear, sort by any fields shown in the results, sort by multiple fields; e.g. sort by last name, followed by first name and address, so all results with the last name "Smith" will be sorted by first name, and all the results with the name "John Smith" will be sorted by address; add a hidden pre-defined field, not shown to the results display, and remove or hide a field shown from the results display.
GSR-044	The BOS shall provide advanced search capabilities, where fields can be picked from a drop-down list, and added to the effective criteria to be applied toward the search. Drop-down lists shall dynamically narrow down the available selection list, as the user is typing. The drop-down shall allow the user to select a single item, or select multiple items.
GSR-045	The BOS shall allow users to use single and multiple character "wildcards" in search fields, along with other commonly used search methods in all applicable fields of the search screens. A wildcard is a character, used as part of the search criteria, to represent one (1) or more unspecified characters. The BOS shall not require the use of wildcards in lieu of leaving the field blank.
GSR-046	Searches shall have an optimized data-fetching algorithm, so BOS performance is not impacted by large result sets.
GSR-047	The BOS shall support a Configurable maximum cap on the number of search results that can be returned.
GSR-048	The BOS shall provide an error message, to the user, when searches return larger volumes of data than the Configurable maximum cap, and force the user to narrow the search.
GSR-049	The BOS shall provide the capability to specify a date/time range for any date fields in the search.
GSR-050	The BOS shall provide the capability to specify a number range for any number fields in the search; e.g. Account number 1055 – 2000.
GSR-051	The BOS shall search in all phone number fields, when a user enters a phone number as a search criteria.
GSR-052	The BOS shall allow for users to print, save as a PDF file, or export search results in delimiter-separated values.
GSR-053	The BOS shall allow the user to search, by full or partial value (wildcard search) and view all stored information regarding transactions for user selected criteria; including, but not limited to the following fields: transaction ID(s), transaction status, name, transaction type, location of transaction (Authority/Facility/Plaza/Lane), Transaction Date/time range, transaction receive date/time range, transaction Posting Date/time range, transaction payment date/time range, transaction adjustment date/time range, transaction status date/time range, Account number, Transponder ID, license plate number, license plate type, and license plate jurisdiction.
	The BOS shall allow the user to search, by full or partial (wildcard search) value, and view all stored information regarding Monthly Billing Statements (MBS's) for user selected criteria; including, but not limited to the following fields: MBS ID, mail date, MBS late or not mailed, MBS status, Account number,



Req. #	Requirement
GSR-054	Transponder ID, license plate number, license plate type, license plate jurisdiction, transaction's toll location (authority/facility/plaza/lane), Transaction Date/time range, payment date/time range, adjustment date/time range, status date/time, and transaction Posting Date.

#### Account Search

Req. #	Requirement
GSR-055	The BOS shall allow the user to search by Vehicle Registration Information (VRI) name and address fields, to allow the user to identify potential duplicate Accounts.
GSR-056	The BOS customer search results shall display a list of Accounts, to which the entered information is matched. Each Account record shall allow for quick user access to the Account; e.g. a hyperlink to be used as an entry point.
GSR-057	If only one (1) record is returned for the search criteria entered, the BOS shall take the user directly to the Account.
GSR-058	The BOS shall allow the user to search, by full or partial value, and view all stored information regarding Accounts for user selected criteria; including, but not limited to the following fields: Account number, collection Account number (provided to the Collection Agency by the BOS), company name, tax ID number, last name, first name, middle name/Initial, suffix, address, city, state, zip, phone number (home, work, fax or cell), email address, driver's license number with/without state, license plate characters with/without state, Transponder ID, last-4-digits of ACH account number, VIN, collections reference, if applicable; MBS ID, axle count, vehicle classification, transaction ID; payment ID, and Case ID.
GSR-059	The BOS shall display linked Accounts for the same customer for any search.

#### Case Search

Req. #	Requirement
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Req. #	Requirement
GSR-060	The BOS shall allow the user to search all stored information regarding Cases; including, but not limited to: Authority, Case ID (uniquely identifies the Case record), Priority (out of a predefined range of Priority values), source of Case, status, number of days since creation, number of days since last user action/activity on a Case, due date and time, total time spent working on the Case, total time spent by a specific Authorized User or specific department, linked Accounts and/or records, description/free-form notes on the Account, date/time of action, Authorized User who took action, history of escalations, time required for action, and action description (free-form data or notes section), and; Account ID.
GSR-061	The BOS shall allow the user to search Case management statistics; including, but not limited to: total number of open Cases, total number of open Cases, per department; total number of open Cases, per Authorized User; total number of open Cases by type, total number of overdue Cases, per Authorized User; total number of processed Cases, total number of Cases processed per unit of time, total number of Cases processed per department, total number of Cases processed per Authorized User, response time statistics – overall, response time statistics, per department, and response time statistics, per Authorized User.

Comment Search

Req. #	Requirement
GSR-062	The BOS shall allow the user to identify and retrieve Comment records as search results; including, but not limited to: by Authorized User, by category, by time period, and keyword search.

License Plate Data and Transponder Search

Req. #	Requirement
GSR-063	The BOS shall display all Accounts the License Plate Data has ever been associated with, and all Notifications issued for that License Plate Data when a user searches by License Plate Data (e.g., this search might yield two (2) Customer Accounts and five (5) MBSs for a particular license plate based on the License Plate Data).
GSR-064	The BOS shall provide the capability to search for License Plate Data history, and effective date ranges, across multiple Customer Accounts.



Req. #	Requirement
GSR-065	The BOS shall allow users to search the BOS VRI database, and VRI Source data, by License Plate Data, and the results shall include all history for that License Plate Data.
GSR-066	When searching by Transponder, the BOS shall display all Customer Accounts the Transponder has ever been associated with and all Notifications issued related to that particular Transponder (e.g., this search might yield two (2) Customer Accounts and a "Transponder recall Notification" for a particular Transponder).

#### Correspondence Search

Req. #	Requirement
GSR-067	The BOS shall allow the user to search by and view all stored information regarding correspondence; including, but not limited to: Account number, Account Flags, Account Attributes, Account balance, first name, last name, mailing address, address type, name of specific Notification type, correspondence item; e.g. statement, Credit Card expiration, notice or Account Establishment Notification; correspondence generation date, correspondence mail date, distribution channel, print date, date that action on the correspondence is due, date(s) of any change in correspondence piece status, name of the Authorized User(s) who reviewed or approved the correspondence for mailing, return mail (if applicable), Transponder ID, License Plate number and Jurisdiction, dollar range associated with the correspondence, and dollar amount associated with the correspondence.

#### User Accounts/Roles/Controls Roles, Responsibilities and Controls

Req. #	Requirement
GSR-068	The BOS shall provide security and access controls, in accordance with industry best practices, and in compliance with applicable standards.
GSR-069	The BOS shall enable Authorized Users to create a new User Account, having the same User Role and permissions as an existing User Account.
GSR-070	The BOS shall enable Authorized Users to control all access Permissions and Features within the system, through the assignment of User Roles to User Accounts.
GSR-071	The BOS shall enable Authorized Users to search through the entire directory of User Accounts using selectable criteria; including, but not limited to, the following: role(s), role Permissions and Features, Authorized User Account(s), date/time range, Authorized User Account Status (active, inactive, locked, disabled), and User Role status (current and history).
GSR-072	The BOS shall prevent access to the BOS application, for users who are not assigned to a User Role.
	The BOS shall enable Authorized Users to manage User Roles; including, but not limited to:



Req. #	Requirement
GSR-073	<p>create new User Roles, change the access permissions assigned to features, assign and un-assign User Roles to User Accounts,</p> <p>for each feature assigned to a User Role, provide the capability for an Authorized User to designate either "read-only" or selectable list of permission for that feature. User Accounts assigned read-only permissions shall have the capability to:</p> <p>view information on the screen and print reports (but not make changes), and input or select search criteria, and sort and filter search results User Accounts to be assigned to multiple User Roles, activation/deactivation of a User Role, and delete User Roles that have been deactivated and un-assigned from User Accounts.</p>
GSR-074	The BOS shall ensure modifications to User Roles are immediately propagated through the system and to all User Accounts currently assigned to the User Role.
GSR-075	The BOS shall prevent any user, other than the Application Administrator, from creating, assigning, modifying or enabling/disabling User Roles.
GSR-076	<p>The BOS shall provide Authorized Users the option to assign, or un-assign, access Permissions and Features to User Roles, as a group of access permissions, or individually; including, but not limited to:</p> <p>broad functional-level; User Role X is denied access to the Customer Account management functionality; detailed feature-level; User Role Y is allowed access to the Customer Account management functionality, but denied access to close Customer Accounts function, and; field-level; User Role Z is allowed access to the Customer Account management functionality but denied access to the tax-exempt checkbox.</p>
GSR-077	<p>The BOS shall enable Authorized Users to deny/allow full access, or allow read-only access, based on User Roles; including, but not be limited to:</p> <p>specific menus, specific items on a drop-down list, specific individual screens, specific functions on a screen, specific fields within a specific screen, specific types of transactions, specific processes, specific reports, specific activities, based on Account Status, specific search capabilities, specific transaction approval privileges, specific workstation location access, specific workstation time restrictions, specific time restrictions, and specific Account Attributes, such as protected Accounts.</p>
GSR-078	The BOS shall immediately enable changes to all features and permissions, for a User Role, so that they can be viewed by Authorized Users at any point in time.
GSR-079	The BOS shall keep and provide history of all roles assigned to a user.
GSR-080	The BOS shall provide Authorized Users with the ability to configure a User Role, so Alerts will be sent whenever the User Role is assigned, or unassigned, from a User Account.
GSR-081	TSP2, in conjunction with the Joint Board Representatives, shall develop and organize BOS access Permissions and Features for User Roles during the Design and Implementation Phase.
GSR-082	The BOS shall support 50 concurrent Joint Board Representatives accessing the system and 100 total Joint Board Representatives having access to the system at any given time. This is in addition to the necessary TSP2 users. TSP2 shall provide maintenance support for all users.
GSR-083	TSP2 shall provide access to the system within 10 business days from the request
GSR-084	TSP2, in conjunction with their sub-contractors as necessary, shall provide the Joint Board Representatives access to any and all systems (BOS, maintenance house, collections, etc.)

#### Location Management

Req. #	Requirement
GSR-085	The BOS shall provide an Authorized User the capability to create and maintain (change and remove) the Joint Board internal locations.



Req. #	Requirement
GSR-086	The BOS shall provide an Authorized User the capability to create and maintain (change and remove) external locations.
GSR-087	The BOS shall provide each Authorized User with application features, appropriate for the location associated, with an Authorized User (to be defined during the Design and Implementation Phase).
GSR-088	The BOS shall provide the capability for an Authorized User to group one (1) or more locations together for operational functions and reporting purposes.
GSR-089	The BOS shall track all financial activity by Location.

#### System Access Review

Req. #	Requirement
GSR-090	The BOS shall allow an Authorized User to conduct a review, at least quarterly, of all User Accounts, to verify that the User Roles assigned to each are appropriate, and that all access has been removed for employees who have been terminated. This review shall include User Accounts for the Joint Board Representatives staff, as well as TSP2 staff and any Third-Party Service Providers and/or Business Partners.

#### Application Administration

Req. #	Requirement
GSR-091	The BOS shall provide Authorized Joint Board Representatives Users the ability to administer the application, by setting up and maintaining/changing appropriate information; including, but not limited to: BOS parameter values (such as thresholds); List of Values (LOVs); Business Rules parameters (such as change the number of aging levels for MBS); workflow rules and triggers; internal (Joint Board) and external locations and associated IP addresses; Chart of Account(s); Authority, Facility, Plaza and Lane information; toll rates, and; customer correspondence content.

#### Privacy and Information Security

Req. #	Requirement
GSR-092	Within sixty (60) days of the effective date of the Contract, TSP2 shall identify to the Joint Board Representatives in writing and shall thereafter maintain at all times a primary information security liaison, a secondary information security liaison, and a privacy liaison.
GSR-093	Within sixty (60) days of the effective date of the Contract, TSP2 shall provide the Joint Board Representatives with a copy of its comprehensive written security program (redacted if and where necessary). For the duration of the Contract, TSP2 shall provide the Joint Board Representatives with any updated version of its comprehensive written security program that includes material changes to the program, within thirty (30) days of such changes going into effect.
GSR-094	Within sixty (60) days of the effective date of the Contract, TSP2 shall provide the Joint Board Representatives with a Data Flow Diagram, which shall include: (i) every third party entity (including TSP2 as well as any approved subcontractors) or group of individuals that receives, stores, accesses, transmits, or provides any Personal Data in connection with the Services; (ii) the type of Personal Data that is received, stored, accessed, transmitted, or provided; and (iii) each computer system and/or application that receives, transmits, processes or stores Personal Data (identifying what specific Personal Data it receives, transmits, processes or stores). To the extent not reflected as part of the Data Flow Diagram, TSP2 shall provide a separate diagram that includes all of the information described in the preceding sentence as specifically applicable to PCI Data. For the duration of the Contract, TSP2 shall provide an updated version of the Data Flow Diagram to the Joint Board Representatives in advance of any material change to the underlying data flows, systems, or applications, or the third-party entities and groups of individuals involved.
GSR-095	No later than thirty (30) days before the Go-Live date, TSP2 shall provide the Joint Board Representatives with a list identifying all ownership or licensing rights with respect to any and all technology and intellectual property it provides in connection with the BOS (including, for example, open source software components). TSP2 shall provide an updated version of the list to the Joint Board Representatives at least once annually.



Req. #	Requirement
GSR-096	TSP2 is responsible for evaluating the security risk to the BOS and identifying potential vulnerabilities, by performing penetration and vulnerability tests annually. As applicable, penetration and vulnerability testing must be performed on all components including, but not limited to: software package(s), COTS software, and operating systems; databases, graphical user interface, customer portals, and external interfaces.
GSR-097	Penetration and vulnerability testing for the BOS shall explicitly test and document the effectiveness of any segmentation strategies or technologies in place including, but not limited to, any components or relationships which the potential may have to impact the security of the CDE.
GSR-098	TSP2 shall perform monthly reviews of all access to unencrypted CHD.
GSR-099	TSP2 shall perform reviews at least quarterly, to confirm personnel are following security policies and operational procedures in accordance to the most current version of PCI-DSS.
GSR-100	TSP2 shall ensure that all material risk vulnerabilities are mitigated, and all critical security patches are installed and tested within a reasonable timeframe but no later than thirty (30) days of patch availability, unless other adequate mitigating controls have been applied and approved by the Joint Board Representatives in writing.
GSR-101	Upon request, TSP2 shall provide the Joint Board Representatives with a summary of the results of its vulnerability scans and patch management reviews.
GSR-102	Annually, and additionally within thirty (30) days of any material change to TSP2's systems having a potential impact on the CDE, including updates to Software, TSP2 shall engage an independent party to perform penetration testing on information systems and networks used in providing the Services and/or having access to or processing or storing the Joint Board Data. Any high risk findings identified must be immediately remediated, and additional pen testing must be promptly performed to ensure remediation was effective.
GSR-103	Upon request, TSP2 shall provide the Joint Board Representatives with a high-level summary of the results of independent party penetration testing, including the scope and methodology of the test and confirmation that findings have been remediated or that a plan (including time frame) is in place to remediate the findings and to retest the relevant systems and networks to ensure remediation was effective.
GSR-104	TSP2 shall implement a comprehensive data loss prevention program solution that provides monitoring and detection of systems as appropriate in order to minimize the possibility of the Joint Board Data from leaving TSP2's possession or control without authorization.
GSR-105	TSP2 shall maintain comprehensive access logs, and TSP2 shall maintain a process to disable access within twenty-four (24) hours of cessation of the job-related responsibilities for which such access was granted.
GSR-106	TSP2 shall maintain access logs for no less than sixty (60) days (or such longer period as is specified by the Joint Board Representatives for certain categories of access rights). For TSP2's systems and process having potential impact on the CDE, TSP2 shall maintain access logs for not less than one (1) year with at least ninety (90) days of logs readily available for immediate analysis. Log retention periods must be explicitly defined in a data retention program schedule, which shall be available to the Joint Board Representatives upon request.
GSR-107	TSP2 shall perform monthly user access audits of all individuals, groups and applications which have access to PCI data or other the project Data. This shall include even transitive users and/or applications which may have only had short-term temporary access during the audit period.
GSR-108	TSP2 shall implement strong password controls with respect to all systems that access the project data.
GSR-109	Passwords must be stored and transmitted in encrypted format only and may not be displayed or transmitted in clear text.
GSR-110	The BOS shall allow users to self-reset passwords. New passwords shall be communicated to internal users in a secure manner, with appropriate controls to validate identity of intended users.
GSR-111	TSP2 shall change user passwords at least every forty-five (45) days and no password may be reused for at least three hundred and sixty-five (365) days. TSP2 shall implement password history policies and controls as necessary to support this requirement.
GSR-112	A given password for an account that accesses the Joint Board Data shall not also be used for accounts that do not access the project data, including any other personal account.
GSR-113	Temporary passwords (including administrator or help-desk assigned passwords) must be (i) set to a unique value and (ii) replaced with passwords selected by users upon initial login.
GSR-114	Physical and remote access to stored passwords must be protected with appropriate controls.
GSR-115	TSP2 shall coordinate with the Joint Board Representatives to implement and maintain multifactor (at least two-factor) authentication for all remote access to any the system, for all administrative access, and for all access to personal data, wherever stored.
GSR-116	All transmissions containing any project data shall be via a strong and current secure tunnel using forced "transit-based" encryption (including for back-end database connections), with support for authorized interception/inspection of traffic (e.g., TLS1.2 with non-deprecated ciphers currently, or a later standard if and when currently-accepted methodologies are determined to offer insufficient security or be vulnerable to attack). Opportunistic (TLS or other) protocols are not permitted for transmissions containing any project data absent the Joint Board Representatives written consent.
GSR-117	Except to the extent that protection by other technical means is approved in writing by the Joint Board Representatives, TSP2 shall encrypt the project data – in transit or at rest – using at least 256-bit encryption AES (or equivalent) while such information is in TSP2's possession, custody, or control.
GSR-118	TSP2 shall perform and fully document annual testing of all primary incident response use cases.
GSR-119	In the event of an operations security incident, TSP2 shall engage at its own cost, legal representation and breach management and response through providers meeting the Joint Board Representatives approval or specification.
GSR-120	In the event of a BOS security incident, TSP2 shall immediately join and participate in, and shall comply with, approved the Joint Board Representatives incident response processes at the Joint Board Representatives direction.
	In the event of a breach involving theft, loss or unauthorized access to PCI Data, TSP2 shall:



Req. #	Requirement
GSR-121	<p>support immediate notification and engagement with the payment card brands under direction from and in conjunction with the Joint Board Representatives' legal designee,</p> <p>support immediate notification and engagement of an authorized PCI Forensic Investigator (PFI) under direction from and in conjunction with the payment card brands and the Joint Board Representatives legal designee,</p> <p>immediately submit to the Joint Board Representatives all current PCI reporting and attestation documentation,</p> <p>promptly engage with a QSA of the Joint Board Representatives designation and/or Approval, and complete within ninety (90) Calendar Days, a current QSA review and attestation (ROC/AOC) for all PCI-DSS controls and BOS systems, components and processes, and</p> <p>complete validation, reporting and QSA attestation for all PCI-DSS Designated Entities Supplemental Validation (DESV) controls within ninety (90) Calendar Days.</p>
GSR-122	<p>In the event of a security Incident, or as part of the Joint Board Representatives internal incident management program, TSP2 shall provide to the Joint Board Representatives upon and within twenty-four (24) hours of request, the following items:</p> <p>a current inventory of all CDE system components and data, and a current inventory of all PDE system components and data;</p> <p>list of all personnel, including employees, contractors and vendors with access to BOS components, facilities, data or source code;</p> <p>list of all third parties with access to PCI Data or other Personal Data, with whom that data is shared, or with access to the BOS, applications, code environment or facilities;</p> <p>for PCI Data, a current copy of TSP2's Report on Compliance (ROC) and Attestation of Compliance (AOC);</p> <p>Security and Application logs (complete) from any/all CDE or PDE components, delivered as follows:</p> <p>ninety (90) Calendar Days of log data must be provided within twenty-four (24) hours of request or sooner, and;</p> <p>one (1) year of log data must be provided within forty-eight (48) hours of request by the Joint Board Representatives.</p> <p>as applicable, updated data flows and process diagrams;</p> <p>configuration data from any/all CDE or PDE components or devices,</p> <p>forensically viable snapshots of any/all BOS volatile data and memory, application state, and if necessary, physical/logical storage with full documented maintained Chain-of-Custody, and;</p> <p>access to all incident management and investigative information related to the incident.</p>
GSR-123	<p>TSP2 shall have a defined incident management program, with documented processes and use cases, which at a minimum meet all applicable PCI-DSS requirements and also support TSP2's ability to immediately respond to a potential BOS Security Incident consistent with the Joint Board incident response processes. TSP2's incident management program must contain, at a minimum:</p> <p>designated personnel available 24/7 to respond to security incidents and Alerts, from the BOS, including;</p> <p>any evidence of unauthorized activity,</p> <p>detection of unauthorized wireless access points,</p> <p>critical IDS/IPS/Malware alerts, and</p> <p>detection or reporting of any unauthorized changes to critical system files, configuration files or content/data files;</p> <p>roles, responsibilities, contact information and communication strategies in the event of a compromise, including if applicable notification of regulator, the payment brands, etc. in coordination with the Joint Board Representatives and subject to the Joint Board Representatives direction if applicable as set forth above;</p> <p>specific incident response procedures for all system component and data types, and all primary/likely incident/breach scenarios;</p> <p>business recovery and continuity procedures,</p> <p>data back-up processes,</p> <p>analysis of legal requirements for reporting compromises,</p> <p>coverage and responses for all critical system components, and</p> <p>reference or inclusion of incident response procedures from the payment brands.</p>
GSR-124	TSP2 shall define and track metrics for security incident identification-to-resolution time.
GSR-125	TSP2 shall, on at least a quarterly basis, provide the Joint Board Representatives with a report of all security incidents from the previous quarter including final disposition and impact, remediation steps and timelines, and planned enhancements to the incident management process.
GSR-126	<p>Personal data shall be additionally be handled as follows:</p> <p>in compliance with applicable laws, and</p> <p>in accordance with the recommendations in National Institute of Standards and Technology (NIST) Special Publication 800-122.</p>
GSR-127	<p>As applicable, TSP2 and the BOS shall be compliant for a Level 2 merchant as defined by the PCI Security Standards Council when the BOS goes into Production, and maintain this level of compliance throughout the life of the contract, including but not limited to BOS:</p> <p>software package(s), Commercial Off-the-Shelf ("COTS") software, and operating systems;</p> <p>databases;</p> <p>graphical user interface;</p> <p>customer portals, and;</p> <p>external interfaces.</p>
GSR-128	Non-production systems and environments shall not contain any actual (or "live") PCI Data.
GSR-129	The BOS shall log all access, including any failed access attempts, to any PCI Data or related data (encrypted or plain text).
GSR-130	TSP2 will ensure that any media which contains PCI Data is securely stored and destroyed when it is appropriate or required to do so.



Req. #	Requirement
GSR-131	TSP2 shall make all documentation required under PCI DSS available to the Joint Board Representatives as applicable including, but not limited to the following: dataflow diagrams which depict all flows/repositories of PCI Data, complete database schema diagrams for all solution databases, detailed policies and procedures, all identified databases, tables and columns which contain PCI Data, and all required component configurations provided in a matrix.
GSR-132	All changes to the BOS application or infrastructure components shall adhere to PCI DSS change control requirements.
GSR-133	The BOS shall identify Primary Account Number (PAN) in any encrypted or unencrypted field using built-in data storage scanning/analysis. Data identification algorithms/patterns shall also be used in support of identifying and differentiating tokenized PCI Data.
GSR-134	TSP2 shall document and immediately report to the Joint Board Representatives information security management any PCI DSS vulnerabilities or other issues found during monthly penetration and vulnerability tests.
GSR-135	TSP2 shall perform monthly reviews of all access to unencrypted PCI Data.
GSR-136	TSP2 shall perform reviews at least quarterly, to confirm personnel are following security policies and operational procedures in accordance to the most current version of PCI DSS.
GSR-137	TSP2 shall not use vendor-supplied defaults for system passwords and other security parameters and values.
GSR-138	TSP2 shall ensure that multi-factor authentication is required for all personnel with non-console administrative access, and all personnel with remote access to PCI Data, and shall enforce secondary authorization prior to display of the full PAN.
GSR-139	The BOS shall include a managed access user list for access to display full PAN; must include full justification of access requirements for each user, include manager authorization contact information and must require secondary approval (2-person rule) workflows prior to decryption and display of PCI Data.
GSR-140	TSP2 shall fully cooperate with the Joint Board Representatives at no cost to the Joint Board in responding to a PCI QSA's and/or ISA's requests, and implement remedies if any issues are identified.
GSR-141	The Joint Board Representatives shall have the right to attend any TSP2-led or sponsored PCI DSS training sessions, be provided all associated PCI training materials, and make recordings and copies of all PCI training program materials for the Joint Board use in training the Joint Board employees and contractors.
GSR-142	TSP2 shall make good faith efforts to obtain and provide to the Joint Board Representatives all required signed releases from all TSP2 personnel who attended training and appeared in the training recordings, and to allow unlimited, royalty-free use and copies of recordings of the PCI-DSS compliance training sessions upon the Joint Board Representatives request.
GSR-143	TSP2 personnel shall attend annual security awareness training, as well as annual role-specific security training as prescribed by PCI-DSS, and provide ongoing proof of training.
GSR-144	All TSP2-provided PCI-related documentation, including its security awareness program, policies and procedures and acknowledgements shall be subject to audit at the discretion of the Joint Board Representatives.
GSR-145	Management system interfaces for the BOS shall be logically and physically separated from untrusted, generic applications, or other networks (i.e. full separation of management and data planes).
GSR-146	TSP2 shall implement and fully document the segmentation strategy, technologies and processes which are used to separate all the Joint Board BOS environments, as well as personnel from those environments.
GSR-147	TSP2 shall ensure that audit trails are supported, enabled and active for all BOS components; additionally, TSP2 shall ensure the audit trail data is promptly sent to a centralized audit system of record, and that audit trail data is only accessible to Authorized Users with documented business
GSR-148	All system and service account credentials used by the BOS shall be fully documented with regard to function, minimum required permissions and business justifications.
GSR-149	TSP2 shall verify any tokenization systems as implemented.
GSR-150	TSP2 shall provide prior to the applicable BOS Go-Live date (including the applicable date for the Go-Live of any Enhancements): PCI Attestation of Compliance (AOC) by an independent PCI Qualified Security Assessor (QSA), Passing vulnerability scan reports/attestation by a PCI-approved Scanning Vendor (ASV), Internal and external penetration and vulnerability testing results, which meet all PCI-DSS Requirement 11.3 sub-requirements for PCI-DSS aligned penetration testing, A complete Report on Compliance (ROC), including details about the BOS environment, the development environment(s) utilized by the TSP2, and the assessment methodology, as well as documentation regarding the BOS's compliance status for each PCI-DSS Requirement; Completed SSAE-16 SOC2 Type 1 reports, issued by a licensed CPA firm, and subsequent completion of SOC2 Type 2 reports within six (6) months of the applicable Go-Live date.
GSR-151	TSP2 is responsible for correcting all deficiencies related to TSP2's work and the BOS software warranty noted during any PCI audits, at TSP2's cost, and ensuring the BOS is PCI-DSS 3.2 (or most current version) compliant and security risks are handled appropriately.
GSR-152	TSP2 shall be responsible for acquiring the services of an independent certified QSA to perform the certification of the BOS to PCI-DSS 3.2 (or most current version) for Level 1 merchants at least annually, or as otherwise required by the standard, whichever is more frequent, for the life of the contract.
GSR-153	TSP2 shall complete a PCI-DSS audit provided by a qualified PCI QSA, or as required by PCI DSS, at the interval required for PCI-DSS compliance, including a complete and current ROC made available to the Joint Board, throughout the life of the Contract.



Req. #	Requirement
GSR-154	TSP2 shall resolve PCI-DSS compliance exceptions within five (5) calendar days of discovering them, or a time-period agreed to by the Joint Board Representatives written Approval of a remediation plan prepared by TSP2.
GSR-155	TSP2 shall ensure development staff are knowledgeable of and use secure coding guidelines as outlined in the PCI-DSS 3.2 (or most current version) and receive re-training on secure coding practices upon hire, at least on an annual basis, and provide the Joint Board Representatives with proof of current period secure development training for all development personnel upon request.
GSR-156	TSP2 shall ensure that any COTS payment processing software, application service, or component integrated into the BOS (including Upgrades, Updates, and Enhancements) is compliant with PA-DSS.
GSR-157	In conjunction with delivery of the BOS (including Upgrades, Updates, and Enhancements), TSP2 shall provide to the Joint Board Representatives documentation and/or artifacts which substantiate that the following software development controls are in place for the scope of the Software, and there are no material security defects (i.e., no critical or high risk defects): security requirements documented during the requirements phase of the software development life cycle, secure architecture design, static code analysis during development (secure code review of the entire code base based on, at a minimum, the Open Web Application Security Project (OWASP) Top 10 and SysAdmin, Audit, Networking, and Security Institute (SANS) Top 25 software security risks or comparable replacement), dynamic scanning of web-facing applications and penetration testing of internal applications, using industry standard testing methodologies during the build process or quality assurance phase; open source code or applications must be appropriately licensed, inventoried and evaluated for security defects, security vulnerability management, and TSP2 shall thereafter re-substantiate such controls as applicable upon any implementation of new Software or other material change to the BOS.
GSR-158	PCI Data shall be processed and stored, and the CDE shall be configured and maintained, in compliance with applicable PCI Standards, including PCI DSS 3.2 (or later versions when superseded), including all relevant and published supplemental guidance.
GSR-159	The BOS (including Upgrades, Updates, and Enhancements) shall store PCI Data in encrypted format using "strong cryptography".
GSR-160	The BOS (including Upgrades, Updates, and Enhancements) shall perform all clear-text PCI Data operations within encrypted memory-space.
GSR-161	The BOS (including Upgrades, Updates, and Enhancements) shall auto-detect clear text primary account numbers (PAN) and automatically replace PAN that is in a non-encrypted field with a truncated PAN, and send an Alert message; for example, automatically detect and truncate a PAN typed in the body of a note or the body of a customer email/text interfacing to the BOS.
GSR-162	The BOS (including Upgrades, Updates, and Enhancements) shall encrypt data using the Joint Board Configurable masks; for example, display only the last four (4) digits of the PAN or bank account numbers on screens and reports.
GSR-163	The BOS (including Upgrades, Updates, and Enhancements) shall allow only Authorized Users with the appropriate access level to view information in unencrypted form, if applicable.
GSR-164	The BOS (including Upgrades, Updates, and Enhancements) shall include a separate Interface (standalone modules) for full display of PCI Data including any mapping of tokenized data to actual data, if applicable.
GSR-165	The BOS (including Upgrades, Updates, and Enhancements) shall protect store, transfer and display any PCI Data or other Personal Data within the databases and data transmissions using strong end-to-end data encryption, truncation, Masking and hashing as applicable including, but not limited to: driver's license numbers, All PCI Data, including Primary Account Numbers (PAN); bank routing numbers, bank account numbers, license plate numbers, and gift card activation codes.
GSR-166	All BOS telecom system components must be configured to use strong transit-based encryption for both signaling (SSIP) and audio (SRTP) data streams to encrypt any PCI Data provided either to agent (audio data) or to IVR system (audio and/or DTMF signaling).
GSR-167	The BOS (including Upgrades, Updates, and Enhancements) shall support Phase-Shift Keying/Public Key Infrastructure (PSK/PKI)-based encryption for forensic artifacts with chain-of-custody.
GSR-168	The BOS (including Upgrades, Updates, and Enhancements) shall use a Hardware Security Module (HSM) for storage and management of cryptographic keys.
GSR-169	The BOS (including Upgrades, Updates, and Enhancements) shall support emergency key rotation in event that keys are suspected to be weakened or compromised; rotation of encryption keys must not result in any service or processing outage for the BOS.
GSR-170	The BOS (including Upgrades, Updates, and Enhancements) shall not support insecure storage or escrow of any encryption keys.
GSR-171	TSP2 shall fully document and diagram cryptographic operations, including key/component initialization and generation processes within the BOS (including Upgrades, Updates, and Enhancements), and shall provide such materials to the Joint Board Representatives before the applicable Go-Live.
GSR-172	The BOS shall support automatic deletion of PCI Data and other sensitive data in accordance with the Joint Board's data retention policies and procedures.



Req. #	Requirement
GSR-173	The BOS (including Upgrades, Updates, and Enhancements) shall automatically purge sensitive authentication data as part of a successful authorization process, and must generate a purge confirmation code as part of the transaction record.
GSR-174	The BOS (including Upgrades, Updates, and Enhancements) shall provide comprehensive user credential controls including, but not limited to: prevent the creation of 'generic' BOS User Accounts – all User Accounts shall be associated to a specific person, immediately distinguishable credentials by name and naming convention, and certificate-based authenticators must be uniquely tied to an individual person or system component.
GSR-175	The BOS (including Upgrades, Updates, and Enhancements) shall support administrator-defined/enabled certificate pinning for application/database/service-component connectivity (admin-defined certificate pinning).
GSR-176	Any third party access to the BOS must be provided through a dedicated vendor support portal, which allows for full session monitoring and control for all vendor access.
GSR-177	All component addressing shall use Domain Name Server (DNS) and/or Uniform Resource Identifier (URI) designation, and hard-coded or embedded or other addressing information shall not be allowed.
GSR-178	As applicable, the BOS shall not allow direct interactive access from any network, device, workstation, laptop or other management system to the BOS infrastructure or application administration interfaces which bypass the "jump" systems.
GSR-179	The BOS shall support streamlined encryption protocol/cipher upgrades as required; upgrades of cryptographic protocols/ciphers must not result in a service or processing outage for the BOS.
GSR-180	The BOS shall support Intrusion Detection/Prevention System (IDS/IPS) capabilities at all critical points, including as applicable, network and host-based protection, and between internal system components.
GSR-181	The BOS shall allow for full integration with Microsoft Active Directory (AD) or similar access system approved by the Joint Board Representatives, BOS Users are not required to enter separate passwords for BOS access (the BOS shall prompt users for their AD credentials and not allow password through authentication), and that all rules for password security are enforced and passed between the network and the application.
GSR-182	The BOS shall use an independent (BOS-environment-specific) Active Directory environment for all third party access management (i.e. system/platform users, operators and administrators).
GSR-183	All BOS (including Upgrade, Update, and Enhancement) components and access control systems and sub-systems, including platforms and applications, shall employ a default "Deny-All" authorization scheme.
GSR-184	Application-specific security account credentials in BOS (i.e. service accounts) shall be restricted such that they can only be used by their assigned application, and cannot be used by individuals or other processes.
GSR-185	The BOS shall not use any hard-coded or embedded account credentials. All third-party authentication processes shall support role-based access management through AD/PKI.
GSR-186	All BOS customer account details, including passwords, shall be stored in purpose-specific databases and protected by strong data-centric (application level) encryption.
GSR-187	The BOS user account session shall time-out after the Joint Board-configurable period of inactivity.
GSR-188	The BOS (including Upgrades, Updates, and Enhancements) shall provide cryptographic defenses against account hijacking, impersonation or session replay.
GSR-189	All system accounts (non-interactive) shall support touchless rotation (password updates) in accordance with the Joint Board-defined policies, and: auto-rotation of account service passwords shall not create a service outage, and auto-rotation of account service passwords shall alert Authorized Users of success or failure.
GSR-190	The BOS customer portal Accounts should support optional multifactor authentication using common solutions such as a telephone (call) based Google Authenticator.
GSR-191	The BOS platform should be built on hardware which supports full hardware trust attestation.
GSR-192	Anonymous access to any BOS component shall not be permitted, including for inter-process communications.
GSR-193	Shared user or account security IDs shall not be permitted on the BOS.
GSR-194	Group access accounts shall not be permitted on the BOS.
GSR-195	The BOS security access and account management shall adhere to the Joint Board requirements with regard to password management, complexity history and other defined requirements.
GSR-196	All administrator/super-user access and activity in BOS must be verbosely logged, and must be sent in real/near time to the centralized system.
GSR-197	The BOS shall log all decryption and/or display of PIV data, and shall provide immediate notification and daily reporting for all decryption/PIV operations.
GSR-198	TSP2 shall perform a vulnerability scan of any release version of all COTS software binaries in the BOS (including in any Upgrades, Updates, and Enhancements), to be conducted by Veracode, Inc. (or a comparable third party approved in writing by the Joint Board Representatives) for the purpose of identifying security vulnerabilities. Results shall be prioritized based on risk and TSP2 shall remediate identified deficiencies accordingly.
GSR-199	TSP2 shall provide the Joint Board Representatives with a completed assessment of the Building Security In Maturity Model (BSIMM) version 7 (or later if available) (see www.bsimm.com) with respect to the BOS (including Upgrades, Updates, and Enhancements).

**Retention, Archival, Purging and Backup Functionality**  
**Retention, Archival, and Purging General Requirements**



Req. #	Requirement
Req. #	Requirement
GSR-200	All BOS data, except for images related to Traffic Transactions, shall be retained online on the server(s) for the full term of the Contract, or as otherwise directed in writing by the Joint Board Representatives, whose direction may include offline data archiving or data purging. The images related to Traffic Transactions that have been paid, Waived or Written-Off can be purged after 2 years from the respective paid, Waived, or Written-Off date.
GSR-201	The BOS shall provide functionality for an Authorized User to configure the period for the BOS to automatically archive.
GSR-202	The BOS shall record and maintain logs identifying data from the BOS that has been archived.
GSR-203	The BOS shall include functionality that will purge data from the Archive System on a schedule specified by an Authorized User.
GSR-204	The BOS shall record and maintain logs identifying data that is currently stored in the Archive System as well as data that has been purged from the Archive System.
GSR-205	TSP2 shall retrieve and restore archived data within fourteen (14) Calendar Days of the request submitted by the Joint Board Representatives in writing.
GSR-206	The BOS shall generate Alerts when any data is archived.
GSR-207	The BOS shall generate Alerts when any data is purged from the BOS and when any data is purged from the Archive System.
GSR-208	The BOS shall include functionality to permit an Authorized User to set Alert(s) to receive Alert(s), a configurable number of days in advance of the archiving of a given data set, if applicable.
GSR-209	TSP2 shall provide an easy mechanism for Authorized User(s) to access restored data from archive.
GSR-210	The BOS shall include functionality that permits compliance with the specific retention, archiving, and purging requirements set forth in these Requirements.

#### Backup General Requirements

Req. #	Requirement
GSR-211	TSP2 shall perform back-ups of the BOS and the Archive System on schedules approved by the Joint Board Representatives, and the BOS shall be capable of full restoration of data from the Back-Up System to the BOS and the Archive System.
GSR-212	The BOS shall be capable of restoring data from the Back-Up System to the BOS and the Archive System within twenty-four (24) hours of a request for restoration.



Req. #	Requirement
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#### Testing and Reports

Req. #	Requirement
GSR-213	TSP2, in conjunction with the Joint Board Representatives, shall perform annual tests and verify the successful retrieval of archived data. TSP2 shall provide a report of the test of successful retrieval of archived data from the Archive System at least annually.
GSR-214	TSP2, in consultation with the Joint Board Representatives, shall perform annual tests to verify that the applicable BOS functionality correctly restores the BOS, data that has been backed-up, and TSP2 shall provide the underlying testing methodology and results to the Joint Board Representative upon request. This shall be done in accordance with the Joint Board's backup procedures.

#### Environments

##### General Environment Requirements

Req. #	Requirement
GSR-215	TSP2 shall provide environments for the BOS Production, Pre-Production/UAT, Disaster Recovery, BI/Data Warehouse, Reporting, Training, Testing and Development Environments, and these environments: <del>shall be established independently such that they do not impact each other (i.e., downtime on one (1) environment does not affect another environment).</del> shall be installed, monitored and maintained during Implementation and Post-Implementation by TSP2, and shall ensure that the Joint Board Representatives have login access with appropriate User Roles.
GSR-216	TSP2 shall ensure that all BOS Environments are utilizing up to date and supported versions of all major releases of operating systems, database Software and firmware and tools. Releases shall not be more than one (1) release behind the manufacturer's latest major release unless Approved by the Joint Board Representatives.
GSR-217	TSP2 shall ensure that, with the exception of the Development and Testing Environments, which may change as part of development and testing cycle operating systems, databases, Software and firmware are consistent across all environments; including, but not limited to: configuration and patch level unless Approved by the Joint Board Representatives.
GSR-218	TSP2 shall ensure that the design and implementation of the Production Environment ensures that no single-point-of-failure exists within the configuration, and the BOS will continue to operate without data loss, in the event any single component of the configuration fails.
GSR-219	TSP2 shall submit all Hardware and Software configurations, and any subsequent changes for the Joint Board Representatives approval.
GSR-220	TSP2 shall ensure availability of environments in a timely manner to meet the Joint Board Representatives' timeline for all Testing and Deployment needs during the Implementation Phase.
GSR-221	TSP2 shall provide the capability to test emergency patches in an environment.
GSR-222	The BOS platform shall leverage virtualization technologies for all computer and network resources which comprise the BOS solution. Technologies used to provide operating system, application, and network virtualization within the solution must be current, considered "industry best-of-breed" and support all operational, security, performance and availability requirements as defined by the Joint Board Representatives.

##### Operating and Computing Environments

Req. #	Requirement
GSR-223	TSP2 shall create and maintain a Production Environment that supports all functionality, as specified in these requirements.
GSR-224	Production Environment specifications, configurations design and implementation shall allow for redundancy and fault tolerance.

##### Operating and Computing Environments – User Acceptance Testing

Req. #	Requirement
GSR-225	TSP2 shall create and maintain a Pre-Production/UAT Environment that mirrors the Production Environment.
GSR-226	TSP2 shall provide a Pre-Production/UAT Environment, independent from the Production and DR Environments that is utilized to deploy new BOS versions after the Software has passed appropriate testing in the Testing Environment.
GSR-227	TSP2 shall provide a Pre-Production/UAT Environment that supports User Acceptance Testing to be conducted by the Joint Board Representatives.
GSR-228	TSP2 shall Scrub the Production data as per PCI DSS to load into the Pre-Production/UAT Environment.



Req. #	Requirement
GSR-229	TSP2 shall load a subset of the Production data into the Pre-Production/UAT Environment, based on the Joint Board's requirements.
GSR-230	TSP2 shall ensure that the data in the Pre-Production/UAT Environment is Scrubbed with current Production data at least every six (6) months, or as requested by the Joint Board Representatives.
GSR-231	The Pre-Production/UAT Environment shall also be used to load restored data from archive and allow BOS functionality access to the restored data.
GSR-232	TSP2 shall provide a Pre-Production/UAT Environment that is sufficiently sized to successfully test Software changes and their effect on the Production Environment, including load testing.

#### Operating and Computing Environments – Disaster Recovery

Req. #	Requirement
GSR-233	TSP2 shall work with the Joint Board Representatives, or its DR vendor, to meet all Requirements for planning, configuring, testing and supporting Disaster Recovery.
GSR-234	TSP2 shall ensure the Recovery Point Objectives (RPO) and Recovery Time Objectives (RTO) are in accordance with the Approved Disaster Recovery Plan (DRP).
GSR-235	TSP2 shall provide validation that the DR procedures and environment is capable of providing business continuity in the event of a catastrophic failure of the Production Environment.

#### Operating and Computing Environments – Training

Req. #	Requirement
GSR-236	TSP2 shall create and maintain a Training Environment that supports the setup of cleansed partial Production data to be used for training.
GSR-237	TSP2 shall provide data in the Training database that is refreshed with current Production data at least every six (6) months, or as required by the Joint Board Representatives when new functionality is added for which Production data is required for training. TSP2 shall make a partial copy of the Production Environment, using extract procedures Approved by the Joint Board Representatives, and data Scrubbing procedures for PII information and PCI Data if Credit Cards are stored in Production.
GSR-238	TSP2 shall provide data and Production functionality in the Training database that allows training for all Pre-Production/UAT and Production functionality in the BOS, as required by the Joint Board Representatives.

#### Operating and Computing Environments – Testing

Req. #	Requirement
GSR-239	TSP2 shall provide a Testing Environment that mirrors the Production Environment, for all current functionality, and includes any new functionality that is being developed and needs testing; this environment may contain a subset of the Production database Scrubbed of all PCI and PII-related data elements and shall be accessible by the Joint Board Representatives.

#### Operating and Computing Environments – Development

Req. #	Requirement
GSR-240	The Development Environment shall be comprised of all Hardware, Software, network components, simulators, third party tools and licenses necessary to view, edit, compile, debug and unit test all aspects of BOS functionality and operations prior to release to the Testing Environment.
GSR-241	TSP2 shall provide the Joint Board Representatives with unrestricted, read-only access to the Development Environment.



Req. #	Requirement
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**Telephone System**  
**General Telephone System Requirements**

Req. #	Requirement
GSR-242	TSP2 shall provide a telephone system to support customer service. Self-service functionality, including but not limited to: Check Customer Account balance, Customer Account balance due date, MBS payments, Scripts in English and Spanish

**21. Implementation and Installation**  
**General Implementation and Installation Requirements**  
**Documentation Overview**

Req. #	Requirement
IMI-001	TSP2 shall provide developed documentation, as detailed in the Requirements of the Contract.
IMI-002	TSP2 shall maintain, including updating when necessary, all documentation to ensure compliance with the Requirements of the Contract.
IMI-003	TSP2 shall manage all project-related deliverables in the Electronic Document and Content Management System (EDCMS) provided by the Joint Board Representatives.
IMI-004	All TSP2 documentation shall have proper title, date, number by revision and version, and incorporate signature blocks for authorship and approvals, for each document submitted.
IMI-005	TSP2 shall provide a logical indexing system for ease of access to documentation. At a minimum, the structure established and utilized in the EDCMS shall provide the Joint Board Representatives with the capability to easily locate documents requiring approval and access approved documents.
IMI-006	TSP2 shall be responsible for maintaining updated project documents throughout the life of the project. These updates should be made as change occurs, and no less frequently than yearly.
IMI-007	For each required document deliverable, TSP2 shall submit a minimum of the following versions for the Joint Board Representatives review and approval: document outline (i.e., table of contents) preliminary draft final draft 100% final The 100% final version of each document shall address all of the provided review comments to the Joint Board Representatives' satisfaction and approval.
IMI-008	TSP2 shall produce and submit additional interim drafts, at no additional cost, should the Joint Board Representatives determine that the documentation submitted is not of adequate quality, has missing or incorrect information, or it does not satisfactorily address the Joint Board Representatives review comments.
IMI-009	TSP2 shall define reasonable timeframes in the Project Schedule for the Joint Board Representatives review of all deliverables, reflecting the size and complexity of each deliverable. For the Joint Board Representatives' review, TSP2 shall incorporate into the Project Schedule a minimum of one (1) week for review of document outlines and two (2) weeks for review of all other versions, unless otherwise approved by the Joint Board Representatives.
IMI-010	TSP2 shall respond to the Joint Board Representatives' review comments in writing. Meetings may be conducted to clarify and resolve any questions and/or issues concerning the comments and responses provided.
IMI-011	TSP2 shall submit an editable electronic version (i.e., in MS Office or AutoCAD format) of all developed documentation, for the Joint Board Representatives' review and approval, unless otherwise agreed to by the Joint Board Representatives.
IMI-012	TSP2 shall update all impacted documentation within two (2) weeks after occurrence of any change, throughout the period of the Contract.
IMI-013	All TSP2 provided documentation, during the period of the contract, shall be available in editable electronic format and are considered property of the Joint Board. Any exceptions need to be requested by TSP2 in writing and approved in writing by the Joint Board Representatives. All documentation shall be uploaded to the approved document repository.
IMI-014	TSP2 shall be responsible for installing all required and necessary BOS Hardware and Software per the Contract for all environments and at all sites.



Req. #	Requirement
IMI-015	The Joint Board Representatives shall have the right to perform independent inspections of the installation of any TSP2 BOS Hardware and Software and TSP2 shall be responsible for the correction of all discrepancies and deficiencies identified during the inspection.

**Schedule of Deliverables**

Req. #	Requirement
IMI-016	TSP2 shall provide documentation regarding the design, planning and management of the Project, based on the following schedule (or the TSP2 proposed and Joint Board Representatives approved delivery schedule to match the TSP2 proposed and Joint Board Representatives approved implementation timeline):
IMI-017	Within thirty (30) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Detailed Project Schedule</li> </ul>
IMI-018	Within sixty (60) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Project Management Plan (PMP)</li> <li>100% final Software Development Plan (SDP)</li> <li>100% final Quality Assurance and Master Test Plan (QAMTP)</li> <li>Outline of Functional Specifications Document (FSD)</li> <li>Outline of Software Design Description (SDD)</li> <li>Outline of Reports Design Document (RDD)</li> <li>Outline Notifications Manual</li> <li>Outline of Performance Contract Document (PCD)</li> <li>Outline of Data Cleansing and Migration Plan</li> </ul>
IMI-019	Within one-hundred and twenty (120) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Future Updated Business Rules</li> <li>100% final Requirements Traceability Matrix (RTM)</li> </ul>
IMI-020	Within one-hundred and eighty (180) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Functional Specifications Document (FSD)</li> <li>100% final Start of Contract Transition Plan</li> <li>100% final Data Cleansing and Migration Plan</li> </ul>
IMI-021	Within two hundred and forty (240) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Software Design Description</li> <li>100% final Reports Design Document</li> <li>100% final Notifications Manual</li> <li>100% final Performance Contract Document</li> </ul>
IMI-022	Within three hundred (300) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Testing Procedures and Test Cases/Scenarios</li> <li>Outline of Installation Plan</li> <li>Outline of Disaster Recovery Plan (DRP) and Business Continuity Plan (BCP)</li> <li>Outline of Training Plan</li> <li>Outline of Master Staffing Plan</li> </ul>
IMI-023	Within three hundred and sixty (360) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Installation Plan</li> <li>100% final Disaster Recovery Plan (DRP) and Business Continuity Plan (BCP)</li> <li>100% final Training Plan</li> <li>100% final Master Staffing Plan</li> <li>Outline of Maintenance Plan</li> <li>Outline of Standard Operating Procedures (SOPs)</li> <li>Outline of Facilities Buildout Design Plan</li> </ul>
IMI-024	Within four hundred and fifty (450) calendar days after NTP: <ul style="list-style-type: none"> <li>100% final Maintenance Plan</li> <li>100% final Facilities Buildout Design Plan</li> <li>Outline of Safety and Security Plan</li> <li>Outline of End of Contract Transition Plan</li> </ul>
	Within five hundred and forty (540) calendar days after NTP:



Req. #	Requirement
IMI-025	<ul style="list-style-type: none"> <li>100% final Standard Operating Procedures</li> <li>100% final Safety and Security Plan</li> <li>100% final End of Contract Transition Plan</li> <li>As built – Data Dictionary</li> <li>As built – System Architecture Diagram</li> </ul>

#### Project Kickoff

Req. #	Requirement
IMI-026	TSP2 shall conduct a project kickoff meeting with the Joint Board Representatives within 10 days of NTP.
IMI-027	Prior to conducting the project kickoff meeting, TSP2 shall submit meeting documentation to the Joint Board Representatives for review and preparation.
IMI-028	<p>As part of the project kickoff meeting, TSP2 shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>Discuss expectations regarding project governance,</li> <li>Discuss roles and responsibilities,</li> <li>Discuss approach to project management,</li> <li>Discuss approach to communications,</li> <li>Present draft Project Schedule, and</li> <li>Discuss identified project risks, especially data migration and financial reporting.</li> </ul>

#### Planning

##### Project Management Plan (PMP) PMP General Requirements

Req. #	Requirement
IMI-029	<p>TSP2 shall develop and submit a Project Management Plan (PMP) for review and approval by the Joint Board Representatives. The PMP shall include but not be limited to:</p> <ul style="list-style-type: none"> <li>Project scope of work and key Deliverables,</li> <li>description of the management and organization of the Project and an organization chart,</li> <li>description of planning, documenting and reporting methods,</li> <li>meeting schedules,</li> <li>approach for the monthly progress reporting,</li> <li>approach to change management, including a description of the process for documenting and submitting change requests and approvals,</li> <li>approach to communication management, including project status and progress report communications,</li> <li>approach to risk management, including documentation, quantification, communication/cooperation/coordination and mitigation plans,</li> <li>description of entry and exit criteria for each stage and phase,</li> <li>description of invoicing process,</li> <li>description of documentation acceptance process,</li> <li>overview of Project Schedule, and</li> <li>description of the Project Schedule's critical path tasks and approach to schedule risk mitigation.</li> </ul>
IMI-030	TSP2 shall identify the tools and products used to manage the Project and the internal controls to guarantee successful delivery of the Project.
IMI-031	<p>TSP2 shall provide and maintain a current emergency contact list. Such list shall be available for the Joint Board's use at all times, for handling emergencies and escalations. The emergency contact list shall name TSP2's points of contact, in order of preference, and shall include, at a minimum:</p> <ul style="list-style-type: none"> <li>Project director</li> <li>Project manager</li> <li>Back Office and development manager</li> <li>Relevant system support staff (e.g., Help Desk personnel)</li> </ul> <p>The purpose of the emergency contact list is to ensure TSP2 can be reached outside normal working hours to address urgent matters. The Contract's Exhibit 4 will list TSP2's Authorized Representatives for this emergency contact list.</p>

#### Monthly Project Reporting and Progress Meetings

Proposer Response



Req. #	Requirement
Req. #	Requirement
IMI-032	TSP2 shall provide and maintain a schedule for monthly progress meetings and facilitate all meetings.
IMI-033	<p>TSP2 shall submit a draft monthly progress report to the Joint Board, within a specified number of calendar days after the reporting month. This report shall be submitted sufficiently before the progress meeting to permit the Joint Board Representatives review and comment on the progress report prior to the meeting. The monthly progress report shall include, but is not limited to:</p> <ul style="list-style-type: none"> <li>• a summary, outlining progress, status and percentage of work performed for each task, as compared to planned activities in the approved project plan;</li> <li>• identification of key milestones met and missed during the period,</li> <li>• an analysis of all critical path tasks, potential risks associated with the tasks, and proposed contingency plans to circumvent or mitigate delays to the Project;</li> <li>• identification of any approved changes to approved milestone dates and the approved project plan, clearly noting the details and identifying the contract amendments;</li> <li>• list of open change requests that are awaiting approval or the Joint Boards decision,</li> <li>• discussion of schedule compliance showing current status against the baseline approved project schedule,</li> <li>• updated action items list tracking the status of all outstanding deliverables, activities and issues requiring decision and/or resolution;</li> <li>• payment request, if applicable, with identification of the payment milestone, number and dollar amount;</li> <li>• a six (6) week look-ahead schedule, and</li> <li>• the previous monthly final meeting minutes to be approved.</li> </ul>
IMI-034	TSP2 shall submit draft meeting minutes for the Joint Board Representatives review and approval, within one (1) week after the meeting.

#### Weekly and Ad-Hoc Project Meetings

Req. #	Requirement
IMI-035	<p>The weekly Project status meetings, and other meetings, may be required during the Project to address specific deliverables, work tasks and issues as they arise. TSP2 shall perform the following tasks related to all meetings; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• develop and coordinate the project meeting schedules,</li> <li>• distribute notices of project meetings, in accordance with document control requirements;</li> <li>• distribute the agenda at least 24 hours prior to the meeting,</li> <li>• attend the meeting with all required staff,</li> <li>• facilitate the meeting,</li> <li>• prepare draft meeting minutes, within one (1) day, and forward them to the Joint Board Representatives for review and approval;</li> <li>• maintain an updated action item list for each type of meeting, and</li> <li>• distribute final approved meeting minutes.</li> </ul>

#### Communication, Cooperation and Coordination with Other Consultants and Providers

Req. #	Requirement
IMI-036	TSP2 shall communicate, cooperate and/or coordinate with consultants and external parties, as directed by the Joint Board Representatives.

#### Key Personnel

Req. #	Requirement
	The following Key Personnel have been preliminarily identified below. The final Key Personnel list, to be determined based on TSP2's approach and project needs, shall be submitted by TSP2 for the Joint Board Representatives' approval. Key Personnel that will not be full-time on the project should be shown with percent of anticipated time on the Project:



Req. #	Requirement
IMI-037	<ul style="list-style-type: none"> <li>• <b>Project director</b> – responsible for the overall conduct and performance of the Project, oversight of the Project, the performance of the Project manager, and a point of contact for any escalated Project issues that cannot be resolved by the Project manager;</li> <li>• <b>Project manager</b> – a local, dedicated resource during the implementation phase and the subsequent years of the maintenance phase; responsible for all day to day work; the overall execution and delivery of the project, and the day to day TSP2 contact person on the project;</li> <li>• <b>Deputy project manager</b> – responsible for day-to-day work when the project manager is not available or out of pocket. Facilitate meetings and work as needed, and be available for questions and direction as needed;</li> <li>• <b>Back Office and development manager</b> – responsible for management of all technology resources, including software development, hardware/software implementation and information security, as required to satisfy the requirements;</li> <li>• <b>Technical/solution architect</b> – responsible for the overall technical solutions architecture; ensures the technical solution architecture is appropriately designed, tested and implemented to meet the requirements and projected growth;</li> <li>• <b>Quality assurance/testing manager</b> – responsible for ensuring consistent high quality throughout the design, testing, implementation and operations; responsible for planning and conducting all test phases of the project and certifying test results;</li> <li>• <b>Data migration manager</b> – responsible for the overall planning, design, testing, installation, implementation and monitoring of data migration and transition from legacy systems to the BOS;</li> <li>• <b>Maintenance manager</b> – responsible for ongoing hardware/software, equipment and systems maintenance, as required to satisfy the maintenance requirements of the Project;</li> <li>• <b>Training manager</b> – a local, dedicated resource responsible for planning, developing, delivering, and evaluating the program and required training program;</li> <li>• <b>Finance and operational reporting manager</b> – a local, dedicated resource responsible for the design, testing and implementation of the financial, accounting, reconciliation and reporting components of the Project, in accordance with the requirements; responsible for ensuring that accounting and fraud controls are in place, in accordance with the requirements; responsible for the design, testing and implementation of the non-financial reporting components of the Project, in accordance with the requirements. Shall also run/coordinate/deliver ad-hoc reporting requests; and</li> <li>• <b>Customer Service Center manager</b> – a local, dedicated resource responsible for designing, testing, implementing and managing the operational workflows, business logic; responsible for managing the CSC operations and maintenance personnel. Shall also be responsible for communication and marketing requests, and;</li> <li>• <b>Workforce manager</b> – a local, dedicated resource responsible for daily efforts optimizing resources to achieve business objectives, planning/forecasting staffing requirements, creation of optimal schedules, and the ability to forecast operational needs.</li> </ul>
IMI-038	TSP2 shall obtain the Joint Board Representatives' approval, which shall not be unreasonably withheld, for any reassignment and replacement of Key Personnel.
IMI-039	TSP2 shall remove, replace or reassign any personnel if directed to do so at any time during the term of the Contract by the Joint Board Representatives. Unless otherwise approved by the Joint Board Representatives, any removal shall occur immediately, and any replacement shall be proposed within two (2) weeks.
IMI-040	The Master Staffing Plan shall include the location of all personnel required to meet the Requirements (on-site or remote).

#### Detailed Project Schedule

Req. #	Requirement
IMI-041	<p>TSP2 shall provide and maintain, using Microsoft Project, an approved Detailed Project Schedule that is based on the Contract's Project Schedule and that lists all detailed Project activities and tasks; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• workshops,</li> <li>• design,</li> <li>• development,</li> <li>• hardware (as applicable) and software acquisition,</li> <li>• documentation development and review,</li> <li>• testing,</li> <li>• installation,</li> <li>• training,</li> <li>• data migration,</li> <li>• transition, and</li> <li>• deployment.</li> </ul>
IMI-042	The Detailed Project Schedule shall identify all milestones and tasks, starting with the Notice to Proceed (NTP), through the end of the implementation phase.



Req. #	Requirement
IMI-043	The Detailed Project Schedule shall include all draft submissions and review cycles and shall include all tasks required of the Joint Board Representatives and other third parties.
IMI-044	The Detailed Project Schedule shall identify all critical path tasks and shall be used to manage the Project.
IMI-045	TSP2 shall update the Detailed Project Schedule regularly and no less frequent than monthly, as identified in the requirements for the monthly progress report.
IMI-046	TSP2 shall use the Detailed Project Schedule as the basis for all subsequent schedules and updates throughout the duration of the project.
IMI-047	TSP2 shall obtain approval from the Joint Board Representatives for any and all changes to the approved baseline Detailed Project Schedule, and associated milestones, in accordance with the Contract process for changes and amendments. Changes are not considered approved until an approval document is executed through the Contract. Baseline dates will be maintained and available to compare with target or planned dates for the duration of the Contract.

#### Software Development Plan (SDP)

Req. #	Requirement
IMI-048	<p>TSP2 shall develop and submit a Software Development Plan (SDP) for review and approval by the Joint Board Representatives. The SDP shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• documentation of the software development approach, relative to the application structure, behavior, architecture, business processes and data structures;</li> <li>• development resources and responsibilities per the PMP and the Master Staffing Plan;</li> <li>• description of natural segregation of development areas or teams, such as development of user interfaces, development of reports, development of the functionality and development of interfaces;</li> <li>• software development methodology such as use cases, development tools, development life-cycle and maintenance;</li> <li>• maintenance of standard and baseline code and management of major releases;</li> <li>• approach to segregation of environments;</li> <li>• review cycles and testing time by the Joint Board Representatives;</li> <li>• approach to Quality Assurance and Master Test Plan (QAMTP) for software testing, tracking, coding standards, code reviews, retest process, source control and change management;</li> <li>• development and integration approach for the major functional modules;</li> <li>• software configuration and change management approach and standards; and</li> <li>• software deployment approach, release notes and validation.</li> </ul>

#### Data Cleansing and Migration Plan

Req. #	Requirement
IMI-049	<p>TSP2 shall provide a Data Cleansing and Migration Plan for the Joint Board Representatives approval. The Data Cleansing and Migration Plan shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• data cleaning and migration strategy(ies),</li> <li>• identification and use of data migration tools,</li> <li>• identification of data elements to be migrated and any data that will not be migrated,</li> <li>• identification of any data migration shortcomings and deficiencies, including proposed solutions;</li> <li>• data element definition and mapping between the Joint Board's legacy system and the BOS,</li> <li>• identification of any cleansing, transformation and pre-processing, which must be performed on the data prior to its migration to ensure a clean transition;</li> <li>• procedures for handling and storing TSP1 database snapshot at transition,</li> <li>• all the test migrations and schedule to be conducted in the environments where the migration and validation process is exercised,</li> <li>• Key Performance Indicators (KPIs) to measure the success of the migration effort,</li> <li>• Schedule and duration to migrate existing legacy data to BOS production,</li> <li>• plan to migrate modified and incremental data, after completion of initial data transition, and before Go-Live;</li> <li>• data validation and verification processes and use of data sampling for the migrated data at critical phases of the migration, and</li> <li>• detailed data migration checklists, responsible person(s) and decision process for Go-Live.</li> </ul>
IMI-050	The Data Cleansing and Migration Plan shall include current and historical information as described in Volume 3 of the procurement documents. TSP2 shall conduct a series of workshops with the Joint Board Representatives to determine the detailed scope of data migration.



Req. #	Requirement
IMI-051	The Data Cleansing and Migration Plan shall include a detailed data migration schedule that identifies all tasks required of the Joint Board's legacy system vendor (TSP1), TSP2, and all involved parties, starting from the development of the plan to execution and Go-Live.
IMI-052	The Data Cleansing and Migration Plan shall include details for the protection of sensitive data, such as Card Holder Data (CHD) information and Personally Identifiable Information (PII), during the migration of data. Sensitive data shall remain encrypted during migration.
IMI-053	TSP2 shall clearly state any data that cannot be migrated from TSP1 and that will need to be recreated in the BOS. TSP2 shall provide details regarding the type of data, size of data and process to recreate this data.

#### Start of Contract Transition Plan

Req. #	Requirement
IMI-054	TSP2 shall coordinate with the Joint Board Representatives to develop and provide a detailed Start of Contract Transition Plan that identifies transition of all activities and systems from TSP1 associated with the implementation of the BOS and operations provided by TSP2.
IMI-055	The Start of Contract Transition Plan shall incorporate all aspects of the BOS transition; including, but not limited to: <ul style="list-style-type: none"> <li>• BOS deployment sequence of events leading up to and including Go-Live, and</li> <li>• Transition aspects for all BOS and CSC operations and maintenance services.</li> </ul>
IMI-056	The Start of Contract Transition Plan shall provide operational details; including, but not limited to: <ul style="list-style-type: none"> <li>• schedules,</li> <li>• communication procedures,</li> <li>• mapping of all activities to be transitioned,</li> <li>• support staff availability and readiness,</li> <li>• testing, and</li> <li>• other activities required for Go-Live.</li> </ul>
IMI-057	The Start of Contract Transition Plan shall include a transition schedule, detailing any system down time required including the expected duration of the outages. It shall also identify all tasks required of TSP1, TSP2, and all involved parties, starting from the development of the plan to execution and Go-Live.
IMI-058	The Start of Contract Transition Plan shall include a detailed roll-back plan, to be executed should a roll-back be necessary. The Transition Plan shall identify the point in the transition where roll-back will no longer be an option.
IMI-059	TSP2 shall consider the transition impacts to external operations that interact with the BOS and incorporate measures in the Transition Plan to minimize impacts to those external operations and interfaces. These considerations shall include, but not be limited to: <ul style="list-style-type: none"> <li>• the optimal balance of TSP1 availability, for historical record and reporting, versus the cost, risk and effort of migrating the legacy data;</li> <li>• external interface transition requirements, such as those related to the DMVs, and</li> <li>• reconciliation efforts required throughout the transition period.</li> </ul>
IMI-060	TSP2's approach to the start transition shall minimize the impact to customers and ensure readiness of the Joint Board and Third-Party Service Providers to perform their function or job duties. This requirement covers but is not limited to the following key areas: <ul style="list-style-type: none"> <li>• user management,</li> <li>• account management,</li> <li>• customer service,</li> <li>• transactions and payment processing,</li> <li>• invoice processing,</li> <li>• collections,</li> <li>• inventory management,</li> <li>• BOS Interfaces,</li> <li>• reporting,</li> <li>• Monthly Billing Statement (MBS) generation and mailing,</li> <li>• financial reconciliation,</li> <li>• Interoperability, and</li> <li>• Third-Party Service Provider interfaces and functions.</li> </ul>



Req. #	Requirement
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Quality Assurance and Master Test Plan (QAMTP)

Req. #	Requirement
IMI-061	<p>TSP2 shall provide a QAMTP for the Joint Board Representatives review and approval that details the Quality Assurance (QA) procedures, along with the testing strategy, and planning utilized by TSP2 for ensuring that the quality processes are followed throughout the project. The QAMTP shall document the procedures and methodology for the project; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• quality management and organizational structure,</li> <li>• BOS design,</li> <li>• software development,</li> <li>• installation, as applicable;</li> <li>• data cleansing and migration,</li> <li>• transition to the new BOS,</li> <li>• inspection and verification for in-process, unit tests and BOS testing;</li> <li>• configuration management,</li> <li>• change management and change control process,</li> <li>• quality management documentation,</li> <li>• quality review and verification, and</li> <li>• reporting and metrics.</li> </ul>
IMI-062	<p>The QAMTP shall address the testing of all aspects of the Project and shall describe the test strategy, all test phases, and scope to validate compliance to Requirements; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• entry and exit criteria for each testing phase/cycle,</li> <li>• overall approach to testing and testing methodology,</li> <li>• detailed schedule for each test,</li> <li>• methodology for testing the Performance Requirements and sample size for each phase of testing,</li> <li>• how data sets for each test are created,</li> <li>• software test automation tools (as applicable) utilized for each test,</li> <li>• correction of defects and fix release approach,</li> <li>• approach to validating all reporting requirements,</li> <li>• approach to end-to-end testing, validation, and reconciliation;</li> <li>• approach to data migration testing,</li> <li>• all Interface testing, such as to VRI providers, Merchant Service Providers, Roadways and Third-Party Service Providers;</li> <li>• security, PII and PCI-DSS related requirements;</li> <li>• redundancy/failover aspects,</li> <li>• backup/recoverability testing,</li> <li>• disaster recovery aspects,</li> <li>• cross-channel testing, to ensure testing is not only performed for each Interface (such as, web, mobile, etc.) individually, but also that testing is performed across each Interface, to ensure consistent presentation and processing;</li> <li>• documentation of how defects will be triaged, tracked, reported, resolved, and retested, including tools used to document defects</li> <li>• test completion report template that will be populated to show the status for each phase of testing;</li> <li>• approach to performance testing,</li> <li>• approach to regression testing,</li> <li>• approach to load testing,</li> <li>• approach to user interface testing, and</li> <li>• approach to penetration and vulnerability testing.</li> </ul>

Installation Plan

Req. #	Requirement
	<p>TSP2 shall develop and submit an Installation Plan that documents all installation related activities for the project, for the Joint Board Representatives review and approval. The Installation Plan shall define all elements of installation; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• detailed installation schedule, detailing all activities for the installation of the BOS and CSC systems;</li> </ul>



Req. #	Requirement
IMI-063	<ul style="list-style-type: none"> <li>detailed timing and type of support needed from the Joint Board Representatives, for all installation phases;</li> <li>description of how TSP2 will manage delivery and staging of the BOS and CSC equipment and software to be installed, including any staging and installation performed at TSP2's facilities, or third-party contractors' locations, and their subsequent delivery and installation at the production sites;</li> <li>description of the coordination with other vendors and consultants, including coordination activities, as applicable with other third-party entities for the various Interfaces;</li> <li>description of Quality Control, Quality Assurance, inspection and testing processes;</li> <li>description of special or unique installation requirements, and</li> <li>relevant details based on the Master Staffing Plan defining personnel, roles and responsibilities, and contact information.</li> </ul>
IMI-064	<p>TSP2 shall provide drawings that include, but are not limited to:</p> <ul style="list-style-type: none"> <li>detailed logical interconnection diagrams for all systems,</li> <li>detailed diagram of the network connectivity, including IP scheme;</li> <li>typical workstation connections showing each of the BOS components,</li> <li>server set-up and configuration, and</li> <li>other system hardware installation and connections.</li> </ul>
IMI-065	TSP2 shall develop, with the Joint Board Representatives input, detailed network drawings showing all WAN, LAN and VLAN connections, including Interoperable connections and external Interfaces. An IP schematic shall be submitted that shows all the IP addresses for all equipment on the network.

#### Disaster Recovery Plan (DRP) and Business Continuity Plan (BCP)

Req. #	Requirement
IMI-066	TSP2 shall develop and submit a Disaster Recovery Plan (DRP) for review and approval by the Joint Board Representatives. The DRP shall describe disaster recovery procedures that will take place in the event of a disaster that impacts the Project.
IMI-067	<p>The DRP shall document TSP2's approach to, and plan for, recovery from a disaster; including, but not limited to:</p> <ul style="list-style-type: none"> <li>assessment of disaster risks,</li> <li>mitigation of disaster risks,</li> <li>preparations in the event of a disaster,</li> <li>estimated time to recover,</li> <li>disaster declaration and disaster recovery process to invoke,</li> <li>organization chart illustrating disaster recovery team members, roles and responsibilities;</li> <li>notification contact list, including contact information;</li> <li>notification protocol,</li> <li>disaster recovery process initiation and completion checklist,</li> <li>software and data replication processes,</li> <li>emergency response management,</li> <li>detailed logistical processes for activation of disaster recovery systems,</li> <li>detailed technical processes for activation of disaster recovery systems, and</li> <li>detailed technical processes for reactivation of primary site (or moving to a new primary site if the original primary site is destroyed) for systems and coordination with operations, as applicable.</li> </ul>
IMI-068	TSP2 shall test the DRP annually, in coordination with the Joint Board Representatives, and provide a copy of the annual report.
IMI-069	DRP should be a hot transfer to minimize any operational disruptions.
IMI-070	TSP2 shall include as part of the DRP a Business Continuity Plan (BCP).
IMI-071	<p>The BCP shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>Recovery Point Objective (RPO): maximum acceptable amount of data loss, for all critical BOS services, after an unplanned data-loss incident, expressed as an amount of time which shall be zero;</li> <li>Recovery Time Objective (RTO): maximum acceptable amount of time for restoring critical BOS services and regaining access to data, after an unplanned disruption, which shall not exceed twenty-four (24) hours;</li> <li>Level of Service (LOS): the combination of throughput and functionality required to sustain BOS business operations, and;</li> <li>detailed description of how BOS security will be maintained at the DR site to ensure continued compliance with PCI DSS.</li> </ul>

#### Training Plan

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Req. #	Requirement
Req. #	Requirement
IMI-072	TSP2 shall develop and maintain a Training Plan for the Joint Board Representatives review and approval. The Training Plan, in accordance with the approved Project Schedule, shall describes the approach to administrators, end users at different levels, and maintenance and support personnel; including, but not limited to: <ul style="list-style-type: none"> <li>• overall description of the training program,</li> <li>• training techniques,</li> <li>• training delivery schedule,</li> <li>• training duration of each course,</li> <li>• trainer qualifications,</li> <li>• training materials, including syllabus, schedule, training goals, manuals, guides, other support materials and techniques to be used;</li> <li>• data preparation, such as test accounts and test transactions, and</li> <li>• required equipment and software.</li> </ul>
IMI-073	The Training Plan shall reflect the need for multiple sessions of each training module/course, such that some Joint Board Representatives staff can attend training, while others are handling existing operations.
IMI-074	TSP2 shall include as part of the Training Plan all IVR scripts to be used by CSR's. Scripts should be submitted as a standalone deliverable as part of the Training Plan, and shall be updated as needs change throughout the project.

#### Master Staffing Plan

Req. #	Requirement
IMI-075	TSP2 shall develop and submit a Master Staffing Plan for review and approval by the Joint Board Representatives that identifies all Project staffing requirements and responsibilities.
IMI-076	TSP2 shall furnish and maintain adequate and sufficient personnel, equipment, supplies, transportation, and material to perform the services, when and as required, and without delay to meet the requirements and the Contract.
IMI-077	TSP2 shall provide the required Key Personnel for the administration and day-to-day management of the BOS and CSC. These Key Personnel shall be dedicated full-time to the BOS and CSC.
IMI-078	TSP2 shall ensure Key Personnel are readily accessible to the Joint Board Representatives during the term of this Contract.
IMI-079	TSP2's Master Staffing Plan shall cover for all areas of the operation including, but not limited to the following areas: <ul style="list-style-type: none"> <li>• recruitment process,</li> <li>• pre-employment testing (to identify skill sets for staffing),</li> <li>• employee training program,</li> <li>• employee retention program,</li> <li>• employee monitoring and coaching, and</li> <li>• employee termination process.</li> </ul>
IMI-080	The Master Staffing Plan shall describe how TSP2 plans to address growth and reduction of staffing levels as the methods that customers are using to communicate evolve.
IMI-081	The Master Staffing Plan shall indicate how TSP2 plans to effectively use skill-based staffing to handle customers in the most efficient way possible. TSP2 shall closely manage staffing levels for skill sets to ensure that they match the customer needs.

#### Maintenance Plan

Req. #	Requirement
	TSP2 shall develop and submit the BOS Maintenance Plan to the Joint Board Representatives for review and approval. The plan shall define the approach to services, staffing and resources, necessary to fulfill the BOS Maintenance Requirements. The plan shall identify TSP2's maintenance responsibilities; including, but not limited to: <ul style="list-style-type: none"> <li>• organizational structure, organizational chart, job descriptions and responsibilities;</li> <li>• staffing plan,</li> <li>• detailed BOS monitoring requirements,</li> <li>• staff schedule and locations,</li> <li>• third-party support,</li> <li>• schedule of all BOS maintenance activities,</li> </ul>



Req. #	Requirement
IMI-082	<ul style="list-style-type: none"> <li>• description of all BOS maintenance related communication methods,</li> <li>• maintenance procedures, communication protocols and approval processes for BOS upgrades, scheduled maintenance activities, change management and scheduled downtime;</li> <li>• maintenance procedures and communications protocols for unscheduled downtime,</li> <li>• communication protocol for coordination with Interoperable Agencies, Third-Party Service Providers and Walk-In Customer Service</li> <li>• issue reporting, tracking and escalation processes;</li> <li>• sample maintenance reports,</li> <li>• PCI-DSS compliance monitoring, upgrades and safeguards;</li> <li>• upgrades to third-party software and tools,</li> <li>• reporting, categorization, prioritization and disposition of software defects, and</li> <li>• documented change control procedures.</li> </ul>

#### Standard Operating Procedures (SOPs)

Req. #	Requirement
IMI-083	<p>TSP2 shall develop and submit SOPs that detail step-by-step activities necessary to complete tasks in accordance with regulations, provincial laws, or standards for operating the Project. The plan shall include, but not limited to:</p> <ul style="list-style-type: none"> <li>• handling of specific customer situations,</li> <li>• safety procedures,</li> <li>• handling of cash, checks and money orders,</li> <li>• opening Account procedures,</li> <li>• closing Account procedures,</li> <li>• refunds,</li> <li>• adjustments,</li> <li>• dismissals,</li> <li>• onboarding,</li> <li>• offboarding,</li> <li>• handling of Credit Cards, and</li> <li>• walk up procedures.</li> </ul>

#### Safety and Security Plan

Req. #	Requirement
IMI-084	<p>TSP2 shall provide a Safety and Security Plan to the Joint Board Representatives for review and approval. The document should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• description of TSP2's plans to ensure the safety and security of all on-site personnel, including employees, Joint Board Representatives, and customers;</li> <li>• description of TSP2's plans to communicate safety and security requirements and procedures with its employees and on-site Joint Board Representatives and customers; and</li> <li>• description of how and when safety and security audits are completed.</li> </ul>

#### End of Contract Transition Plan

Req. #	Requirement
IMI-085	<p>TSP2 shall provide an End of Contract Transition Plan to the Joint Board Representatives for review and approval. The document should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• description of TSP2's proposed plan to efficiently and seamlessly transition BOS data and CSC operations to another Toll Services Providers when TSP2's contract ends, and</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>listing of anticipated tasks and activities needed to perform the transition along with identified responsible party and suggested timeframe for each.</li> </ul>
IMI-086	In preparation for the end of TSP2's contract, TSP2 shall provide an updated End of Contract Transition Plan to the Joint Board Representatives for review and approval when requested by the Joint Board Representatives.

## Analysis

### Future Updated Business Rules

Req. #	Requirement
IMI-087	TSP2 shall conduct as many workshops as needed with the Joint Board Representatives to develop an updated Business Rules document, based on the Joint Board's existing Business Rules (titled "Business Rules and Operational Requirements"). For the sake of clarity, the document developed by TSP2, until approved by the Tolling Body, shall be referred to as the Future Updated Business Rules.
IMI-088	<p>TSP2 shall develop and submit Future Updated Business Rules to the Joint Board Representatives for review and approval, which shall include, but is not limited to:</p> <ul style="list-style-type: none"> <li>detailed Business Rules and operational requirements for all aspects of the Project,</li> <li>detailed description for each Business Rule (if applicable) of all BOS configurable options, ranges and thresholds, clearly identifying which is configurable within the BOS, by an Authorized User, or only by TSP2;</li> <li>categorization of all Business Rules and operational requirements such as constraints and computations, providing indication for the source of each rule and requirement; and</li> <li>BOS and operational impacts of each rule and requirement.</li> </ul>
IMI-089	TSP2 shall coordinate the review and update of the Future Updated Business Rules on an annual basis, or as changes made to the system necessitate an update to be made.

### Requirements Traceability Matrix (RTM)

Req. #	Requirement
IMI-090	<p>Based on requirements specified herein, requirements resulting from TSP2's proposed functionality approved by the Joint Board Representatives, and requirements resulting from the Future Updated Business Rules document approved by the Joint Board Representatives, TSP2 shall develop and submit a Requirements Traceability Matrix (RTM) to the Joint Board Representatives for review and approval. For each Project requirement, the RTM shall provide details including, but not limited to:</p> <ul style="list-style-type: none"> <li>listing and categorization for each requirement,</li> <li>identification of the source for each requirement,</li> <li>where applicable, identification of the section of the FSD and SDD that addresses how the requirement will be met, and</li> <li>where applicable, identification of the test procedure(s) and test case(s) that comprehensively test the requirement.</li> </ul>

## Design

Req. #	Requirement
IMI-091	TSP2 shall conduct multiple iterative workshops to confirm the Project's ultimate requirements and document the resulting design solution. The iterative series of workshops shall continue until the complete design is approved by the Joint Board Representatives.
IMI-092	Prior to conducting any workshop, TSP2 shall submit workshop documentation to the Joint Board Representatives for review and preparation.
IMI-093	TSP2 shall update the RTM to reflect any changes to the requirements, which have been approved by the Joint Board Representatives during the design and development of the software. The RTM shall be updated and submitted along with updated FSD, SDD, Test Procedures, and Test Cases that shall contain tracking to each RTM Requirement.
IMI-094	During design and testing, the TSP2 shall use the baseline RTM to verify compliance to the requirements and successful completion of test procedure.
IMI-095	Upon approval of the baseline RTM, this document shall be used by TSP2 as the basis for design, development and testing.
IMI-096	<p>TSP2 shall conduct a series of specific workshops, with the Joint Board Representatives, to design the Project's reports, as required by the Joint Board. As part of the reports design process, TSP2 shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>employ an effective iterative methodology for designing and finalizing the reports for the Project,</li> </ul>



Req. #	Requirement
IMI-096	<ul style="list-style-type: none"> <li>bring subject matter experts to the workshops, including maintenance and finance staff, as appropriate, for the report type(s) being reviewed during the meeting, and</li> <li>develop/modify reports based on the Joint Board Representatives feedback and submit the updated reports for review and approval.</li> </ul>
IMI-097	<p>TSP2 shall conduct a series of workshops with the Joint Board Representatives, to design workflows, reports, financial mappings (e.g., GL, SL, and COA mappings), and the Graphical User Interface (GUI) screens for the Self-Service Website. As part of the GUI screens design process, TSP2 shall at a minimum:</p> <ul style="list-style-type: none"> <li>employ an effective iterative methodology for designing and finalizing the GUI screens for the Project,</li> <li>bring subject matter experts to the workshops, such as user experience experts and front-end architects;</li> <li>provide different options for screen mockups, reports, screen controls, user actions and application behavior, as well as overall look and feel, and</li> <li>develop/modify GUI screens, based on the Joint Board Representatives feedback, and submit the updates for review and approval.</li> </ul>
IMI-098	TSP2 shall provide a detailed transaction flow diagram showing the path a transaction will take from the time it is received to its final disposition. This flow diagram shall include all decision points along the transaction lifecycle. TSP2 shall work with the Joint Board Representatives on the development of this diagram during the design phase of the Project.
IMI-099	The BOS shall track the status of each non-transaction through its lifecycle as indicated in the transaction flow diagram. The status shall include both interim and final status. TSP2 shall work with the Joint Board Representatives on the development of these statuses during the design phase of the Project.

#### Functional Specifications Document (FSD)

Req. #	Requirement
IMI-100	<p>TSP2 shall develop and submit a Functional Specifications Document (FSD) to the Joint Board Representatives for review and approval. The FSD shall describe the detailed functional BOS design, which describes how the Project's requirements will be met in the BOS. The FSD shall include system and user interface screen diagrams, reports, figures and tables, and contain the following; including, but not limited to:</p> <ul style="list-style-type: none"> <li>overall business objective and high-level requirements,</li> <li>system overview that shows the overview of the system components and how they align with the high-level requirements and business objectives,</li> <li>high-level conceptual design, such as a diagram of the system components affected, including any data flows between the applications;</li> <li>common system behavior including navigation controls, menu structures and access to help that impact certain BOS function, or all BOS functions;</li> <li>detailed use cases that show the behavior of the system with data flows,</li> <li>details of system changes required clearly indicating existing functionality, configured or customized;</li> <li>detailed user process maps/flows with any alternate paths,</li> <li>user interface screens, including screen mockup, reports, screen controls, user actions and application behavior;</li> <li>interface specification, including purpose, whether it's new or existing, sender, receiver, frequency and format;</li> <li>non-functional requirements and how they will be delivered (examples include: performance, audit control, security configuration), and</li> <li>high-level test conditions and relevant descriptions.</li> </ul>
IMI-101	TSP2 shall include as part of the FSD all configurable items within the BOS. Document, which should note current configuration value, minimum configuration value, and maximum configuration value, should be submitted as a standalone deliverable and shall be updated throughout the project.

#### Software Design Document (SDD)

Req. #	Requirement
	<p>The SDD shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>BOS architecture, including equipment layout diagrams;</li> <li>data backup systems design, including sizing and processing calculations;</li> <li>server design, including sizing and processing calculations;</li> <li>requirements for all peripheral device Interfaces and control;</li> <li>detailed desktop computer hardware configurations;</li> <li>detailed desktop computer software configurations;</li> <li>disaster recovery design, including Servers, storage, network, database, third-party Interfaces, and application;</li> <li>transaction processing design, including sizing and processing calculations;</li> <li>software provided by TSP2 or a third-party;</li> </ul>



Req. #	Requirement
IMI-102	<ul style="list-style-type: none"> <li>documentation required per PCI/PII;</li> <li>software dependencies and inter-dependencies;</li> <li>detailed Interface specifications between all software components;</li> <li>design of all external BOS interfaces (both sides of the Interface), including electronic interface portals for Interoperable Agencies, Third-Party Service Providers and existing Joint Board systems;</li> <li>formal and standard Interface Control Documents (ICDs) for all external Interfaces documenting both sides of the interface;</li> <li>detailed data warehouse data dictionary;</li> <li>user interfaces, including reports and screen formats;</li> <li>BOS Data Dictionaries;</li> <li>format of all correspondence for all channels;</li> <li>account management design and categories;</li> <li>Self-Service Website site map;</li> <li>financial transaction processing;</li> <li>data flow diagrams, state diagrams and data queues;</li> <li>BOS performance monitoring design;</li> <li>access/identity security methodology; and</li> <li>logical division and an index of all contents within the SDD.</li> </ul>
IMI-103	The SDD shall demonstrate how the BOS design meets the functional, technical and performance requirements of the Contract, while providing a high-quality and reliable product.
IMI-104	TSP2 shall use the RTM, Future Updated Business Rules, FSD and other relevant documents to develop the SDD.
IMI-105	TSP2 shall conduct multiple review cycles and SDD revisions, as necessary until the Joint Board Representatives are satisfied with how the SDD will meet the Project requirements.
IMI-106	The SDD shall include the use of diagrams, figures and tables, and it shall apply to all environments, including production, disaster recovery, data warehouse, training, testing, development, reporting and pre-production/user acceptance test.

Reports Design Document (RDD)

Req. #	Requirement
IMI-107	<p>Based on requirements specified herein, TSP2 shall provide a Reports Design Document (RDD) to the Joint Board Representatives for review and approval. The RDD shall be a collection of all proposed reports to meet the specified requirements (see Form K Section 13 – Reporting). Reports shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>financial reporting,</li> <li>operational reporting,</li> <li>settlement and reconciliation reporting, and</li> <li>system monitoring reporting.</li> </ul>

Notifications Manual

Req. #	Requirement
IMI-108	<p>TSP2 shall provide a Notifications Manual to the Joint Board Representatives for review and approval. The Notifications Manual shall be a collection of all proposed customer correspondence (both physical mail and electronic). Correspondence shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>Monthly Billing Statements,</li> <li>Credit Card declined,</li> <li>new Account,</li> <li>Account closure,</li> <li>vehicle registration block/hold,</li> <li>Payment Plan, and</li> <li>Excessive VTolls.</li> </ul>

Performance Contract Document (PCD)



Req. #	Requirement
Req. #	Requirement
IMI-109	<p>TSP2 shall provide a Performance Contract Document to the Joint Board for review and approval. The PCD shall be a collection of all required KPI's per the Contract, and how TSP2 plans to calculate and report on said KPI's. The document should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• requirement,</li> <li>• definition,</li> <li>• target,</li> <li>• formula,</li> <li>• example report, and</li> <li>• calculation of liquidated damage.</li> </ul>

#### Facilities Buildout Design Plan

Req. #	Requirement
IMI-110	TSP2 shall provide a Facilities Buildout Design Plan to the Joint Board for review and approval.

#### Development and Testing Demonstrations

Req. #	Requirement
IMI-111	TSP2 shall conduct a series of BOS demonstrations, as required by the Joint Board Representatives and/or as requested by TSP2. Demonstrations shall include, step-by-step walkthroughs of specific functionality, to solicit input from the Joint Board Representatives, and to confirm the development direction as the BOS software is developed.
IMI-112	Prior to a BOS demonstration, TSP2 shall develop and submit the use cases that will be demonstrated to the Joint Board Representatives for review and approval. Actual transactions and images from each of the Joint Board's toll locations shall be utilized for the walkthrough, where possible. The walkthrough shall emulate typical operations.
IMI-113	TSP2 shall show the Joint Board Representatives through BOS demonstrations how the developed software product meets the applicable Project requirements.
IMI-114	TSP2 shall demonstrate modified, and new reports, using accurate and reconciled production data. Reports that are expected to reconcile to one another shall be demonstrated together. Related summary and detailed reports shall be demonstrated together.
IMI-115	The comments and feedback provided during the BOS demonstrations shall be documented and resolved by TSP2, in an approved timeframe, and the resolution shall be approved by the Joint Board Representatives.

#### Test Procedures and Test Cases/Scenarios

Req. #	Requirement
IMI-116	<p>TSP2 shall provide detailed test procedures, prior to the start of testing, for the Joint Board Representatives review and approval, for each testing phase outlined in the QAMTP; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• purpose, scope, and location of each test;</li> <li>• test cases with detailed test steps with expected outcomes,</li> <li>• use cases/scenarios/conditions being tested,</li> <li>• test entry and exit criteria,</li> <li>• test preparation,</li> <li>• test data creation,</li> <li>• necessary facilities; materials and supplies as applicable;</li> <li>• necessary personnel, and</li> <li>• necessary hardware and software.</li> </ul>



Req. #	Requirement
IMI-117	TSP2 shall update the RTM, linking every requirement to test case(s), to demonstrate the requirement has been satisfied and which test(s) satisfied the requirement.
IMI-118	TSP2 shall produce a set of regression test procedures and test cases that will be exercised each time software changes are made to the BOS.

#### Testing Overview

Req. #	Requirement
IMI-119	TSP2 shall provide the test results of their internal tests before the start of the System Integration Test (SIT) in order to provide evidence that the test cases covered all relevant Contract requirements.
IMI-120	TSP2 shall document and track all issues identified, as part of the BOS testing, and any subsequent actions taken to correct those issues in a TSP2-provided issue tracking system. TSP2 shall obtain the Joint Board Representatives approval on the proposed issue tracking system. TSP2 shall perform the following; including, but not limited to: <ul style="list-style-type: none"> <li>• categorize issues,</li> <li>• log the date/time the issue was reported,</li> <li>• log the user who reported the issue,</li> <li>• provide a description of the erroneous behavior,</li> <li>• upload screenshots, videos and related information to show the erroneous behavior;</li> <li>• provide the details on how to reproduce the issue, and</li> <li>• generate reports and provide to the Joint Board Representatives.</li> </ul>
IMI-121	The priority rating of a logged issue shall be determined by the Joint Board Representatives and TSP2.
IMI-122	TSP2 shall include the Joint Board Representatives in all testing throughout the course of implementation and operations.

#### Testing Sequence and Logistics

Req. #	Requirement
IMI-123	TSP2 shall conduct all test and shall provide all necessary resources to support the tests, including: <ul style="list-style-type: none"> <li>• all necessary hardware and software for the test, and</li> <li>• all necessary personnel for the test.</li> </ul>
IMI-124	Subject to the Joint Board Representatives approval of the final Quality Assurance and Master Test Plan (QAMTP), TSP2 shall support the following sequence of test stages: <ul style="list-style-type: none"> <li>• Functionality Assurance Test (FAT)</li> <li>• System Integration Test (SIT), including Interface Test and Load Test</li> <li>• User Acceptance Test</li> <li>• Operational and Acceptance Test</li> </ul>
IMI-125	TSP2 shall setup the BOS, create all test data and successfully execute all test cases.
IMI-126	TSP2 shall give the Joint Board Representatives full access to results of each test. Testing shall not be considered complete by the Joint Board Representatives until all issues are closed, and the final test report is approved by the Joint Board Representatives.
IMI-127	TSP2 shall meet the entry conditions prior to start of each test; including, but not limited to: <ul style="list-style-type: none"> <li>• completion of all predecessor tests,</li> <li>• defined test procedures and test cases,</li> <li>• approved test schedule,</li> <li>• successful dry-run testing (performed prior to the beginning of each test stage to ensure that the code, data, access and environment is ready);</li> <li>• confirmation of attendance of any Joint Board Representative, and</li> <li>• BOS is ready to test.</li> </ul>
IMI-128	TSP2 shall submit a test report, which documents the testing results within the approved calendar days after completion of each test, for the Joint Board Representatives review and approval.
IMI-129	The test reports shall include the results of the test, any issues identified, comments provided by the Joint Board Representatives, the test data and the corrective action/resolution of each item, as well as the results and evidence of regression tests necessary to successfully complete each test stage.
IMI-130	A test stage shall not be considered complete by the Joint Board Representatives until all issues are closed and the final test report is approved by the Joint Board Representatives.



Req. #	Requirement
IMI-131	The Joint Board Representatives approval of any test shall not relieve TSP2 of its responsibility to meet the full requirements of the Contract.
IMI-132	TSP2 shall perform ongoing Data Migration Testing during the implementation phase, based on the Data Cleansing and Migration Plan. Migrated data shall be required and used to conduct the System Integration Test and the User Acceptance Test. All data migration shall be complete and successful tested, and the test results shall be provided to the Joint Board Representatives for their review and approval.

#### Functionality Assurance Test (FAT)

Req. #	Requirement
IMI-133	Upon installation of the production equipment, TSP2 shall conduct a Functionality Assurance Test (FAT) that demonstrates basic functionality on the production equipment.
IMI-134	Functionality to be demonstrated during the FAT shall be documented in the QAMTP and decided on between the Joint Board Representatives and TSP2.
IMI-135	Data to be used during FAT shall be test data and sufficient to meet the required testing.
IMI-136	TSP2 shall demonstrate during FAT, but not be limited to: <ul style="list-style-type: none"> <li>• basic screen and GUI layout,</li> <li>• basic transaction lifecycle (processing, rejection, posting, reversals, etc.),</li> <li>• account creation and account features,</li> <li>• account notifications,</li> <li>• reporting,</li> <li>• MBS creation and aging,</li> <li>• inventory management, and</li> <li>• user access (permission assignment)</li> </ul>

#### Data Cleansing and Migration Test (DCMT)

Req. #	Requirement
IMI-137	TSP2 shall conduct DCMT and transition data to the BOS production environment, in accordance with DCMP and approved schedule.
IMI-138	TSP2 shall perform ongoing DCMT during the implementation phase, to confirm that all data elements are transformed and loaded in the BOS accurately.
IMI-139	A periodic update on the data migration progress shall be provided by TSP2, in the form of a test report that provides details of progress made against the total volume of data and data elements that are in the approved data migration scope.
IMI-140	TSP2 shall migrate sufficient data, from TSP1 to the BOS, for executing system Integration Test and User Acceptance Test. It is expected that a substantial amount of data shall be migrated, and the actual data to be migrated will be defined in the design stage.
IMI-141	Before migration of data to BOS Production, TSP2 shall provide evidence of readiness to conduct data migration and transition (in conformance with the approved QAMTP, detailed testing procedures and project schedule); including, but not limited to: <ul style="list-style-type: none"> <li>• confirmation that TSP2's ETL processes and tools are adequate to ensure data accuracy and migration completeness,</li> <li>• confirmation that data from the Joint Boards legacy system(s) has been corrected and transformed for BOS compatibility, in accordance with the BOS requirements;</li> <li>• confirmation that all data types that need to be migrated have been tested and verified,</li> <li>• readiness of all necessary hardware and software for the data migration process,</li> <li>• availability of all necessary personnel for the test; and</li> </ul> updated DCMT and any other project documentation.



Req. #	Requirement
<b>System Integration Test (SIT)</b>	
Req. #	Requirement
IMI-142	The migration of the data from TSP1 to the BOS shall be one entry criteria to commence the System Integration Test (SIT).
IMI-143	<p>TSP2 shall conduct SIT to demonstrate the BOS meets all contract requirements. SIT shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• testing to demonstrate all technical and Interface elements of the BOS are fully integrated,</li> <li>• testing all functional elements of the BOS (fully integrated) for conformance with the requirements, approved design and Business Rules;</li> <li>• testing using data migrated from the Joint Boards legacy system,</li> <li>• testing all internal Interfaces to the Joint Boards systems, where applicable;</li> <li>• testing all external Interfaces, such as Interoperable Agencies and Third-Party Service Providers;</li> <li>• testing to ensure MBS are accurate, have the right format, and have been generated in the volumes and timelines expected by the business users;</li> <li>• testing customer portals,</li> <li>• testing and validating all reports, and</li> <li>• testing the desktop computer Interfaces and all peripherals.</li> </ul>
<b>Load Test</b>	
Req. #	Requirement
IMI-144	TSP2 shall perform the load test, as part of SIT, simulating users (per performance requirements) concurrently in all channels, such as the Joint Board's internal users, customer portals and Third-Party Service Providers.
IMI-145	TSP2 shall develop a load test plan as part of QAMTP.
IMI-146	<p>TSP2 shall load test the BOS with the following load:</p> <ul style="list-style-type: none"> <li>• processing of transactions at 300%, or more, of current and projected transaction volumes, as defined in performance requirements, to completely and thoroughly replicate the full range of BOS operations, and;</li> <li>• simulated user activity for concurrent users from all channels.</li> </ul>
IMI-147	<p>During the load test, the BOS shall meet the following requirements; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• no more than three (3) seconds, on average, from beginning the submittal of information to the BOS and the BOS being again responsive and ready for data entry or navigation;</li> <li>• sub-one (1) second, on average, for the BOS to completely navigate between screens (general screen navigation), and;</li> <li>• no more than five (5) seconds, on average, from the request that accesses the BOS's primary database to the complete display of a typical set of results (from a search that spans data for a maximum of six (6) months).</li> </ul>
<b>User Acceptance Test (UAT)</b>	
Req. #	Requirement
IMI-148	Prior to the start of the User Acceptance Test (UAT), TSP2 shall provide a guided walkthrough of the BOS to the Joint Board Representatives.
IMI-149	The migration of the data from TSP1 to the BOS shall be one entry criteria to commence the User Acceptance Test.
IMI-150	<p>TSP2 shall execute the UAT in order to demonstrate the BOS meets all Contract requirements. UAT shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• testing all functional elements of the BOS, including end-to-end testing from receipt of transactions through Posting to the financial accounts, validation of migrated data, testing of user interfaces, limited parallel testing (with the existing BOS, to the extent possible), and report's testing using migrated, simulated and keyed-in data, and demonstrating conformance with the contract requirements, approved design and Business Rules;</li> <li>• testing using data migrated from the Joint Board's legacy system(s),</li> <li>• simulated Interfaces and data, to validate the data exchange in the event the Interoperable Agencies and Third-Party Service Providers test environment systems are not available;</li> <li>• testing all internal Interfaces to the Joint Boards systems, where applicable;</li> <li>• testing to ensure MBS are accurate, have the right format, and have been generated in the volumes and timelines expected;</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>• testing customer portals,</li> <li>• testing, validating and reconciling all report;</li> <li>• testing the desktop computer Interfaces and all peripherals,</li> <li>• Penetration, Vulnerability and Exploitation Tests, performed by a PCI Approved Scanning Vendor (ASV);</li> <li>• completion of all PCI compliance steps,</li> <li>• verification of procedures for disaster recovery failover,</li> <li>• verification of procedures for rollback to legacy system,</li> <li>• usability testing to confirm the BOS meets the Joint Boards requirements, and</li> <li>• support testing of all business requirements by the user.</li> </ul>

#### Go-Live Readiness

Req. #	Requirement
IMI-151	<p>Before the Operational and Acceptance Test, TSP2 shall meet the Go-Live entry criteria and provide evidence of completion and approval of the following; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• the Start of Contract Transition Plan,</li> <li>• all pre-Go-Live BOS activities per the Start of Contract Transition Plan,</li> <li>• readiness to execute the Start of Contract Transition Plan activities required to be completed after Go-Live,</li> <li>• detailed Go-Live sequence of events needed to Go-Live,</li> <li>• infrastructure readiness, including Load Test results that show that the system meets stated objectives;</li> <li>• FAT, SIT, and UAT completion;</li> <li>• disaster recovery and rollback to legacy system testing per the Joint Boards requirements,</li> <li>• all users trained,</li> <li>• data readiness, including test report that show that all data has been successfully migrated;</li> <li>• user access readiness showing browser versions, client applications, application icons/shortcuts, and roles have been setup and tested;</li> <li>• resolution to all issues, except as agreed to by the Joint Board Representatives;</li> <li>• priorities assigned to all open issues, and</li> <li>• updated Project Schedule showing all tasks have been completed that were expected to be completed before Go-Live.</li> </ul>
IMI-152	The Joint Board Representatives reserve the right to review and determine whether TSP2 has met Go-Live readiness entry criteria, based on the number and impact of open issues.
IMI-153	TSP2 shall provide as-built documentation, as part of Go-Live readiness, and update as needed throughout the contract, as part of post-implementation
IMI-154	The key as-built documentation shall include the RTM, Future Updated Business Rules, FSD, SDD, QAMTP, test procedures and test cases, Maintenance Plan, Installation Plan, Data Cleansing and Migration Plan, Start of Contract Transition Plan, Disaster Recovery Plan and BOS User Manuals, which includes all software changes made during the BOS development and testing stages.

#### Operational and Acceptance Test

Req. #	Requirement
IMI-155	<p>Following Go-Live, TSP2 shall conduct the Operational and Acceptance Test in the BOS production environment; including, but not limited to:</p> <ul style="list-style-type: none"> <li>• verification that all functional elements of the BOS are in conformance with the contract requirements, approved design and Business Rules without open issues, except as agreed to by the Joint Board Representatives, for a period of ninety (90) calendar days;</li> <li>• successful receipt of images from the existing roadway systems and receipt of the transactions,</li> <li>• reconciliation of all BOS Data, for a period of ninety (90) calendar days, to verify all data and accounts are being properly processed, reported on and reconciled;</li> <li>• reconciliation of all transaction and image workflows, and filters to verify that all transactions and images are being accurately processed through the BOS;</li> <li>• reconciliation of all account postings, financial transactions and events to account history entries;</li> <li>• reconciliation of all financial accounts in the BOS for three (3) consecutive monthly financial periods,</li> <li>• verification of MBS,</li> <li>• adherence to required financial audit and reconciliation requirements,</li> <li>• adherence to required BOS performance requirements and reporting,</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>as-built project documentation updates, and</li> <li>regression testing after any change to the BOS;</li> </ul>
IMI-156	At the Joint Board Representatives discretion, if high priority (P0, P1 or P2) issues are identified, the ninety (90) calendar days period shall restart.

#### System Acceptance

Req. #	Requirement
IMI-157	TSP2 may ask the Joint Board for System Acceptance at the completion of the Operational and Acceptance Test.
IMI-158	Upon the Joint Board Representatives granting of System Acceptance, the Post-Implementation Phase shall begin.

## 22. Training

### Training Program Overview

TRG-001	TSP2 shall provide annual training courses, identified below for the Joint Board Representatives.
TRG-002	All BOS training shall include a review and description of each of the appropriate BOS processes and Standard Operating Procedures (SOPs), using the actual BOS Software, including appropriate training assessments.
TRG-003	<p>TSP2 shall be solely responsible for supplying all necessary items to conduct training including, but not limited to:</p> <ul style="list-style-type: none"> <li>training manuals,</li> <li>user manuals,</li> <li>guides,</li> <li>training aids, and</li> <li>training assessments.</li> </ul>
TRG-004	<p>TSP2's training program shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>live,</li> <li>web-based,</li> <li>self-paced, or</li> <li>recorded training.</li> </ul>
TRG-005	The Joint Board Representatives shall have access to copies of all training program materials for their use in training employees.

### High-Level BOS Functional Overview Course

TRG-006	TSP2 shall provide a hands-on BOS Overview training course for the Joint Board Representatives that provides a general overview of all aspects of the operations.

### Finance and Financial Controls Course

Req. #	Requirement
TRG-007	TSP2 shall provide a hands-on BOS financial controls course for the Joint Board Representatives with a focus on financial accounting, reconciliation, audit and management.

### Customer Service Center (CSC) Operations Course

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Req. #	Requirement
Req. #	Requirement
TRG-008	TSP2 shall provide a hands-on CSC Operations course for the Joint Board Representatives that covers all aspects of the CSC functions and operations.

#### Operational Users Course

Req. #	Requirement
TRG-009	TSP2 shall provide a hands-on BOS operational user training course for the Joint Board Representatives that provides instruction on how to access information and all reports from the BOS.

#### IT Support Training Program

Req. #	Requirement
TRG-010	TSP2 shall ensure the Joint Board Representatives staff are properly trained on BOS technology specifics. TSP2 shall provide classroom and on-the-job training to all personnel in their respective area of responsibility.
TRG-011	TSP2 shall provide various training programs that include, but are not limited to: <ul style="list-style-type: none"> <li>• in-depth explanation of the BOS operations, including all Interfaces, file transfers and interconnections;</li> <li>• tools to manage tasks,</li> <li>• troubleshooting, diagnostics, repairs, testing and maintenance follow up;</li> <li>• BOS dataflow and workflow queues,</li> <li>• explanation of the dashboard data and analysis,</li> <li>• special use and monitoring tools, and</li> <li>• queries and reports.</li> </ul>

#### Training Materials and Aids

Req. #	Requirement
TRG-012	Draft copies of all training materials shall be submitted by TSP2 to the Joint Board Representatives for review, comment and approval, prior to the required training.
TRG-013	TSP2 shall submit electronic versions of all TSP2-developed training materials, for each course described in the section above, in a Joint Board-acceptable format. These materials shall be editable for the Joint Board Representatives use, as needed. Additionally, TSP2 shall provide updated training materials which address changes in the BOS during the implementation and maintenance phases.
TRG-014	For each course, TSP2 shall provide: <ul style="list-style-type: none"> <li>• course agenda,</li> <li>• course objectives,</li> <li>• exercises,</li> <li>• copies of all overheads and visuals,</li> <li>• lesson outlines and summaries, and</li> <li>• assessments.</li> </ul>
TRG-015	TSP2 shall supplement the material provided with additional material, as necessary, such as operations and user manuals. If such material is used, appropriate cross-references shall be included to identify the complete set of training materials provided to the student.
TRG-016	TSP2 shall provide a way for all trained personnel to access training documents, aids and tips in an online, electronic format for ongoing reference.

#### User Manuals

Req. #	Requirement
	TSP2 shall provide manuals for training purposes. Each manual shall include, but not be limited to:



Req. #	Requirement
TRG-017	<ul style="list-style-type: none"> <li>• title sheet,</li> <li>• revision history,</li> <li>• table of contents,</li> <li>• list of illustrations (if applicable),</li> <li>• list of reference drawings and exhibits (if applicable),</li> <li>• screen images detailing the step-by-step activities needed to fulfill a specific functionality,</li> <li>• flowcharts to provide the BOS staff a clear understanding of the workflow,</li> <li>• all screens, reports and data fields, clearly explained using sample formats applicable to the BOS, and</li> <li>• examples of all reports, included in the manual, or as an attachment to the manual, with any specific instructions that may apply to a given report.</li> </ul>
TRG-018	TSP2 shall develop manuals logically to cover job categories and functions. The manuals shall detail all processes, procedures and policies developed by the TSP2, which are required to fulfill the requirements for each of these categories and functions. An example of a functional area is finance, which should include all basic financial responsibilities and functions, including reconciliation.
TRG-019	All manuals shall have a consistent look and feel, using the Joint Board's terminology and referring to the Joint Board's processes, and shall be professionally written and presented in clear and organized fashion.
TRG-020	All manuals shall be editable by the Joint Board Representatives. In addition, electronic copies of manuals shall be provided in unsecured Portable Document Format (PDF).
TRG-021	All manuals shall be maintained in a searchable electronic format.
TRG-022	TSP2 shall submit the draft, and final manuals described below, for the Joint Board Representatives review and comment, in accordance with the approved Project Management Plan.
TRG-023	All the manuals delivered under this contract shall become the property of the Joint Board.
TRG-024	TSP2 shall deliver the manuals in a timely manner, based on the Project Management Plan, and to allow for the Joint Board Representatives review and approval before training delivery. They should also be updated on an ongoing basis, based on changes to the BOS, per post-implementation requirements, and for the duration of the contract.

#### Third-Party Documentation

Req. #	Requirement
TRG-025	<p>TSP2 shall provide and maintain standard, commercially available, updated documentation for third-party provided hardware, software, services and materials provided under this contract. This set of third-party documentation shall be available to the Joint Board Representatives for the duration of this contract. Third party documentation shall include, but not limited to:</p> <ul style="list-style-type: none"> <li>• all user manuals,</li> <li>• warranty documentation,</li> <li>• installation manuals,</li> <li>• interface documents, and</li> <li>• any other information required to utilize the software, such as the operating system, utilities, programming languages, application software and communications software.</li> </ul>

#### Knowledge Management System

Req. #	Requirement
TRG-026	<p>The BOS shall provide a Knowledge Management System (KMS), as part of or along with the CRM solution, which will store and provide access to information including, but not limited to:</p> <ul style="list-style-type: none"> <li>• the BOS procedures and processes,</li> <li>• Business Rules,</li> <li>• SOPs,</li> <li>• training materials,</li> <li>• desktop procedures and user manuals;</li> <li>• technical references, such as data dictionaries and BOS release notes, and</li> <li>• the Joint Board's guideline and best practices documents.</li> </ul>
TRG-027	The BOS shall restrict update access to the Knowledge Management System to Authorized Users.
	The KMS database shall be:



Req. #	Requirement
TRG-028	<ul style="list-style-type: none"> <li>searchable using both natural language text and structured queries, and</li> <li>contain hyperlinks for easy navigation between topics.</li> </ul>
TRG-029	The information contained in the KMS shall be developed by the TSP2 with support from the Joint Board Representatives.

## 23. Maintenance and Software Support Services

### Maintenance Services

#### Maintenance Process and Documentation Requirements

Req. #	Requirement
MSS-001	<p>TSP2 shall provide a maintenance system and processes, per the Maintenance Plan approved by the Joint Board Representatives, that provide, but are not limited to:</p> <ul style="list-style-type: none"> <li>issue tracking and reporting,</li> <li>issue priority setting, and</li> <li>issue Alerts.</li> </ul>
MSS-002	TSP2 shall update the Maintenance Plan to reflect any changes to the policies or procedures developed by the Joint Board Representatives, and/or regulatory/compliance procedures for the BOS maintenance services. A final submittal of the updated Maintenance Plan shall be provided for approval one year after Go-Live and updated annually.
MSS-003	TSP2 shall submit a plan for performing preventive maintenance services to the Joint Board Representatives for approval within a minimum of fifteen (15) calendar days in advance of performing the preventative maintenance services, which shall be scheduled for times when the CSC is not operating.
MSS-004	TSP2 shall obtain approval in advance from the Joint Board Representatives to perform any maintenance services (corrective, preventive, and upgrades) during the CSC's operating hours and that are not part of the approved preventive maintenance schedule.
MSS-005	TSP2 shall post a notice approved by the Joint Board Representatives on all customer portals seventy-two (72) hours in advance of an outage to make customers aware that certain BOS or CSC services will be unavailable.
MSS-006	TSP2 shall obtain approval in advance from the Joint Board Representatives for performing any emergency corrective maintenance services that requires a BOS or CSC service to be made unavailable. TSP2 shall post a notice approved by the Joint Board Representative on the customer portals to make customers aware of the impending outage as applicable and as soon as possible.
MSS-007	Following any maintenance services performed on the systems, TSP2 shall submit documentation confirming the systems are back to normal operations. Documentation should show tests performed and the results of those tests.
MSS-008	TSP2 shall be responsible for maintaining project documentation as necessary to remain current with project updates (examples: Business Rules, Training Plan, Maintenance Plan, Reports, Standard Operating Procedures, etc.). All updates shall be reviewed and approved by the Joint Board
MSS-009	TSP2 shall be responsible for maintaining and providing ongoing support for system user access to the BOS system and any subsystems to the BOS.

#### System Monitoring

Req. #	Requirement
MSS-010	<p>TSP2 shall provide services that include continuous real-time (24x7) monitoring, system administration, and maintenance related activities, to ensure the BOS performance and availability are in accordance with the Contract requirements. This shall include, but is not limited to:</p> <ul style="list-style-type: none"> <li>monitoring backups (system and database),</li> <li>monitoring BOS notifications/alerts and initiating corrective actions in response to maintenance events and incidents,</li> <li>monitoring and maintaining BOS application jobs/processes, transaction processing, image processing (various stages of workflow), file transfers, exception handling, and other processes;</li> <li>monitoring of error logs and system logs, to ensure that any errors are caught and acted upon, and all processes and transactions are completed in a timely manner, per performance requirements;</li> <li>monitoring and maintaining all system environments (e.g., production, testing, training, etc.), as applicable,</li> <li>accepting, acknowledging, reviewing, resolving, tracking, and creating TSP2's service tickets, when problems are reported by users, and</li> <li>tracking and communicating to the Joint Board Representatives in a timely manner (based on established priorities approved by the Joint Board Representatives) the BOS's failure to meet KPIs.</li> </ul>
	<p>TSP2 shall provide an adequate number of resources that shall perform maintenance services that include responding to ad-hoc requests from the Joint Board Representatives and performing maintenance tasks to help with the management of support tickets and activities. TSP2's responsibilities shall include, but are not limited to:</p> <ul style="list-style-type: none"> <li>creating ad-hoc reports requested by the Joint Board Representatives,</li> <li>creating audit reports requested by the Joint Board Representatives,</li> </ul>



Req. #	Requirement
MSS-011	<ul style="list-style-type: none"> <li>generating queries requested by the Joint Board Representatives,</li> <li>deploying to, and updating the database, software infrastructure, and BOS software, in all the system environments;</li> <li>providing real-time BOS status to the Joint Board Representatives, as required;</li> <li>notifying the Joint Board Representatives regarding BOS failures and issues, performance, upgrades, updates, and maintenance;</li> <li>performing asset management and tracking of all BOS-related third-party software licenses, certificates, support and warranty renewal dates (regardless of whether such software is provided by the Joint Board or TSP2), and</li> <li>apprising the Joint Board Representatives of industry IT trends and best industry practices.</li> </ul>

#### Preventative Maintenance

Req. #	Requirement
MSS-012	TSP2 shall provide administration and software support services, including any daily, weekly, monthly or periodic maintenance to maintain the BOS at required performance levels (i.e., indexing, tuning, backing up databases, and archiving and deleting data, in accordance with the Joint Board's Information Retention policy).
MSS-013	<p>TSP2 shall deploy patches during scheduled maintenance, to fix vulnerabilities, defects and improve BOS stability and security. Patches include, but are not limited to:</p> <ul style="list-style-type: none"> <li>security and issue fix patches for database(s),</li> <li>third-party application patches as applicable, and</li> <li>security and issue fix patches for any other equipment, software or interface that may be used to compromise the stability and security of the BOS.</li> </ul>
MSS-014	TSP2 shall deploy regular patches as part of continuous improvement and issue fixes to the BOS. All patches shall be pre-tested first in a pre-production environment to ensure no existing functionality of the BOS (including configurations and customizations) is impacted by a patch. Upon the Joint Board Representatives' approval (which will not relieve TSP2 of its obligations or warranties) the patch shall be deployed to production, within the approved maintenance window.
MSS-015	TSP2 shall, throughout the term of the Contract, make BOS updates necessary to support file formats as changes occur in the information technology industry.
MSS-016	TSP2 shall provide SOC1 and SOC2 Audit reports detailing how TSP2 has sufficient internal controls to meet the Contract requirements. If any gap impacts the operations, TSP2 shall immediately notify the Joint Board Representatives, provide a full assessment report within five (5) calendar days, and provide remediation within those days or a written remediation plan.
MSS-017	TSP2 shall provide services, documentation, and other support as necessary to integrate the BOS and the DR solution and to configure, implement, duplicate, migrate, and validate copies of data and applications, together with all associated security and security appliance systems at a DR site in another geographic region of the U.S. (or a virtual environment) as approved by the Joint Board Representatives. The BOS shall include functionality for ongoing duplication and migration of data and applications to the DR site as necessary to support recovery objectives.
MSS-018	TSP2 shall provide an ongoing Report on Compliance and Attestation of Compliance, based on PCI DSS (and PA-DSS for any payment application, if applicable), from a Qualified Security Assessor, per the Contract requirements, including but not limited to those in the Privacy and Information Security Requirements section of this document. If any gap impacts PCI Compliance, TSP2 shall immediately notify the Joint Board Representatives, provide a full assessment report within five (5) calendar days, and provide remediation within those days.
MSS-019	TSP2 shall conduct and provide a report of the results of a security penetration/vulnerability test monthly, showing how the BOS handles security threats. The vulnerability scan shall be conducted no less than monthly, with additional scans conducted based on security alerts resulting from a new vulnerability, or before a release, as required by the Joint Board Representatives. TSP2 shall address any gaps identified in the report to the Joint Board Representatives' approval/satisfaction.



Req. #	Requirement
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Corrective Maintenance

Req. #	Requirement
MSS-020	<p>All work performed by TSP2 to correct incidents, problems, and failures to meet the Contract requirements shall be considered corrective maintenance. Such problems include, but are not limited to:</p> <ul style="list-style-type: none"> <li>failure of BOS functionality,</li> <li>failure of processes and programs,</li> <li>report failures and issues,</li> <li>logging failures and issues,</li> <li>application and database failures,</li> <li>data and revenue reconciliation failures,</li> <li>failures in transmitting and receiving data,</li> <li>errors and exceptions,</li> <li>BOS or component performance issues,</li> <li>data loss,</li> <li>customer portal outages,</li> <li>high system (disk space, disk input/output operations, CPU, memory, throughput) utilization during normal operations,</li> <li>degraded system health – overall and by sub-system,</li> <li>security events,</li> <li>user inaccessibility, and</li> <li>availability levels that do not conform to the KPIs.</li> </ul>
MSS-021	<p>TSP2 shall perform corrective actions to ensure BOS performance is in accordance with Contract requirements. This shall include, but is not limited to:</p> <ul style="list-style-type: none"> <li>software and database upgrades,</li> <li>fixes to BOS data to correct data failures and issues, as approved by the Joint Board Representatives, analysis of system performance and data, development of issue fixes, security fixes, performance fixes and performance enhancements to the BOS software and applications, and performing unit, system, regression, integration, User Acceptance Testing and load testing as well as obtaining the Joint Board Representatives' approval prior to releasing fixes to the production environment.</li> </ul>
MSS-022	<p>As part of the corrective maintenance, TSP2 shall replace any software, or part or component thereof, which the Joint Board Representatives find defective or deficient, or which the Joint Board Representatives find to have failed to comply with the applicable specifications and requirements.</p>
MSS-023	<p>Without limiting the other provisions of this section, corrective maintenance shall include the following:</p> <ul style="list-style-type: none"> <li>fixes for defects or deficiencies in the BOS that were present during the implementation phase that impact the ability of the BOS to work per the Contract requirements, and</li> <li>fixes for issues in the BOS that were introduced due to changes (e.g., upgrades, updates, enhancements) that impact the ability of the BOS to work per the Contract specifications and requirements at the time of the change.</li> </ul>
MSS-024	<p>The Joint Board Representatives may decline any upgrade without any impact to TSP2's obligation to perform corrective maintenance as to then-existing software, and TSP2 shall continue to provide corrective maintenance on such software. TSP2 shall notify the Joint Board Representatives if the failure to install or implement any security patches or other updates would be reasonably likely to have an adverse impact on the existing features and functionality of the BOS or on the security of the BOS or BOS data.</p>

Software Support Services

Req. #	Requirement
MSS-025	<p>TSP2 shall provide status updates on scope, budget (if applicable) and schedule, when working on any enhancement approved by the Joint Board Representatives. Enhancements shall follow the Software Development Plan.</p>
MSS-026	<p>The software modifications, required to maintain and support the BOS, as a part of the normal course of business, shall not be considered enhancements by the Joint Board Representatives. These modifications include, but are not limited to:</p> <ul style="list-style-type: none"> <li>BOS version changes due to upgrades and updates,</li> <li>configuration or parameter changes,</li> <li>software modifications necessary to ensure BOS is compliant with required standards (e.g., to meet security (PCI DSS/PII), audit and Performance Requirements);</li> <li>investigation and analysis of errors and exceptions, and taking corrective action, including correcting the problem and/or reprocessing the</li> <li>monitoring notifications and initiating corrective actions on application programs to meet the Contract requirements,</li> </ul>



Req. #	Requirement
	<ul style="list-style-type: none"> <li>patches and upgrades to third party software, as used by the BOS; and</li> <li>changes for TSP2's benefit that improve the ability and efficiency to maintain and support the BOS.</li> </ul>
MSS-027	Enhancements to the Website shall be handled through the Change Order process.

#### 24. Customer Service Center (CSC) Operations

##### Operations Requirements

##### General Requirements

Req. #	Requirement
CSC-001	TSP2 shall provide all management, system maintenance, supervisory, financial and CSC operations staff, including qualified management, professional and clerical personnel, to professionally operate and administer the CSC operations in a manner that meets all required KPIs.
CSC-002	All services shall be provided and performed in accordance with all applicable laws, rules, regulations, ordinances, and in compliance with all the Joint Board's policies and guidelines for this Project and such contracted labor.
CSC-003	TSP2 shall put in place the organizational structure and headcount necessary to meet these requirements.
CSC-004	TSP2 shall coordinate with TSP for an orderly hand-off of CSC operations in accordance with approved Start of Contract Transition Plan.
CSC-005	TSP2 shall provide Customer Service Representatives for various marketing events throughout the year. Marketing events shall not exceed 480 hours total over the course of one (1) calendar year.

##### Facilities, Equipment, Furniture and Supplies

Req. #	Requirement
CSC-006	TSP2 shall identify, lease, build-out and outfit an appropriate facility(s) located in TBD to accommodate and support the required and necessary CSC operations including, but not limited to: <ul style="list-style-type: none"> <li>Customer Contact Center (CCC),</li> <li>image review, and</li> <li>Walk Up Center (WUC) operations.</li> </ul>
CSC-007	The facility(s) shall be of appropriate size with free parking to accommodate all the staff, a large conference room (20 seats), furniture, office equipment and supplies/consumables necessary to conduct all of the operations described and required for the duration of the Contract.
CSC-008	TSP2 shall be responsible for any and all costs associated with the build-out of the facilities including, but not limited to: <ul style="list-style-type: none"> <li>design,</li> <li>permitting, and</li> <li>construction.</li> </ul>
CSC-009	TSP2 facility shall accommodate, at a minimum, six (6) furnished offices with window (private, non-cubicle) dedicated for Joint Board Representatives and/or their designees with access 24 hours per day 7-days per week.
CSC-010	If not provided by the owners of the leased facilities, TSP2 shall provide any and all 3rd party services required and needed for operating the facilities including, but not limited to: <ul style="list-style-type: none"> <li>maintenance,</li> <li>utilities,</li> <li>janitorial services,</li> <li>building security,</li> <li>landscape services (if applicable), and</li> <li>pest control.</li> </ul>
CSC-011	TSP2 shall ensure that the facilities are Payment Card Industry (PCI) Data Security Standard (DSS) compliant.



Req. #	Requirement
CSC-012	TSP2 shall obtain and maintain appropriate premise/property insurance for each facility, naming IN and KY additionally insured.

**Customer Contact Center (CCC) and Walk Up Center (WUC)**  
Hours of Operation

Req. #	Requirement
CSC-013	The CCC shall be open and available to receive calls/contacts from 8 a.m. to 6 p.m. Monday – Friday, Eastern Time.
CSC-014	The WUC(s) shall be open and available to service walk-in customers 8 a.m. to 6 p.m. Monday – Friday, Eastern Time
CSC-015	<p>TSP2 shall observe the following holidays:</p> <ul style="list-style-type: none"> <li>• New Year's Day,</li> <li>• Memorial Day,</li> <li>• Independence Day,</li> <li>• Labor Day,</li> <li>• Thanksgiving Day,</li> <li>• Friday after Thanksgiving Day,</li> <li>• Christmas Eve, and</li> <li>• Christmas Day.</li> </ul> <p>Prior to each year, the Joint Board Representatives will provide the list of the observation days for the holidays occurring on Saturday and Sunday.</p>
CSC-016	TSP2 shall close the CSC and WUC(s) due to inclement weather based on the actions of the City of Jeffersonville or approved by the Joint Board Representatives for non-weather-related closures. TSP2 can close the CSC and/or WUC(s) at their discretion for the protection of life and safety of employees and/or customers and shall communicate such closure to the Joint Board Representatives as soon as possible.

**Security and Facility Access Control**

Req. #	Requirement
CSC-017	TSP2 shall be responsible for establishing and carrying out security and access control policies and procedures, to be approved by the Joint Board Representatives. TSP2 shall ensure that areas within the CSC and WUC facilities not intended for public access are accessible only by authorized personnel with the appropriate privileges. TSP2 shall also ensure that access is limited to those areas required for the employees to perform their jobs while providing an appropriate segregation of access, based on employee responsibilities, and that access for visitors and guests who are not directly working on the Project is approved by the Joint Board Representatives in advance.
CSC-018	TSP2 shall provide adequate security systems and/or personnel for the facilities to safely monitor and secure employees, customers, visitors, data, funds, property, equipment and assets.
CSC-019	TSP2 shall also utilize cameras in accordance with PCI/PII requirements, TSP2's preferred operational and security approach and shall ensure the camera footage is saved for a minimum of 90 days. TSP2 shall allow and provide the Joint Board Representatives access to view and copy the camera footage upon request.
CSC-020	TSP2 shall provide and/or coordinate all security badges, parking, and administrative needs for TSP2 employees, Joint Board Representatives, and third-party vendors to access the CSC and WUC facilities.
CSC-021	TSP2 shall maintain and provide to the Joint Board Representatives, as requested, a matrix that lists all personnel with access privileges to the CSC and WUC facilities. The matrix shall identify each employee's position, job function(s), and facility access rights.
CSC-022	TSP2 shall conduct reviews of the access matrix against the actual access for all personnel no less than quarterly or at the request of the Joint Board Representatives. The Joint Board Representatives shall be provided with the results of all such reviews.
CSC-023	TSP2 shall give full access to monitor all areas of the operations

**Staff**

Req. #	Requirement
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Req. #	Requirement
CSC-024	TSP2 shall provide an organizational approach for staffing that supports the Project requirements and needs. This shall be documented in the M Staffing Plan and shall include, but not be limited to: <ul style="list-style-type: none"> <li>organizational chart with all on-site staff positions and Key Personnel, head count and reporting relationships;</li> <li>job descriptions for all on-site staff positions and Key Personnel by position type, and</li> <li>identification of subcontractor relationships and subcontractor responsibilities.</li> </ul>
CSC-025	All staff members and sub-consultants shall understand and speak the English language and be a U.S. citizen or possess an Alien Registration Card.
CSC-026	TSP2 shall provide personnel in the CCC and WUC facilities during all hours of operation that are fluent in Spanish.
CSC-027	All TSP2 employees shall undergo and pass a background investigation in order to qualify for employment that includes, but is not limited to: <ul style="list-style-type: none"> <li>previous employment history,</li> <li>criminal record,</li> <li>credit history, and</li> <li>reference checks.</li> </ul>

#### Cooperation and Coordination

Req. #	Requirement
CSC-028	TSP2 shall maintain and provide to the Joint Board Representative a current emergency contact list. TSP2 shall include TSP2's preferred points of contact in the list, in order of precedence, and shall include, at minimum, TSP2's Project manager and Operations manager, who may be contacted in case of an emergency.
CSC-029	TSP2 shall cooperate with external parties, including those as directed by the Joint Board Representatives.
CSC-030	TSP2 shall coordinate with the Joint Board Representatives, any other toll system providers and IAG Interoperable Agencies for the purpose of toll collection.
CSC-031	TSP2 shall comply with the Custody and Revenue Control Manager Agreement.

#### Operational Functions Account Management

Req. #	Requirement
CSC-032	TSP2 shall manage and perform all Account activities, not otherwise performed by the customer, using the BOS including, but not limited to: <ul style="list-style-type: none"> <li>processing the customer applications,</li> <li>logging customer acceptance of terms and conditions,</li> <li>managing vehicles,</li> <li>processing customer requests (i.e., fulfilling Transponder requests), and</li> <li>processing payments.</li> </ul>
CSC-033	TSP2 shall provide specialized and dedicated CSRs to manage and administer customers requiring specialized and dedicated help (e.g., large truck companies). TSP2 shall encourage these customers to be Prepaid and utilize Transponders.
CSC-034	In case of an incorrect or incomplete application, TSP2 shall contact the customer to facilitate successful Account creation.
CSC-035	TSP2 shall support all activities related to Account closing. In the event of closing, TSP2 shall ensure that the customer's Transponder(s) is changed to the appropriate status in the BOS and that all outstanding balances are paid or handled in accordance with the Business Rules and Operational Requirements and Standard Operating Procedures (SOPs) prior to closing the account.
CSC-036	TSP2 shall ensure that during each interaction with the customer, the customer is prompted to update their account information, including but not limited to: <ul style="list-style-type: none"> <li>address,</li> <li>Credit Card(s),</li> <li>vehicle(s) and license plate(s),</li> <li>phone number(s),</li> <li>email address, and</li> <li>contact preference(s).</li> </ul>
CSC-037	If a customer has not responded to a system generated or Authorized User initiated request while assisting with a dispute or other problem, then TSP2 shall attempt to contact the customer in writing.
CSC-038	TSP2 shall support investigations through resolution for all customer disputes and issues that require a decision by the Joint Board Representative.
CSC-039	TSP2 shall enter any customer issue or request that cannot be completely addressed at the time of request as a Case for management, tracking and reporting and shall work Cases through to final resolution.



Req. #	Requirement
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**Payments, Fees and Refunds**

Req. #	Requirement
CSC-040	TSP2 shall process all payments received from customers either directly or through a Third-Party Service Provider.
CSC-041	TSP2 shall resolve payments which cannot be readily associated with a customer account. TSP2 shall be responsible for conducting research in accordance with the KPI's on these payments so that they can be posted to a customer account as quickly as possible. If all research avenues have been exhausted and documented and the payment remains unassociated then a Case shall be created for future resolution.
CSC-042	TSP2 shall support processing of payments directly from customers, Interoperable Partners and other third-parties and reconcile all payments to Accounts with money deposited in the bank.
CSC-043	TSP2 shall be responsible to research, respond to and process chargebacks.
CSC-044	TSP2 shall be responsible to issue refunds using the same payment method, if possible, that the customer used to make the original payment.

**Privacy**

Req. #	Requirement
CSC-045	TSP2 shall develop and comply with all approved security standards. Security standards shall be updated to reflect changes in industry requirements and partner agreements, in response to directions from the Joint Board Representatives, and to address detected security weaknesses.
CSC-046	TSP2 shall not release information to anyone unless authorized by the Joint Board or their Representatives. TSP2 shall develop an SOP and approval process for the release of information.
CSC-047	TSP2 shall establish reasonable methods, approved by the Joint Board Representatives to verify the identity of customers prior to the release of any customer Account information.

**Search Warrants, Subpoenas, Litigation and Public Records Requests**

Req. #	Requirement
CSC-048	TSP2 shall refer all requests, inquiries, subpoenas, search warrants, public records requests and official information requests to the Joint Board Representatives. TSP2 shall gather and provide the information requested by the search warrant or subpoena upon receiving approval from the Joint Board Representatives to do so in accordance with the KPI's.
CSC-049	TSP2 shall provide qualified personnel, approved by the Joint Board Representative, to support litigation, including providing testimony as an expert witness upon request from the Joint Board Representatives.

**Image Processing**

Req. #	Requirement
CSC-050	TSP2 shall establish an image review process that meets requirements set forth in the KPIs in order to determine License Plate Data for IBTs.
CSC-051	TSP2 shall also include in the image review process a re-review of all IBTs determined to be coded-off through the initial image review process in order to validate or otherwise override the code-off determination.



Req. #	Requirement
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**Image Review Quality Assurance**

Req. #	Requirement
CSC-052	In order to provide Image Review quality assurance and determine Image Review performance, TSP2 shall perform a monthly audit of a statistically significant sample size from all IBT's processed through Image Review during the month being audited and determine the related accuracy of License Plate Data and OCR confidence level (if applicable).
CSC-053	TSP2 shall provide an adequate number of trained and qualified staff to handle the Image Review audit.
CSC-054	TSP2 shall provide reporting associated with image review
CSC-055	TSP2 shall provide a report to the Joint Board Representatives of the finding from the Image Review audit.

**Vehicle Registration Information (VRI)**

Req. #	Requirement
CSC-056	Unless otherwise directed by the Joint Board Representatives, TSP2 shall establish and maintain up-to-date agreements with each provider of VRI.
CSC-057	TSP2 shall coordinate with the Joint Board Representative to track and follow the renewal requirements for each provider VRI. For example, a state may require that a DMV data access application form be submitted and approved annually.
CSC-058	TSP2 shall provide the following VRI-related activities, including but not limited to: <ul style="list-style-type: none"> <li>monitor and evaluate the number of successful matches by jurisdiction,</li> <li>monitor and evaluate the number of successful matches by provider of VRI,</li> <li>monitor and evaluate the number of successful matches by type of license plate,</li> <li>identify issues with manual License Plate Data determination,</li> <li>identify issues with automatic License Plate Data determination, and</li> <li>identify areas where the VRI match is lower than the average.</li> </ul>
CSC-059	TSP2 shall monitor the success and unsuccessful VRI lookup requests.
CSC-060	TSP2 shall develop solutions to increase the VRI lookup success.
CSC-061	TSP2 shall research and manage the data that associates an address with the agency names that are returned from the provider of VRI for License Plates Data registered to a customer affiliated with federal, state or local agency that is allowed to shield VRI.

**Customer Communications**

**Outbound Customer Communications**

Req. #	Requirement
CSC-062	TSP2 shall be responsible for all services, equipment, labor and materials for printing and mailing all outbound customer Notifications.
CSC-063	TSP2 shall manage the sending of emails and texts to individuals or groups of customers.
CSC-064	TSP2 shall be responsible for providing and assembling all materials necessary for the mailing of Transponders.
CSC-065	TSP2 shall utilize the USPS/NCOA database services to validate a customer address prior to mailing Notifications.
CSC-066	TSP2 shall provide all postage meters and be responsible for payment of any postage meter fees.
CSC-067	TSP2 shall develop, modify, print, deliver and inventory all collateral materials according to the print specifications provided by the Joint Board Representatives. All collateral materials shall be approved by the Joint Board Representatives prior to being distributed.

**Inbound Customer Communications**

Req. #	Requirement
CSC-068	TSP2 shall assume the responsibility for any existing post office boxes from TSP1 and establish any additional post office boxes as needed.
CSC-069	TSP2 shall be responsible for handling all mail from the post office boxes.



Req. #	Requirement
CSC-070	All customer contacts handled directly by TSP2 shall be noted on the Account in the BOS to maintain an accurate history of the customer's interaction with the CSC.
CSC-071	TSP2 shall provide a response for all correspondence received from the customer regardless of which communications channel the customer uses to communicate including, but not limited to: <ul style="list-style-type: none"> <li>• email,</li> <li>• text,</li> <li>• chat,</li> <li>• communication from the website's "Contact Us" feature, and</li> <li>• mailed.</li> </ul>
CSC-072	TSP2 shall monitor and respond to customer requests received by phone, chat and text in real time when received during regular business hours.
CSC-073	TSP2 shall ensure all incoming correspondence (paper or electronic) is scanned (if not already in a usable electronic format), saved and associated to an Account and any applicable Case(s). Non-customer correspondence shall also be scanned and catalogued for storage and easy access. Paper copies shall be destroyed.
CSC-074	TSP2 shall use the same Notification Channel used by the customer or customer's preferred Notification Channel to respond to the customer correspondence unless the nature of the correspondence necessitates the use of a different Notification Channel.
CSC-075	TSP2 shall develop a process for handling all incoming mail, the process should include but not be limited to: <ul style="list-style-type: none"> <li>• segregation of duties,</li> <li>• date stamping the mail,</li> <li>• categorization,</li> <li>• scanning and/or saving into the BOS as Cases, and</li> <li>• assigning to the appropriate CSC staff for processing.</li> </ul>
CSC-076	TSP2 shall develop a workflow process that clearly documents the handling process for all incoming correspondence and communication through all channels, ensuring all incoming correspondence and communications are recorded, reviewed and properly routed (such as, operational correspondence, financial, contractual, etc.). This shall be documented in the SOPs.
CSC-077	With the exception of customer requests regarding their own Accounts, TSP2 shall only answer general inquiries as they relate to general information about the toll facilities and services provided by the CSC. All other inquiries and communications shall be escalated to the Joint Board Representatives as a Case, unless TSP2 is directed in writing by the Joint Board Representatives. This includes inquiries from or communications with the media, government agents, Public Records Act requests and individuals representing organizations for purposes other than directly related to their own Account.
CSC-078	TSP2 shall keep a record of all information requests as a Case and immediately inform and/or direct the inquiries to the Joint Board Representatives.

#### Returned Mail

Req. #	Requirement
CSC-079	TSP2 shall enter forwarding address, if provided, to the Account. If no forwarding address information is available on the returned piece, TSP2 shall flag the Account as having a bad address to suppress future mailings until an updated address is added to the Account.
CSC-080	In addition to utilizing the USPS/NCOA, TSP2 shall utilize Skip Tracing service(s) to find a customer address.
CSC-081	If a different, current address is provided for a returned MBS, TSP2 shall update the address in the BOS, modify the anniversary date, create a new due date and take the necessary steps for the BOS to re-issue the correspondence. For all other Customer Notifications TSP2 shall just take the necessary steps for the BOS to re-issue.

#### Case Management

Req. #	Requirement
CSC-082	TSP2 shall attempt to resolve customer issues or requests (such as, changing a customer's contact information) at the time of the request. For any issue or request that cannot be resolved completely at the time of the request, TSP2 shall enter the issue or request into the BOS as a Case, for management, tracking and reporting.
CSC-083	TSP2 shall accurately resolve and respond to customer issues and requests by the customer's preferred method of contact if available, otherwise by the most appropriate method based on the circumstances of the issue/request. The escalation procedures for customer issues and requests shall be specified in the BR and SOPs.
CSC-084	TSP2 shall be responsible for the resolution of all customer disputes, which are managed as Cases.
CSC-085	TSP2 shall ensure all supporting documentation from the customer is obtained to resolve a Case.



Req. #	Requirement
CSC-086	TSP2 shall be responsible for managing and resolving Cases related to refunding customers, including exempt transactions not related to customers on the Exempt List.

#### Customer Satisfaction Surveys

Req. #	Requirement
CSC-087	TSP2 shall utilize customer satisfaction surveys to measure the quality of the service. Every customer contact or a percentage thereof as directed by the Joint Board Representatives shall be given the opportunity to participate in a survey following interaction with the CSC.
CSC-088	TSP2 shall get Joint Board Representative approval of all survey content prior to it being used in a live survey.
CSC-089	TSP2 shall monitor the customer surveys and provide a monthly report to the Joint Board Representatives.
CSC-090	TSP2 shall be required to not only monitor the results of the customer satisfaction surveys but also utilize the information to continually improve overall customer satisfaction.
CSC-091	TSP2 shall review survey results with CSRs and other applicable personnel during periodic meetings regarding individual's performance.
CSC-092	TSP2 shall provide the Joint Board Representatives convenient, direct, electronic access to the up-to-date and historic survey result reports and data.

#### Customer Service Quality Monitoring and Reporting

Req. #	Requirement
CSC-093	TSP2 shall ensure all CSC staff is trained in a manner which ensures excellent customer service in every customer interaction as measured by the KPIs.
CSC-094	TSP2 shall record the reason(s) for each contact (via all contact channels) by using approved call wrap-up codes, entering account notes or other tracking approach to document the reason for the contact and memorialize the resolution or required next steps.
CSC-095	TSP2 shall monitor and score both live and recorded CSR calls for accuracy, efficiency, professionalism and courteousness.
CSC-096	TSP2 shall review and score all customer interaction channels, resolution activities and outcomes for accuracy, efficiency, professionalism and courteousness.
CSC-097	TSP2 shall track monitoring results and submit a monthly summary to the Joint Board Representatives as part of the Monthly Operations Report.
CSC-098	TSP2 shall provide the capability for the Joint Board Representatives to, at the Joint Board Representatives' discretion and without prior notification to TSP2, monitor all live and recorded calls and all other types of correspondence.
CSC-099	TSP2 shall provide for review by the Joint Board Representatives all documentation related to TSP2's quality program.
CSC-100	TSP2 shall conduct monthly quality monitoring calibration meetings for all of their staff who monitor customer interaction. The Joint Board Representatives shall be invited to attend these meetings.

#### Transponder Management

Req. #	Requirement
CSC-101	TSP2 shall manage all aspects of the Transponder lifecycle, including but not limited to: <ul style="list-style-type: none"> <li>receiving into inventory,</li> <li>testing Transponders upon receipt and prior to issuing,</li> <li>programming Transponders as necessary,</li> <li>assigning and issuing to customers,</li> <li>tracking Transponders through their life,</li> <li>recycling (evaluating, cleaning and testing) for reissue (if applicable),</li> <li>managing Transponder recalls,</li> <li>warranty return and replacement, and</li> <li>disposal of Transponders.</li> </ul>
CSC-102	TSP2 shall distribute assigned Transponders by the accepted methods documented in the approved SOPs. Transponders issued by TSP2 to all of the distribution sources shall be recorded and shown as part of the Transponder inventory. Mounting instructions and other materials as may be determined by the Joint Board Representatives shall be included with the distribution of each Transponder.



Req. #	Requirement
CSC-103	Upon Account setup or customer request for additional or replacement Transponder(s), TSP2 shall mail activated Transponders to customers who established the Account online or over the phone. Walk-up customers shall be given an active Transponder upon confirmation of Account creation. Transponders shall be tested prior to distribution.

#### Transponder Inventory Management

Req. #	Requirement
CSC-104	TSP2 shall ensure that an adequate supply of Transponders is available at all times. When the inventory reaches a pre-determined level identified in the SOPs, TSP2 shall initiate order requests with the Joint Board Representatives, based upon existing inventory and forecasted requirements.
CSC-105	TSP2 shall ensure that an adequate supply of Transponder mounting strips, user guides and mounting instructions, and shielded envelopes for Transponders are available at all times to accommodate the Transponders issued by the CSC (including the WUC's and Retailers).
CSC-106	CSC issues multiple types of Transponders, and as such, TSP2 shall be required to manage multiple types of Transponders, possibly from multiple manufacturers/providers.
CSC-107	TSP2 shall receive shipments of Transponders and shall reconcile shipment contents with electronic manifests provided by the Transponder manufacturer. The waybill shall be reconciled against the original purchase order and scanned into the BOS for tracking and reconciliation purposes.
CSC-108	Monthly, TSP2 shall conduct a physical audit of the Transponders that are under its physical control, including for the various Transponder types and statuses and quantities and shall allow the Joint Board Representatives to witness the audit at the discretion of the Joint Board Representatives. The audit shall compare the physical counts with the BOS counts by Transponder type, location and status and completely reconcile any discrepancies. Transponder audit reports shall be included in the monthly operations report.
CSC-109	TSP2 shall distribute new and recycled Transponders, if applicable, using the FIFO inventory method.
CSC-110	TSP2 shall manage, coordinate and perform the Transponder case, electronics, and battery disposal process using a provider certified to dispose of this type of material and provide the Joint Board Representatives with evidence of disposal.
CSC-111	TSP2 shall securely store Transponders and batteries scheduled for disposal and prepare and ship the Transponders and batteries as required for disposal.
CSC-112	TSP2 shall be responsible for receipt of all returned Transponders. TSP2 shall test and inspect all Transponders that are returned from the customers determine whether or not they can be reissued at a later date.
CSC-113	TSP2 shall be responsible for the overall security of the Transponders and shall provide and maintain accurate inventory controls over the Transponders.
CSC-114	TSP2 is responsible for the disposal of Transponders that are defective or damaged and are not within the warranty period.

#### Transponder Testing

Req. #	Requirement
CSC-115	TSP2 shall test ten (10) percent of all Transponder types in each shipment when the Transponders are received from the manufacturer. If any problems are identified with the ten (10) percent, then additional testing shall be required as determined by the Joint Board Representatives. This testing shall include but not be limited to: <ul style="list-style-type: none"> <li>• verifying that the Transponders function and are correctly encoded;</li> <li>• reading the Transponder serial number and verifying that the Transponder label, barcode and internal coding are consistent; and</li> <li>• ensuring the Transponders can be read by simulating functionality on the road.</li> </ul>

#### Transponder Return to Manufacturer

Req. #	Requirement
CSC-116	TSP2 shall track Transponder warranty status and manage and resolve all warranty issues with the Transponder manufacturer.
CSC-117	TSP2 shall be responsible for ensuring all Transponders found to be defective and still under the manufacturer's warranty are returned to the manufacturer, according to the manufacturer's specified return material authorization (RMA) process.
CSC-118	TSP2 shall be responsible for storage of Transponders subject to return until such time that the Transponder manufacturer accepts the returned Transponders.
CSC-119	TSP2 shall be responsible for shipment of the Transponders identified for return to the manufacturer.
CSC-120	TSP2 shall track the warranty returns and confirm that proper credit is received for the Transponders returned under warranty in accordance with the agreement with the manufacturer.



Req. #	Requirement
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#### Vehicle Registration Hold

Req. #	Requirement
CSC-121	TSP2 shall place and release registration holds using BOS functionality and in accordance with the BR and SOPs.
CSC-122	TSP2 shall coordinate with the applicable DMV or Third-Party Service Provider responsible for placing registration holds and respond to any requests that the entity may have.
CSC-123	TSP2 shall respond to requests from customers related to registration holds and the process for releasing the registration hold(s).
CSC-124	TSP2 shall initiate a release of the registration hold(s) in real-time for customers who have satisfactorily resolved the condition(s) which caused the registration hold(s).
CSC-125	TSP2 shall reconcile and account for all payments to the DMV or Third-Party Service Provider for registration hold placement and for any payments collected by the DMV or Third-Party Service Provider from the customers.
CSC-126	TSP2 shall support registration hold's or other enforcement methods allowed by interstate interoperability enforcement agreements.

#### Collections

Req. #	Requirement
CSC-127	TSP2 shall coordinate collection efforts with the Collection Agency.
CSC-128	TSP2 shall support outbound collections calls and letters prior to Collections Placements.
CSC-129	While it is expected that the Collection Agency will be the primary payment processors for debts in collections, TSP2 shall accept payments for amounts in collections received through any Payment Method established for the Project.
CSC-130	TSP2 shall verify that the Collection Agency is accurately updating the BOS and that the BOS is accurately updating the Collection Agency. TSP2 shall also work directly with the Collection Agency to completely and accurately resolve any issues in a timely manner, including identification and resolution of any discrepancies between what the BOS identifies is in collections and what Collection Agency indicates is in collections. Updates between the BOS and the Collection Agency's system shall not happen less frequently than daily.
CSC-131	TSP2 shall provide a financial reconciliation between the BOS and the Collection Agency for a specific Customer Account at the Joint Board Representatives' request.
CSC-132	TSP2 shall update the BOS when notified by the Collection Agency that a customer has been allowed to establish a settlement arrangement to pay a lesser amount or to make periodic payments.

#### Bankruptcy

Req. #	Requirement
CSC-133	TSP2 shall comply with bankruptcy laws.
CSC-134	TSP2 shall document receipt of Notification of bankruptcy within the BOS and place applicable transactions on hold pending the outcome of the bankruptcy process.
CSC-135	TSP2 shall remove Registration Holds for trips subject to bankruptcy proceedings.
CSC-136	TSP2 shall communicate with the Collection Agency, as necessary, related to a bankruptcy Notification.
CSC-137	TSP2 shall update the status of the bankruptcy in the BOS upon notification of changes or the resolution and perform the necessary steps to ensure that the BOS accurately reflects the outcome.
CSC-138	TSP2 shall send copies of bankruptcy Notifications to the Joint Board Representatives.
CSC-139	TSP2 shall follow up with, provide information and respond to requests from all parties including but not limited to customers, attorneys, the bankruptcy courts and the Joint Board Representatives related to a customer bankruptcy proceeding.

#### Banking and Lockbox Services



Req. #	Requirement
Req. #	Requirement
CSC-140	TSP2 shall reconcile the BOS reports to the bank, all customer payments, Lockbox (if applicable) and merchant accounts on a daily basis.
CSC-141	TSP2 shall ensure they have access to an account to issue customer refunds, the account can be managed by TSP2 or the Joint Board Representatives.
CSC-142	TSP2 shall address all Lockbox exceptions transmitted by the Lockbox Service Provider, if a Lockbox is utilized.

#### Write-offs

Req. #	Requirement
CSC-143	TSP2 shall comply with the Write-Off policy and procedure as approved by the Joint Board.
CSC-144	TSP2 shall configure the BOS to perform automatic or manual Write-Offs based on approved criteria.
CSC-145	TSP2 shall monitor the automatic Write-Offs performed by the BOS and report on these to the Joint Board Representatives on a monthly basis.

#### Reconciliation

Req. #	Requirement
CSC-146	TSP2 shall develop a process for identifying, reporting and resolving all errors and discrepancies, which shall be included in the SOPs.
CSC-147	TSP2 shall perform all financial and transactional reconciliations in an accurate and timely manner, to be provided to the Joint Board Representative for review on a daily, weekly and monthly basis, in accordance with the KPIs.
CSC-148	TSP2 shall perform monthly reconciliations of all financial accounts, including roll-forward schedules from prior periods, which will be provided to the Joint Board Representatives for review.
CSC-149	TSP2 shall reconcile all payments received from all payment channels within one day of posting to the BOS. This shall include the identification and resolution of all reconciliation discrepancies.
CSC-150	TSP2 shall reconcile the payments due to the Joint Board and to the Interoperable Agencies pursuant to the approved agreements and other requirements on a daily basis, for all transactions. Payments shall be based on the transactions recorded and processed in the BOS. TSP2 shall be responsible for investigating and resolving all discrepancies by meeting with the Joint Board Representatives and any Interoperable Agency.

#### Management Reporting

Req. #	Requirement
CSC-151	TSP2 shall prepare and submit a monthly operations report on an agreed upon day each month that summarize TSP2's performance during the previous month. This report will also detail the TSP2's performance against the KPIs. TSP2 shall use the BOS reports, conduct an analysis of the data and summarize the results. Summary data shall show TSP2's comparative performance for the past months and years. Failure to meet the KPIs shall be identified and details submitted including the TSP2's plan to correct such occurrences. Any exception that is to be excluded from the calculations shall be explained in detail and with supporting documentation. A final list of these documents will be developed and approved by the Joint Board Representatives as a part of the SOP's.
CSC-152	Monthly operations report and invoice: Each monthly operations report shall be accompanied by TSP2's invoice for the same period with supporting reports from the BOS. The Joint Board Representatives will not review, and Joint Board will not pay for monthly invoices that are not accompanied by an acceptable monthly operations report.
CSC-153	TSP2 performance against the KPIs: TSP2 will be fully responsible for the CSC operations to meet or exceed the level of performance in the KPIs. Failure to do so may result in the assessment of liquidated damages as defined in the aforementioned document. TSP2 must use the Approved track and reporting method to prove their operation's monthly performance against the KPIs to be delivered to the Joint Board Representatives with the monthly operations report and invoice for CSC services provided during the preceding month.

#### Monthly Meetings with the Joint Board Representatives

Req. #	Requirement	Meets	Meets with	Meets with	Exception
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Req. #	Requirement
CSC-154	TSP2 shall conduct monthly meetings with the Joint Board Representatives one (1) week after the submission of the monthly operations report and invoice. During the meeting the parties will review the contents of the monthly operations report, project status and to coordinate planned work.
CSC-155	At a minimum, the CSC manager, Project manager and finance manager will attend these meetings.
CSC-156	On a bi-monthly basis the Joint Board Representatives or its designee(s) and TSP2 will conduct meetings to review the status of the current report provided by the BOS. During that meeting the following things will be reviewed: <ul style="list-style-type: none"> <li>• accuracy of the data provided on existing reports,</li> <li>• any noted changes to the data presented on existing reports,</li> <li>• problems with current report generation process,</li> <li>• requested modifications to existing reports, and</li> <li>• requests for new reports.</li> </ul>

#### Financial Management

Req. #	Requirement
CSC-157	TSP2 shall be responsible for complying with all financial operations, audits and reporting requirements. All reports shall be made available to the Joint Board Representatives in a timely manner but no later than the date of submission of the monthly operations report and invoice for work performed the previous month.
CSC-158	TSP2 shall be responsible for recording all manual entries into the BOS and reconciliation of receipts and disbursements in to and out of all bank accounts used by TSP2.

#### Cash Management

Req. #	Requirement
CSC-159	TSP2 shall be responsible for all funds until custody of the funds has been passed to a bank. All monies collected shall be stored in a secure area until collected or deposited by the bank. TSP2 shall be responsible for providing the necessary safes for securing the monies until collected or deposited. All money handling, counting, and storage shall be performed in a secured area and under dual control at all times.
CSC-160	TSP2 shall be responsible for providing armored courier services for the transfer of monies from the CSC and Walk-Up Centers to the bank.

#### Paper Document Storage

Req. #	Requirement
CSC-161	TSP2 shall provide and approach for the handling, storage, scanning and shredding of all paper documentation in accordance with all applicable standards as approved by the Joint Board.
CSC-162	TSP2 shall provide for secure physical storage, not at the Joint Boards' facilities, of all paper documents.
CSC-163	TSP2 shall scan all paper documentation into the BOS associating each appropriately with applicable Account(s) and Case(s).
CSC-164	TSP2 shall redact information in accordance with all applicable standards as approved by the Joint Board on the document prior to scanning the paper documentation in to the BOS.
CSC-165	TSP2 shall shred and dispose of all paper documentation after it has been successfully scanned in accordance with the Security Standards.

#### Interoperability

Req. #	Requirement
CSC-166	TSP2 shall facilitate the resolution of interface related issues or errors with Interoperable Agencies
CSC-167	TSP2 shall provide financial and transactional reconciliation with Interoperable Agencies.
CSC-168	TSP2 shall participate in periodic teleconferences and meetings related to interoperability and other interoperability organizations.
CSC-169	TSP2 shall provide a point of contact for resolution of issues arising with interoperable transactions/trips and customer service including dispute resolution.



Req. #	Requirement
CSC-170	TSP2 shall monitor and manage the electronic file transfers within the BOS as required.
CSC-171	TSP2 shall manage and reconcile interoperable receivables and payables.

## 25. Retail Partners

### Full-Service Retail Partners

Req. #	Requirement
RET-001	The BOS shall have an electronic interface with Full-Service Retail Partners at multiple locations.
RET-002	The BOS shall have an electronic interface that allows customers to open a new Customer Account and receive a Transponder at the retail location.
RET-003	The BOS shall have an electronic interface that allows customers to make a payment on an existing Customer Account to replenish a prepaid balance at the retail location using approved payment methods including, but not limited to: <ul style="list-style-type: none"> <li>• cash,</li> <li>• Credit Card,</li> <li>• check,</li> <li>• Google Pay, and</li> <li>• Apple Pay.</li> </ul>
RET-004	The BOS shall have an electronic interface that allows customers to make a payment on an MBS at the retail location using approved payment methods including, but not limited to: <ul style="list-style-type: none"> <li>• cash,</li> <li>• Credit Card,</li> <li>• check,</li> <li>• Google Pay, and</li> <li>• Apple Pay.</li> </ul>
RET-005	The BOS shall have the capability to post payments to a Customer Account for Replenishment or payment of an MBS immediately upon electronic notification that the payment was received at a retail location.

### Partial-Service Retail Partners

Req. #	Requirement
RET-006	The BOS shall have an electronic interface with Partial-Service Retail Partners at multiple locations.
RET-007	The BOS shall have an electronic interface that allows customers to open a new Customer Account and receive a Transponder at the retail location.
RET-008	The BOS shall have an electronic interface that allows customers to make a payment on an existing Customer Account to replenish a prepaid balance at the retail location using approved payment methods including, but not limited to: <ul style="list-style-type: none"> <li>• cash,</li> <li>• Credit Card,</li> <li>• check,</li> <li>• Google Pay, and</li> <li>• Apple Pay.</li> </ul>
RET-009	The BOS shall have the capability to post payments to a Customer Account for Replenishment immediately upon electronic notification that the payment was received at a retail location.

### Limited-Service Retail Partners

Req. #	Requirement
RET-010	The BOS shall have an electronic interface with Limited-Service Retail Partners at multiple locations.
RET-011	The BOS shall have an electronic interface that allows customers to open a new Customer Account and receive a Transponder at the retail location.



## D.2 PLANNED APPROACHES

### D.2.1 APPROACH TO PROJECT PLAN AND IMPLEMENTATION (K-1)

#### D.2.1.1 APPROACH TO PROJECT MANAGEMENT

Our approach to project management includes more than just the standard formal Project Management Body of Knowledge (PMBOK) areas. Over the years, our success and lessons learned have created a program that is tailored to the tolling industry, while still maintaining basic Project Management Institute (PMI) principles. At ETC, we believe that both parties should share in the approach as it pertains to the specific project and customer. As such, ETC will bring to the table a plan that will be easily translatable to provide feedback. That way we will jointly create a combined approach to coordination, communication, scope and risk management, issue resolution, software development life cycle (SDLC) and installation coordination and delivery.

The team proposed for the RiverLink project has successfully implemented multiple relevant projects using our proven tools and disciplined approach. As demonstrated in our provided project references, we have chosen a team which not only has significant relevant experience, but also has shared experience working together on previous implementations. This familiarity yields the level of cohesion and synergy that will provide the Joint Board a single voice and consistency, from our executive leadership to project management personnel to maintenance technicians.

#### *The Project Management Plan (PMP)*

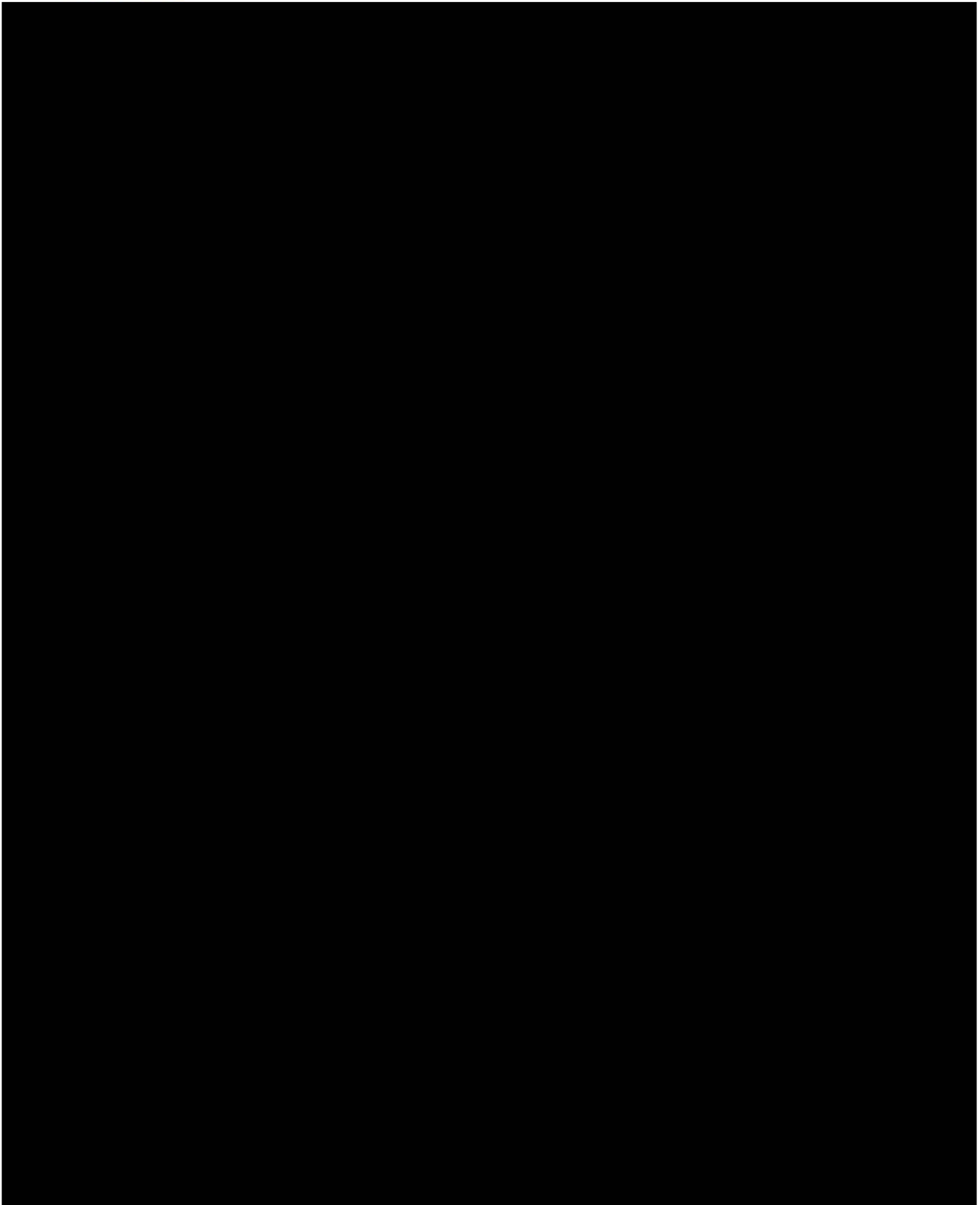
The *Project Management Plan* will include the project scope and key deliverables, including Contract Data Requirements List (CDRL). It will outline the delivery approach, and address other key areas, such as staffing plan, organization chart, staffing and stakeholder roles, communication processes and responsibility, meetings and reporting process, risk management, quality management, change management, documentation control, schedule, etc. The PMP will be the governing document for the project execution and will be updated throughout its duration.

The key components of our project management plan include:

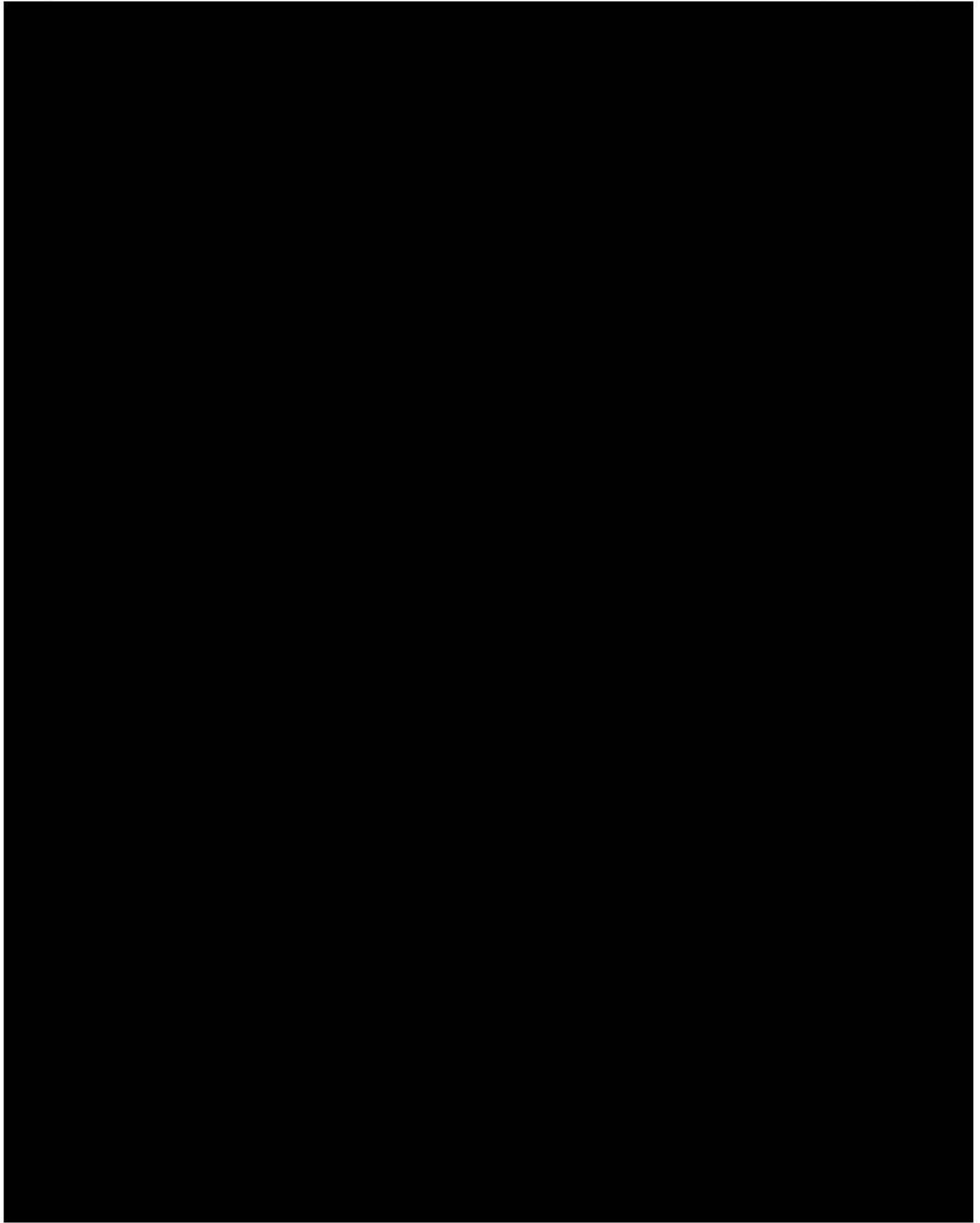
- ▶ Project Management
- ▶ Quality Assurance
- ▶ Configuration Management
- ▶ System Design
- ▶ Development and Delivery, including hardware/software procurement
- ▶ Installation
- ▶ Integration and Testing

#### D.2.1.1.1 PROJECT EXECUTION, MANAGEMENT AND CONTROLS

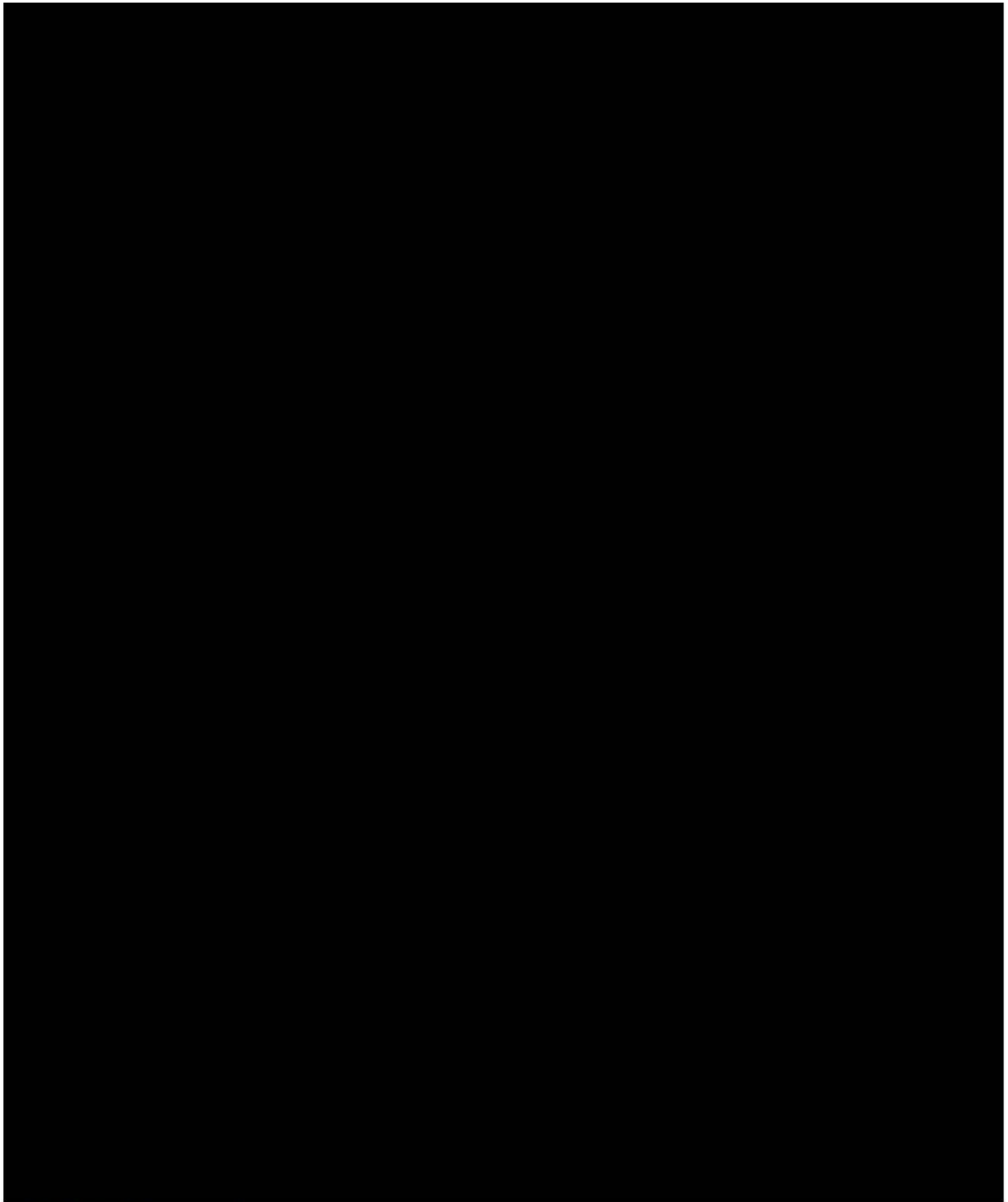








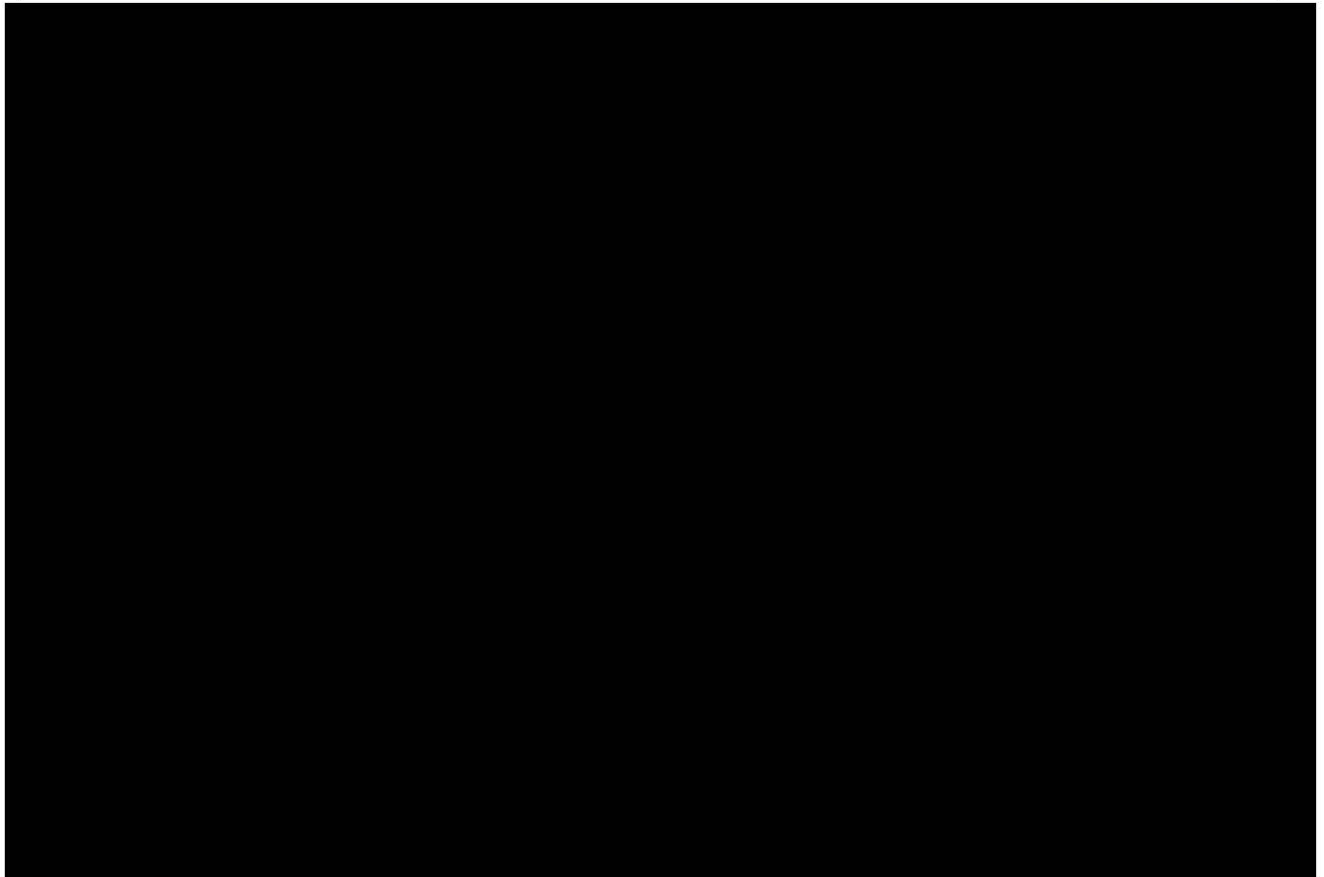




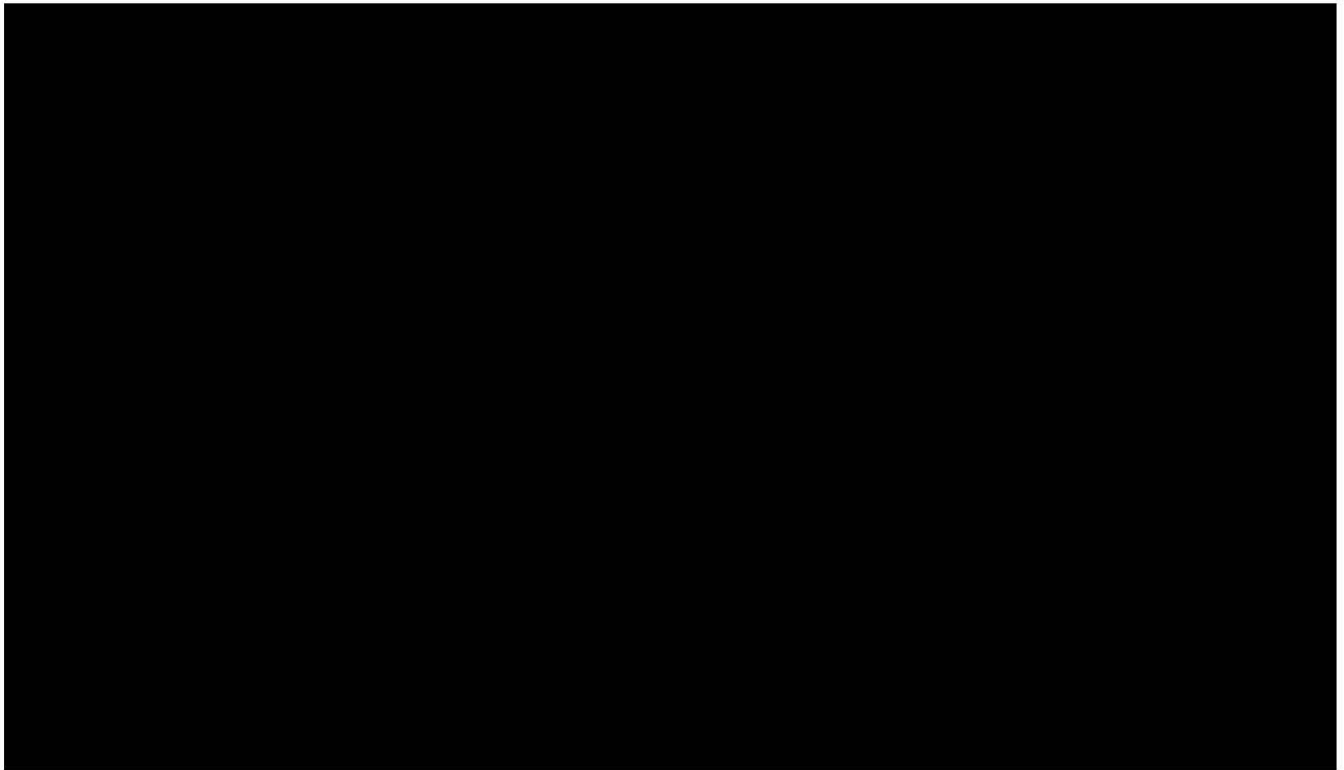
#### D.2.1.1.3 PROJECT COMMUNICATIONS

As part of the Program Management Plan, we provide a defined *Communication Plan*. This document describes the processes required to ensure communications are handled consistently,



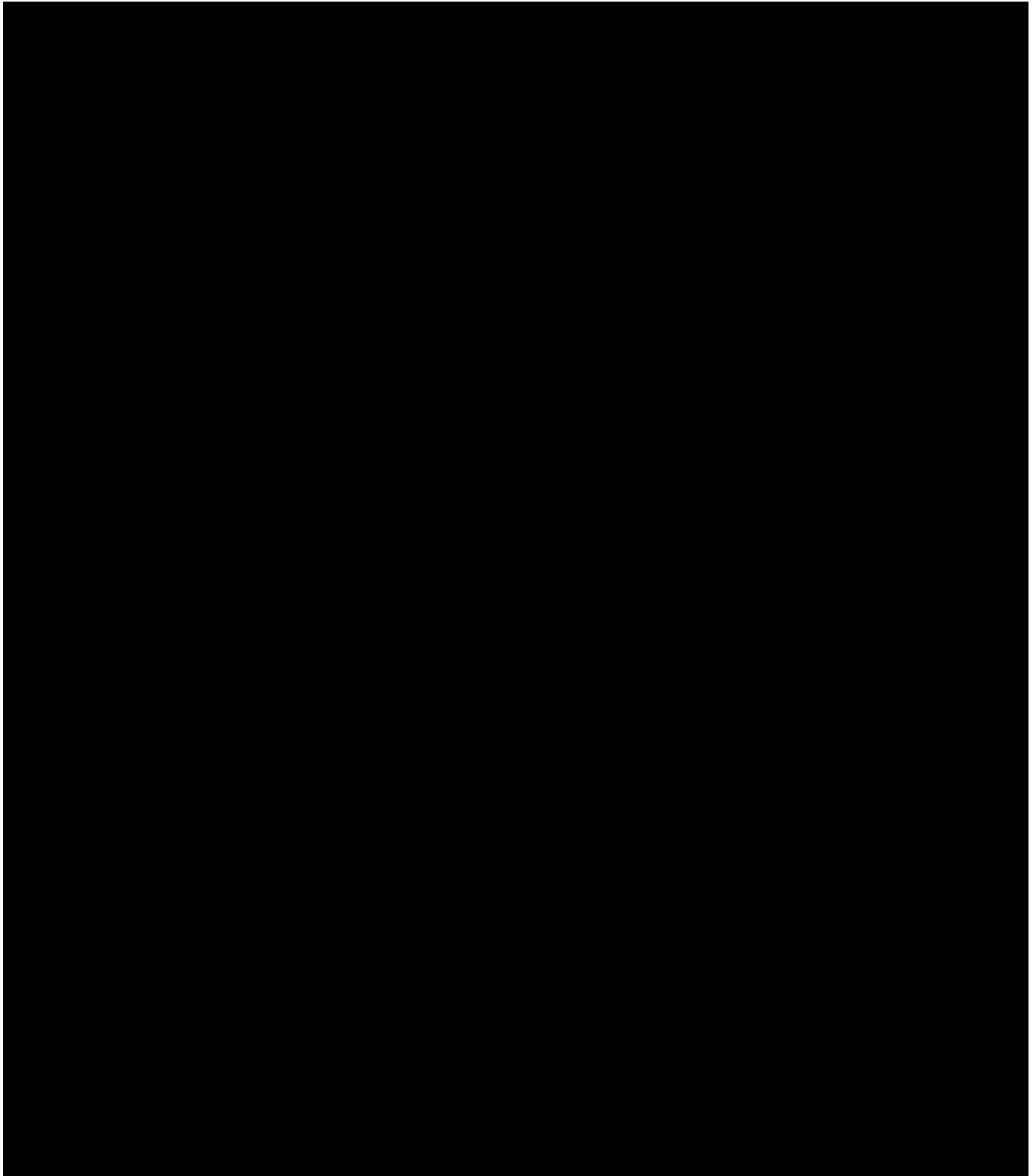


#### D.2.1.1.4 PROJECT STAKEHOLDERS



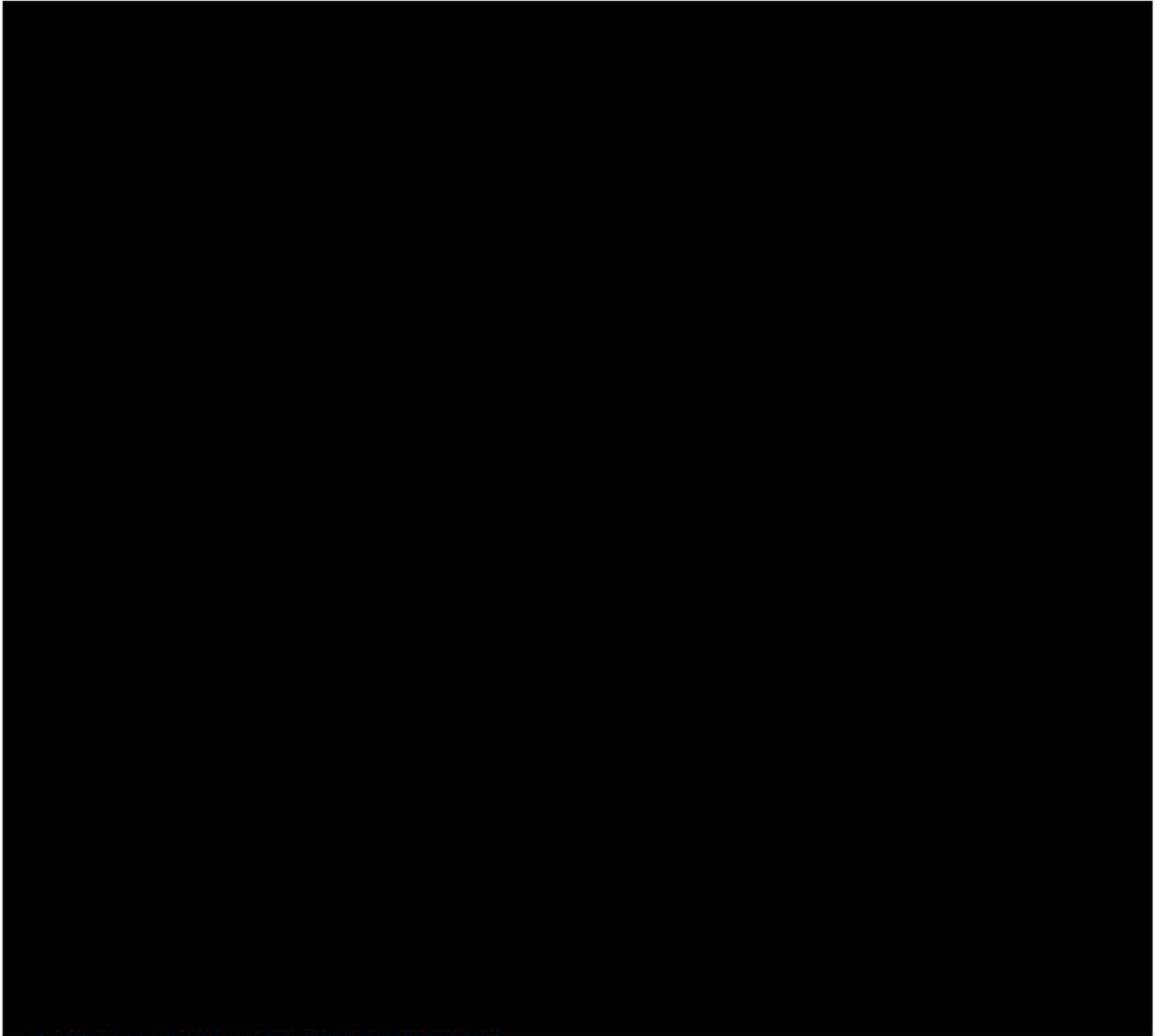


#### D.2.1.1.5 SCOPE MANAGEMENT

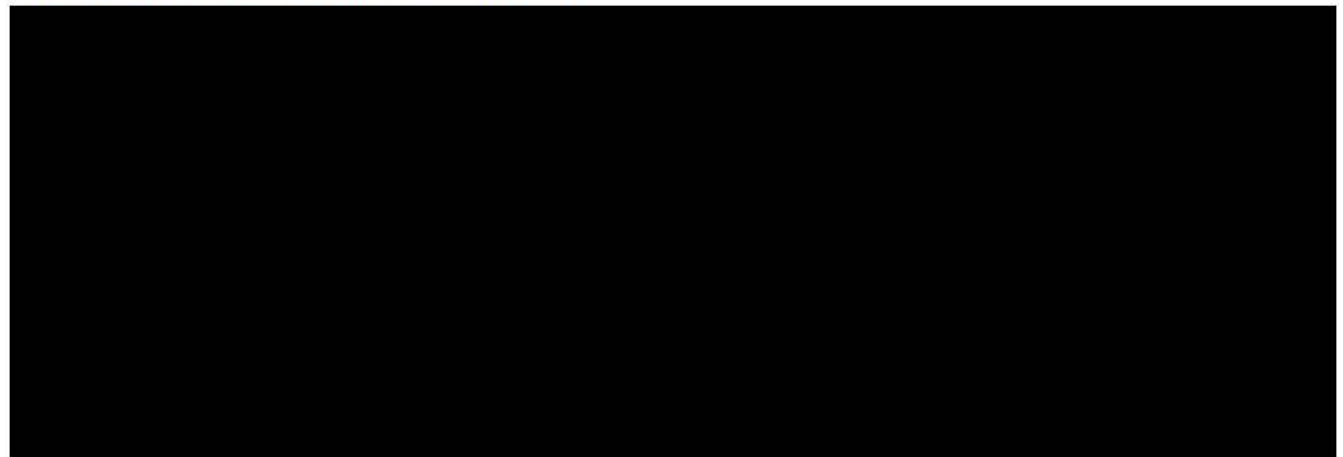




#### D.2.1.1.7 COST MANAGEMENT



#### D.2.1.2 APPROACH TO IMPLEMENTATION







#### D.2.1.2.1 INFRASTRUCTURE PREPARATION



#### D.2.1.2.2 DELIVERY COORDINATION



#### D.2.1.2.3 APPROACH TO DOCUMENTATION DELIVERY AND CONTROL

All documentation listed in Section 21 of Form K will be developed and submitted for review and approval, having undergone an internal review by the ETC team, including subject matter experts and technical writers, using the Documentation QA Checklist to ensure that all documentation delivered to the Joint board is accurate, easy to understand, and professional.

Upon internal approval, the document is ready for official submittal to the Joint Board via the Joint Board's SharePoint document repository. The JB will be notified when electronic versions of the documents are placed into the document management control system. The ETC PM notifies the JB of the submittal and includes an expected action date along with collaborative review dates. As documents undergo the review cycle, the JB uses the provided Comments Log and Resolution Form to submit comments. ETC updates the document using the track changes feature of MS Word to incorporate the comments received from your reviewers and to facilitate and focus subsequent reviews conducted.

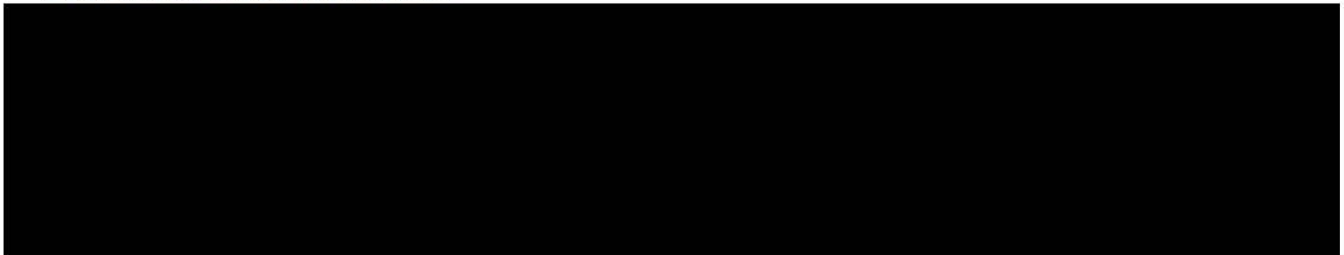
The timing for the review cycles is determined by the Approved Baseline Project Schedule. Feedback on the documentation received from the Joint Board is provided through the collaborative review process and ultimately tracked with the Comments Review Form.



Modifications to documents will be made by ETC. Once all comments are addressed, we update the document to the next whole-number version number and resubmit. After the first round of comments, document reviewers will comment, or update, prior comments. Any comments should be limited to those of major significance.

Throughout the term of the contract as documents are considered final and approved, any patches, enhancements, upgrades, and updates made to system hardware and software that impact documentation will be incorporated via the document control system and repository.

### *Technical Documentation*

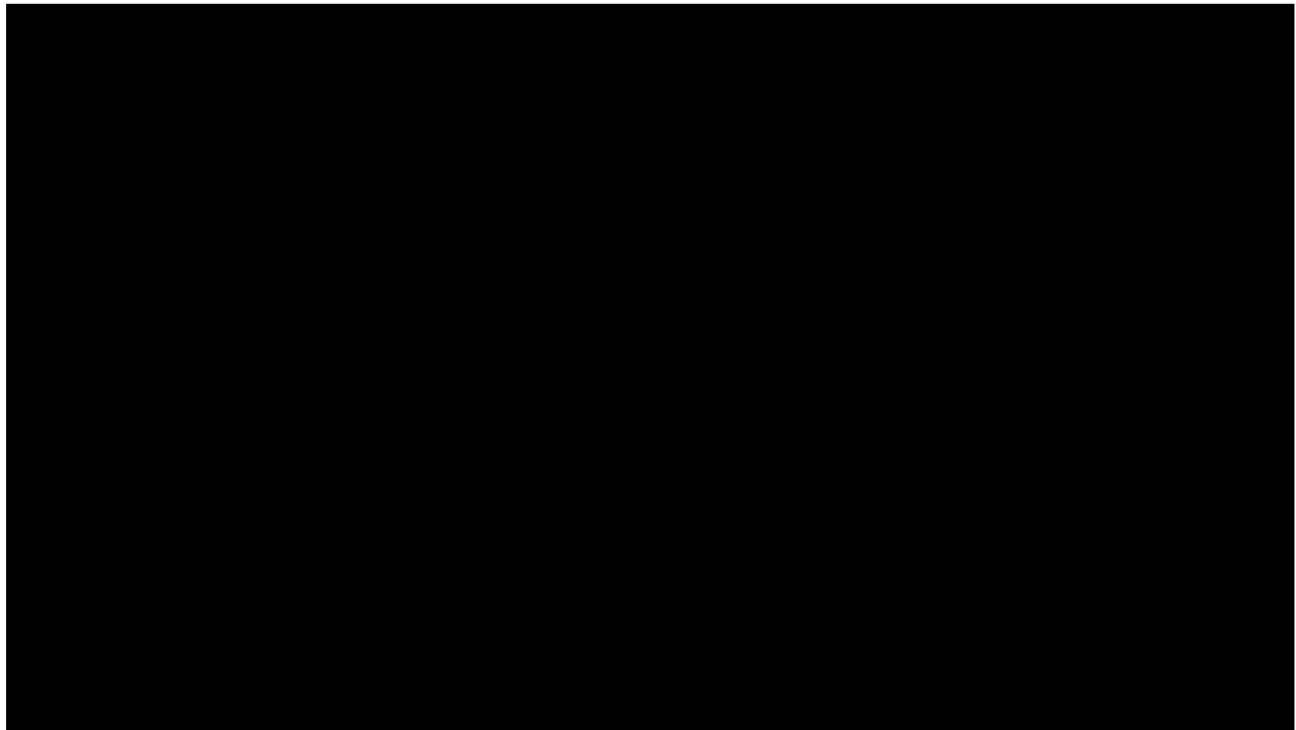


information on how the requirements are met through the System Design, the Interface Control Documents (ICDs) and As-Builts.

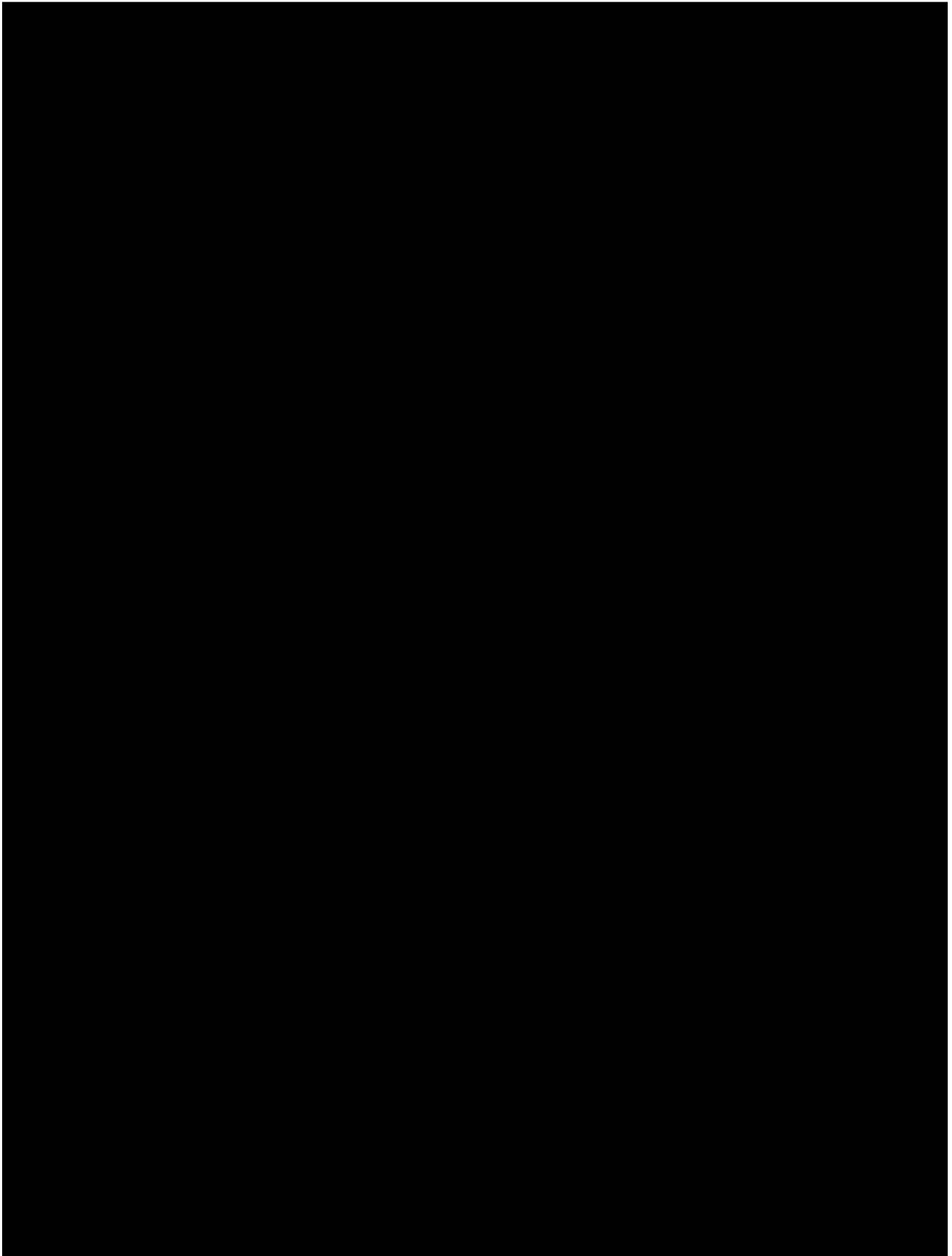
### *End-User and Training Documentation*

ETC's end-user manuals, *riteHorizon User Manual and the Training Workbooks*, support users of the system's GUI by providing modular task-based information (MTBI) as well as reference information for user functions. The training manuals support students in the classroom. Training manuals and supporting material are not only intended for use by students in the classroom but also for self-study refreshers.

#### **D.2.1.2.4** APPROACH TO TRAINING DELIVERY

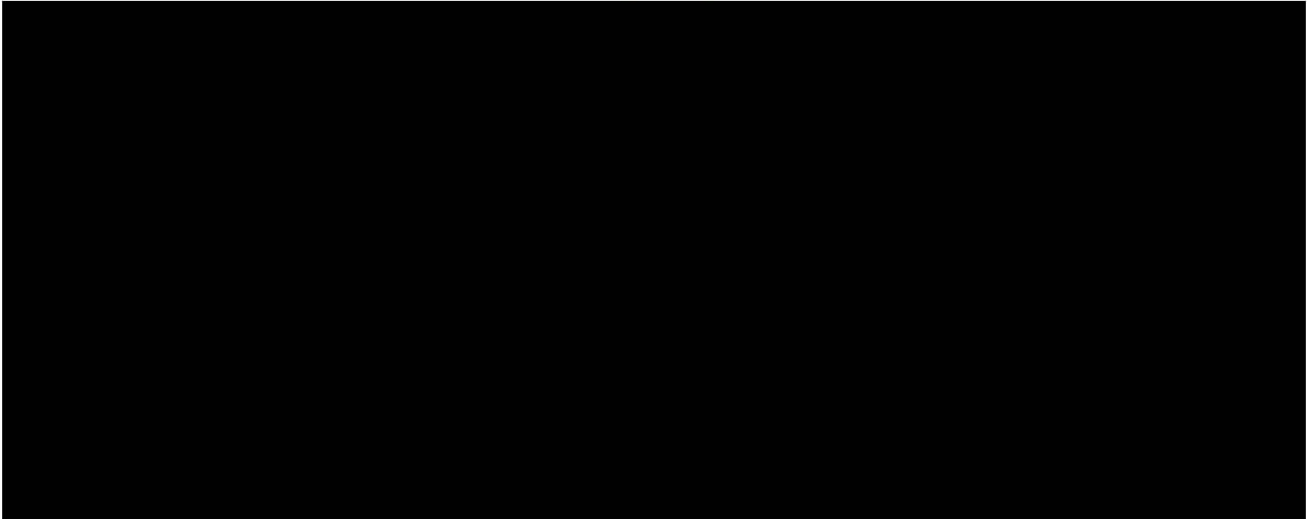




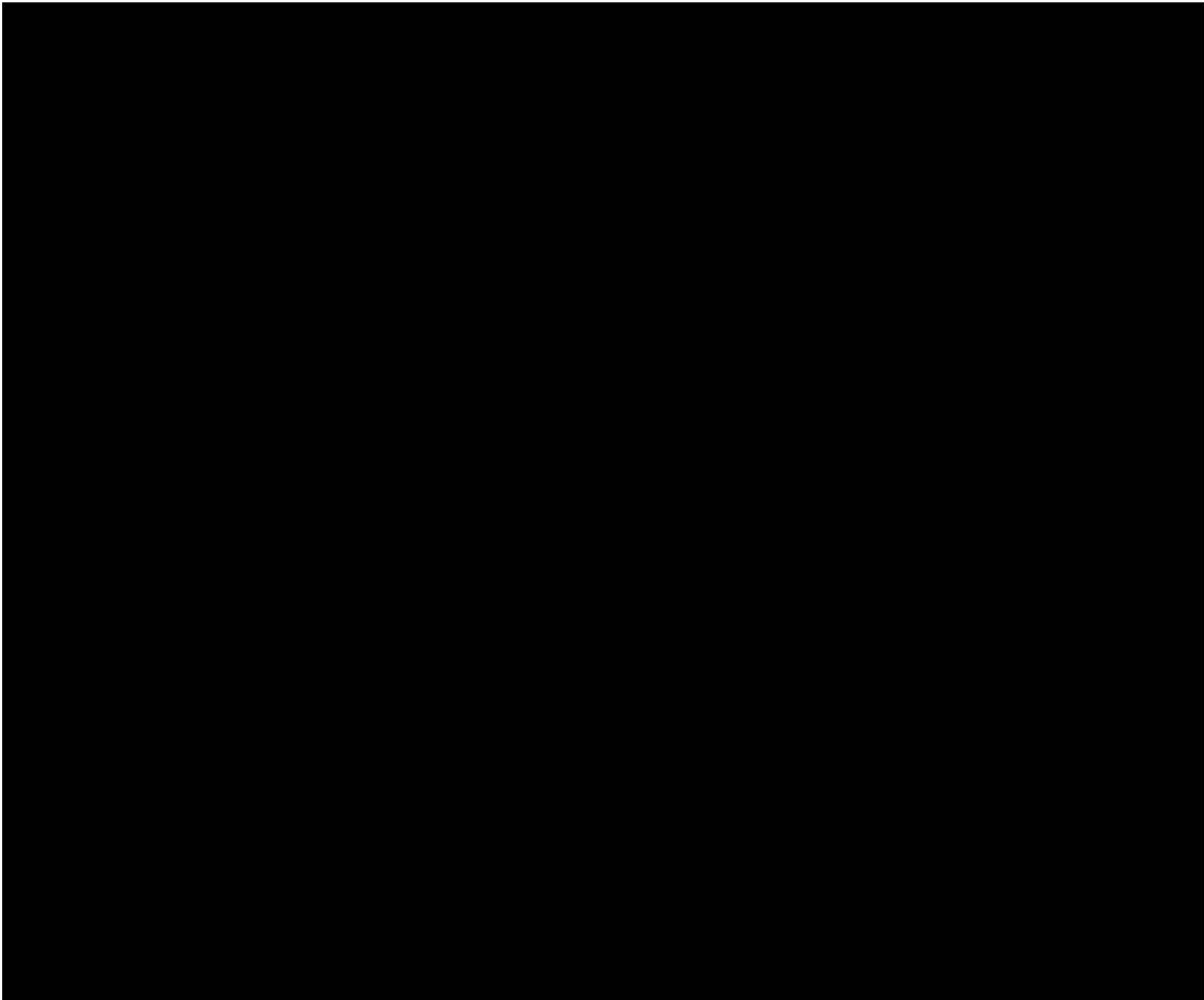




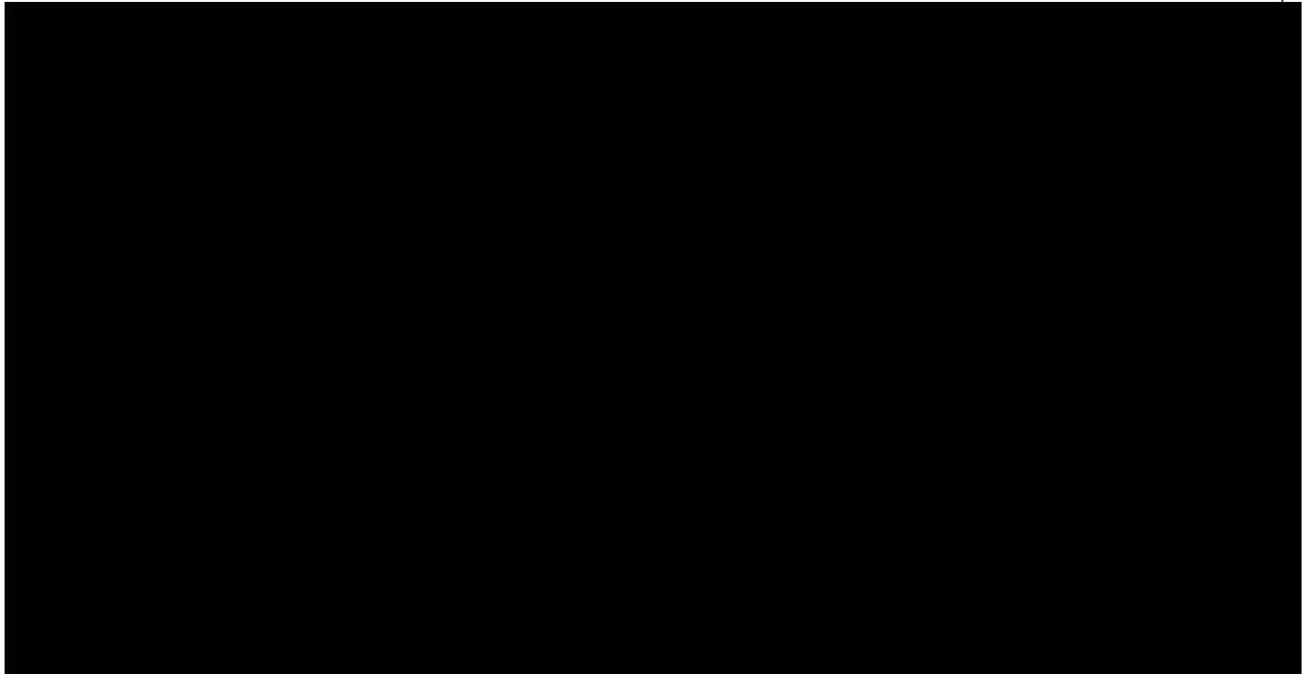
## D.2.2 APPROACH TO DATA MIGRATION (K-2)



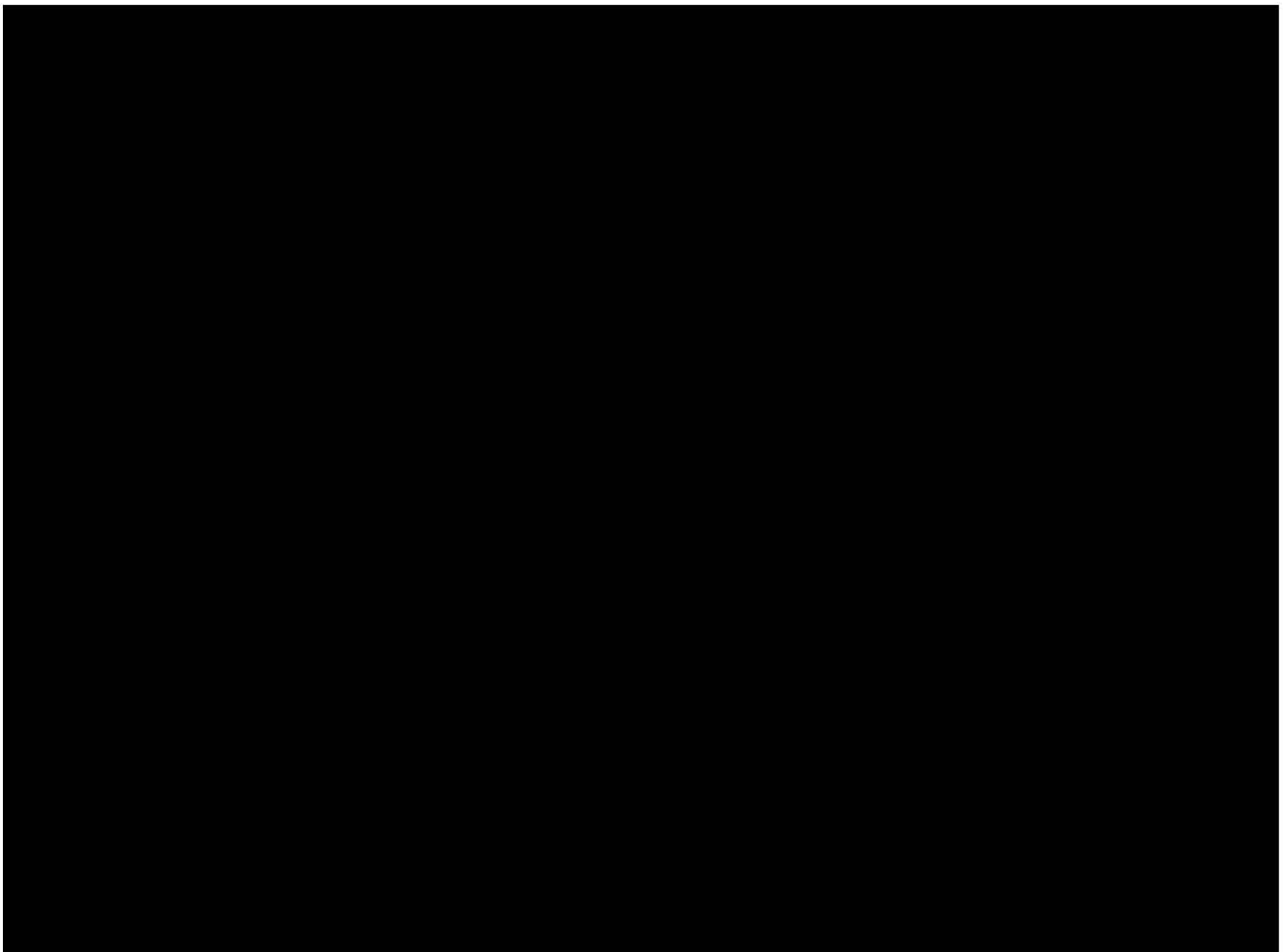
### D.2.2.1 APPROACH TO DATA TRANSFER



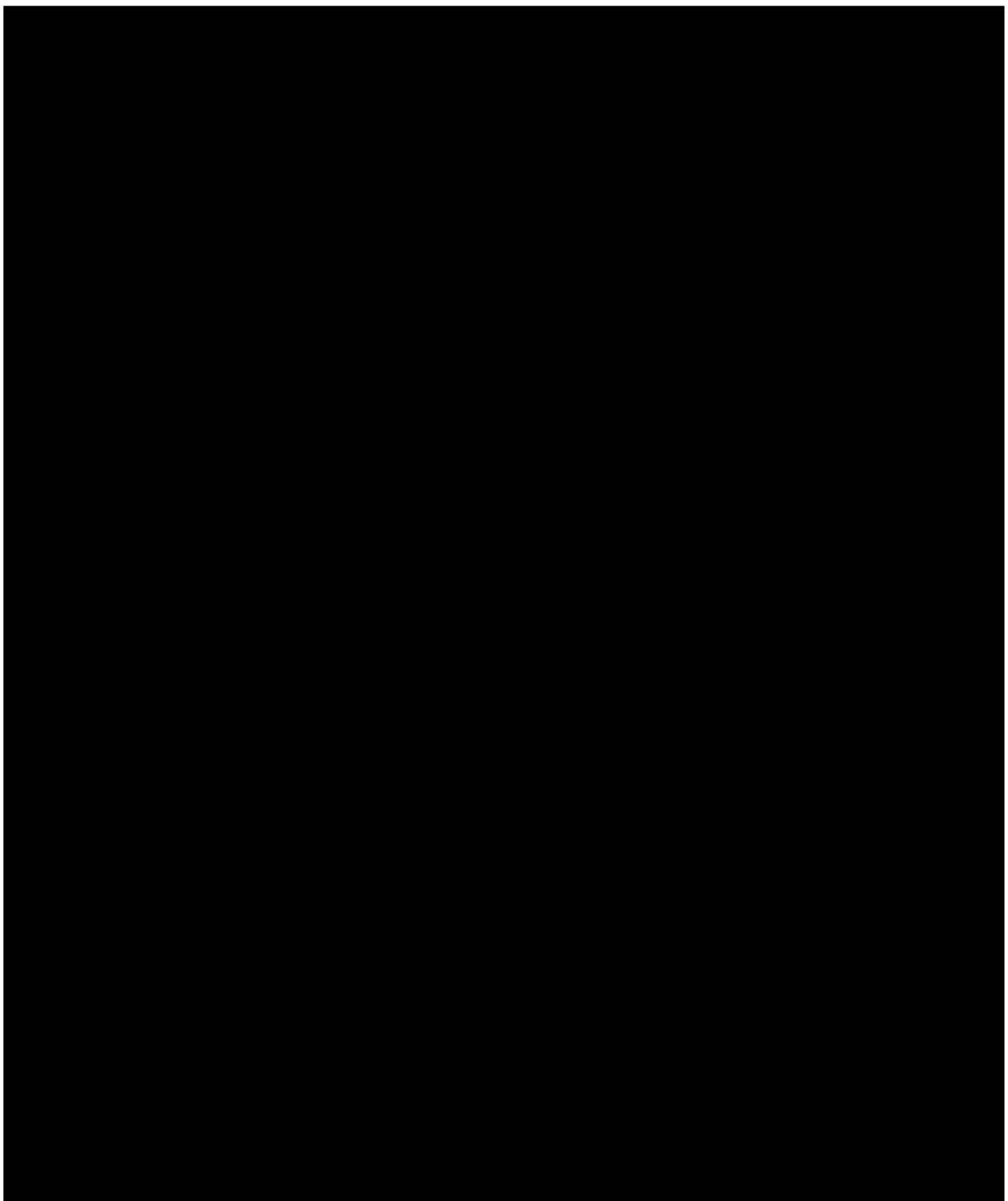




#### D.2.2.2 DATA MIGRATION TOOL AND APPROACH TO DETERMINING DATA FORMAT



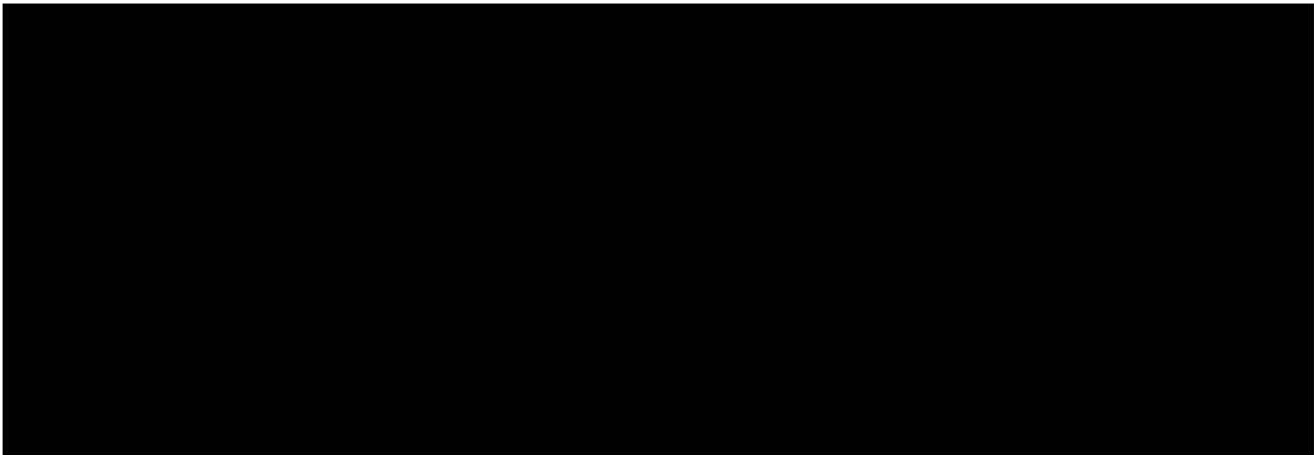




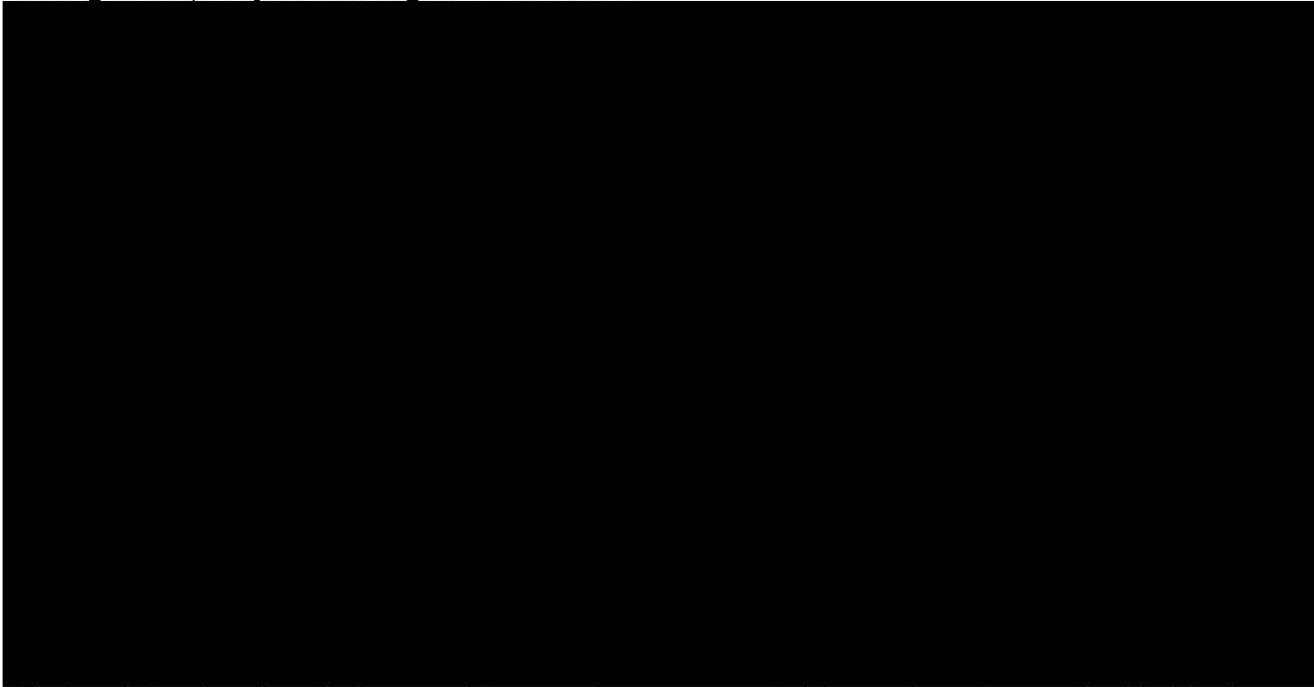
#### D.2.2.3 DATA MIGRATION PLAN VALIDATION





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During each of the migration phases, we will provision migrated data in each environment (Test, UAT, Training, Prod) as required to support the data migration testing, project test phases, and go live preparation. This provisioning of migrated data is extremely important as not only must the migrated data be compared to the legacy system, but the new system must be shown to work seamlessly with the new data. This data provisioning sets the stage for a number of successful testing tracks, not just data migration validation.

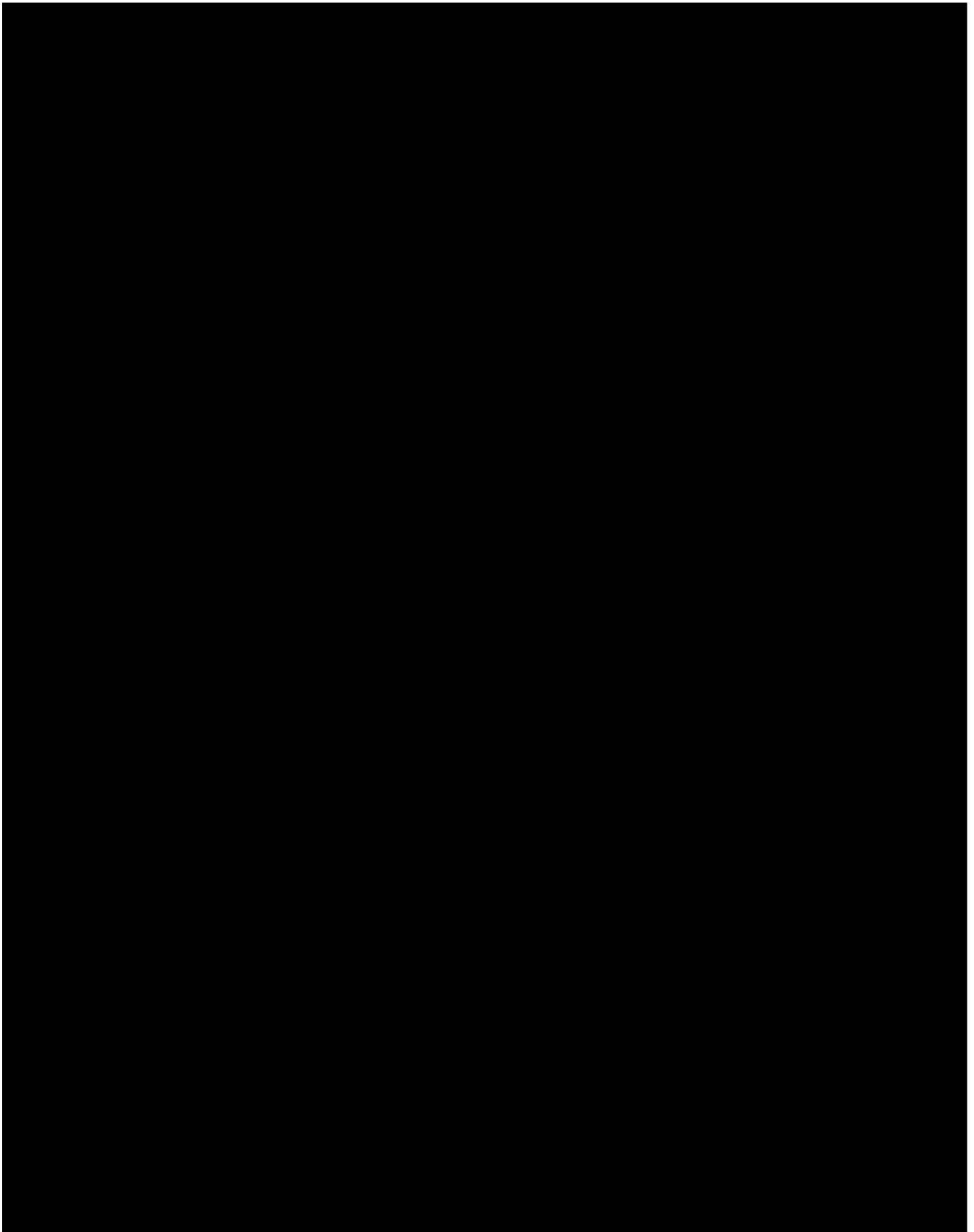
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During data migration design, as data mappings are created for each system and added to the Data Migration Design Document, the Data Migration Test Plan and test cases are written.

Then data migration testing begins using these created data mapping test cases. The tests are executed on an individual table-by-table basis to verify the mapping is correct. Validation queries are developed to confirm the destination data was converted correctly. Checkpoints are defined and used during execution of the conversion steps to ensure completion and track progress.

Any data anomalies or unexpected results are stored in a logging area for manual review. The output of the procedures and queries are analyzed to ensure the results are correct. Any exceptions from the migration are handled according to the exception process.



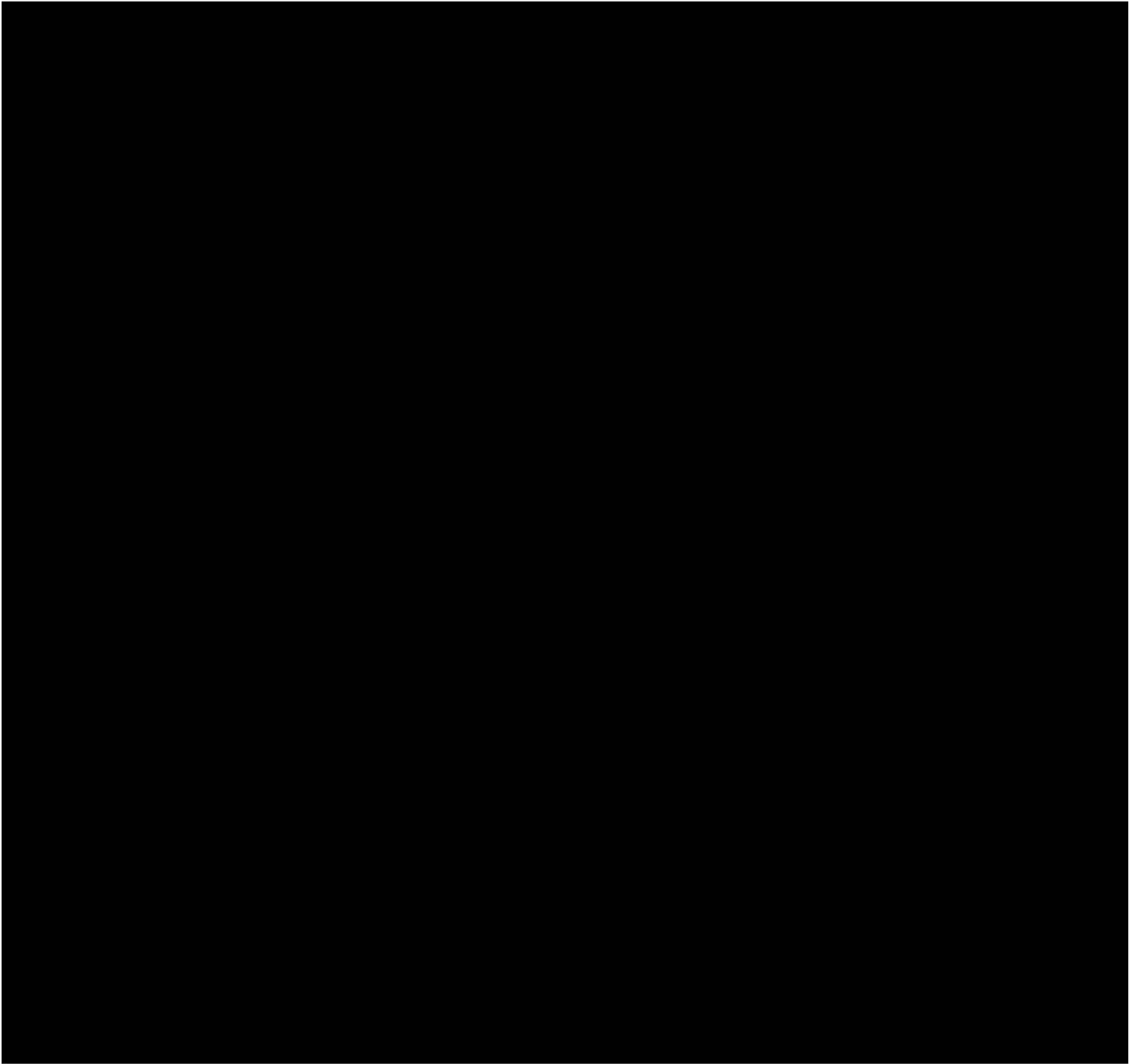




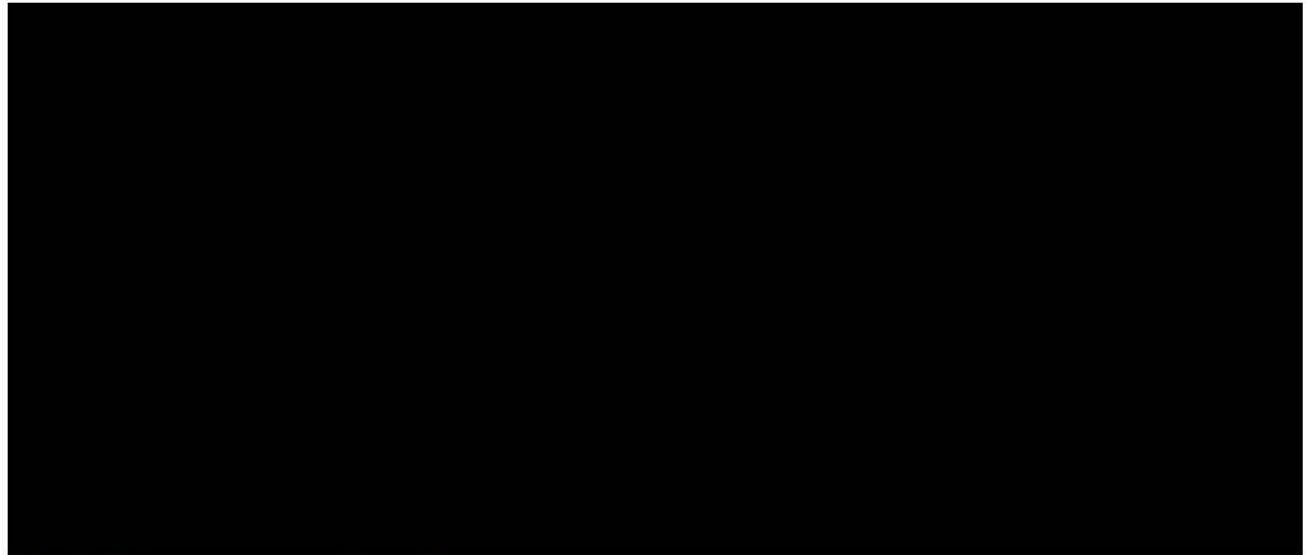
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#### D.2.2.4 APPROACH TO DATA MIGRATION EXECUTION

ETC's data migration methodology, described in detail earlier in this section, is the culmination of 21 years of successful migrations, including the latest very large migration at HCTRA. The processes, templates and tools perfected in these prior implementations inform and guide our approach to the ORB migration. Our methodology's proven process and goals are illustrated in [Figure 8](#) below.

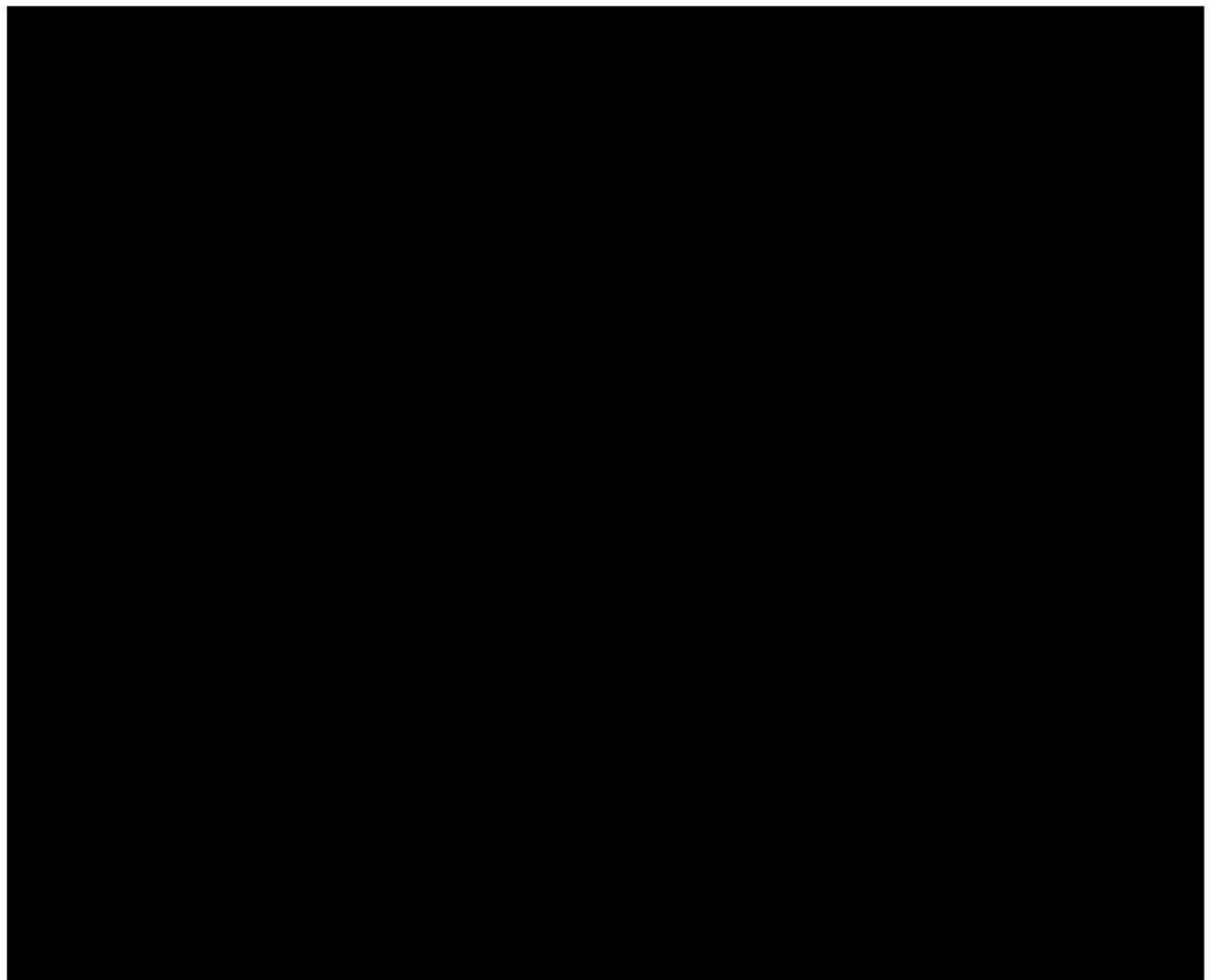
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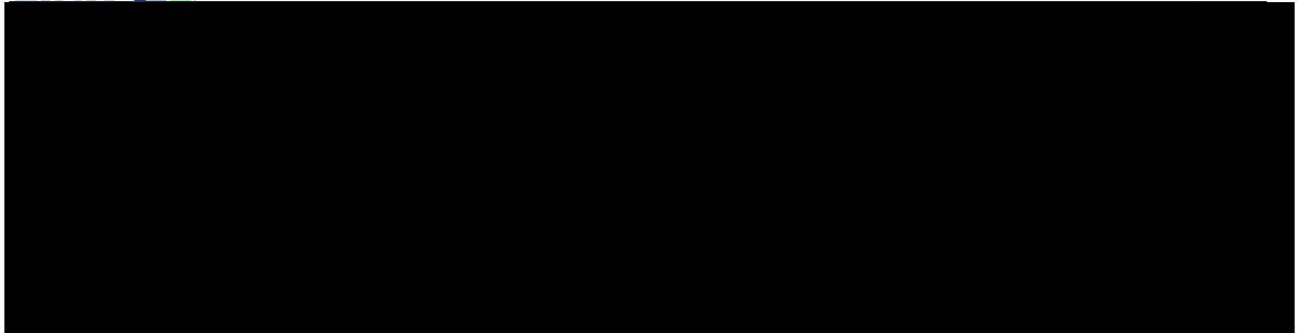


#### **D.2.2.5 APPROACH TO DATA SECURITY**

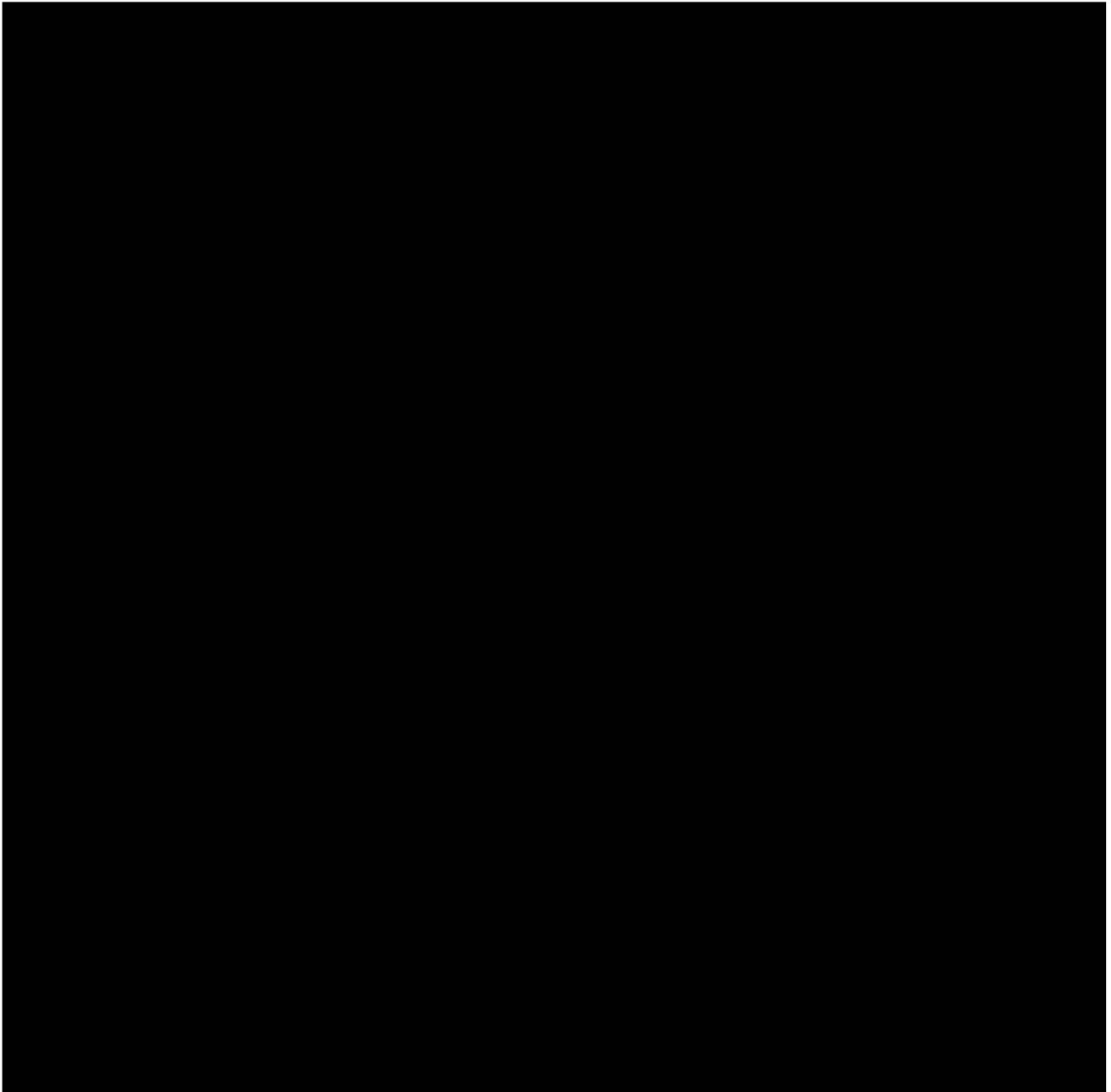
ETC's data migration methodology distinguishes between PII and PCI information.







#### D.2.2.6 DATA MIGRATION EXPERIENCE

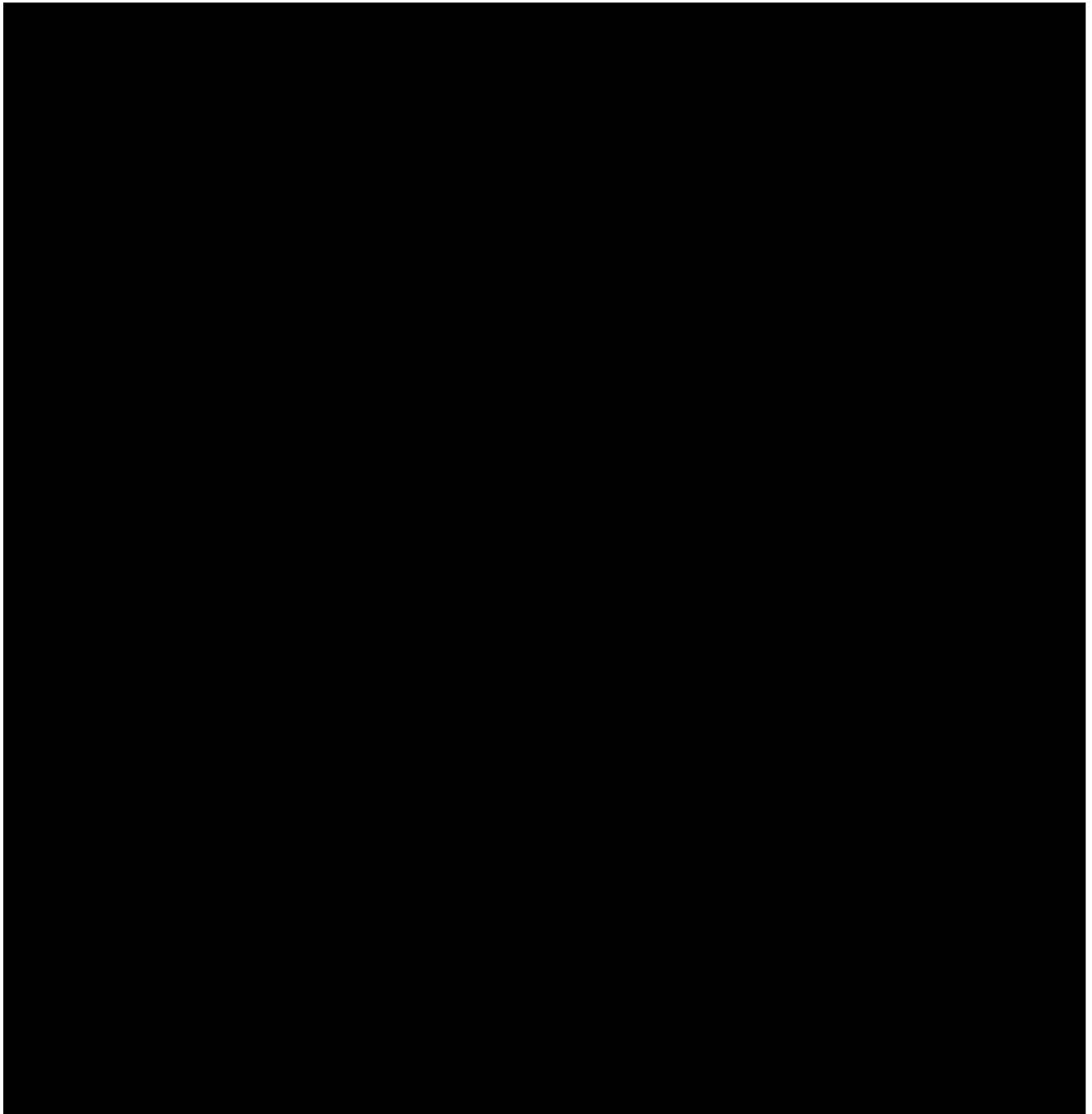




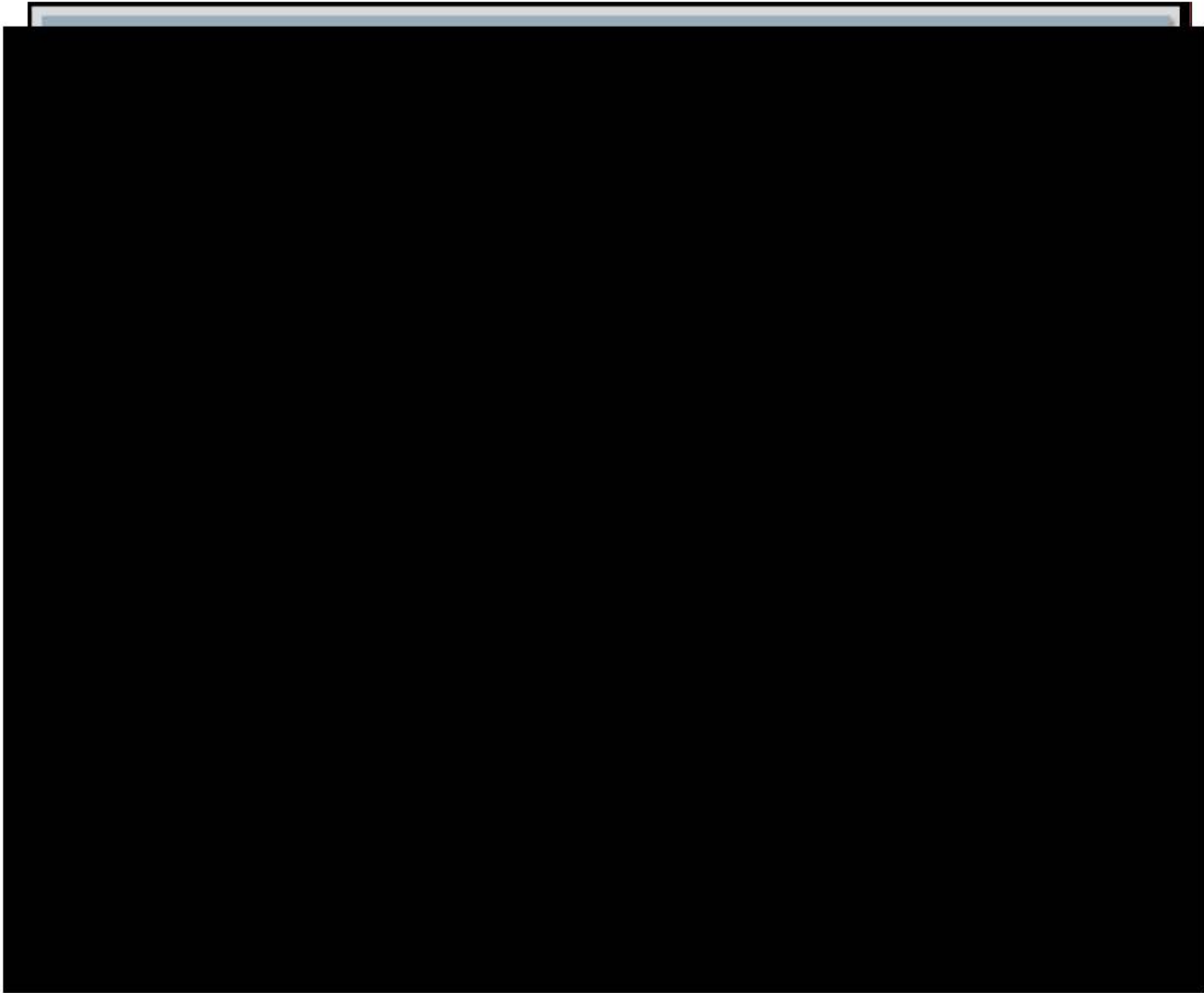
### D.2.3 APPROACH TO SYSTEM AND PROJECT REQUIREMENTS (K-3)

ETC's Design and Implementation Team has 21 years of experience delivering and maintaining projects. We understand the need for a flexible system that is fully operational, scalable, and technology-relevant for years after implementation, and we have designed our solution with existing proven logic to accomplish just that. *The proposed solution is designed to scale the system both vertically and horizontally to accommodate all conceivable future transaction volume and regulatory growth with ease.*

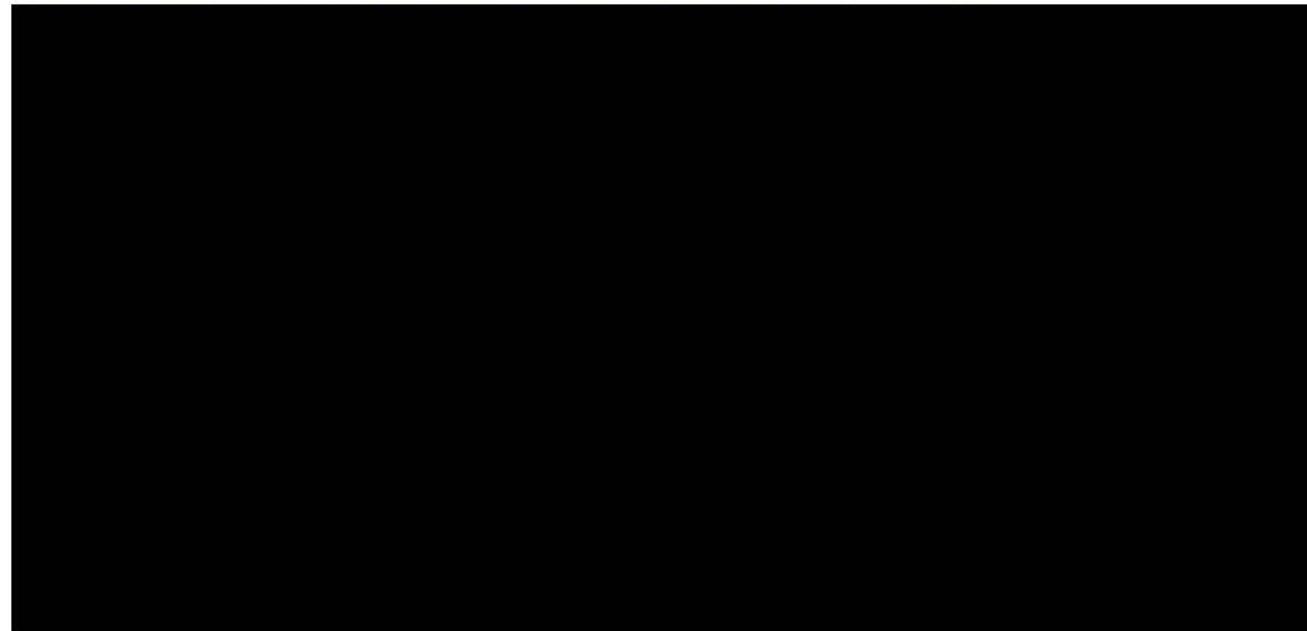
#### D.2.3.1 SYSTEM ARCHITECTURE FOR FUTURE GROWTH



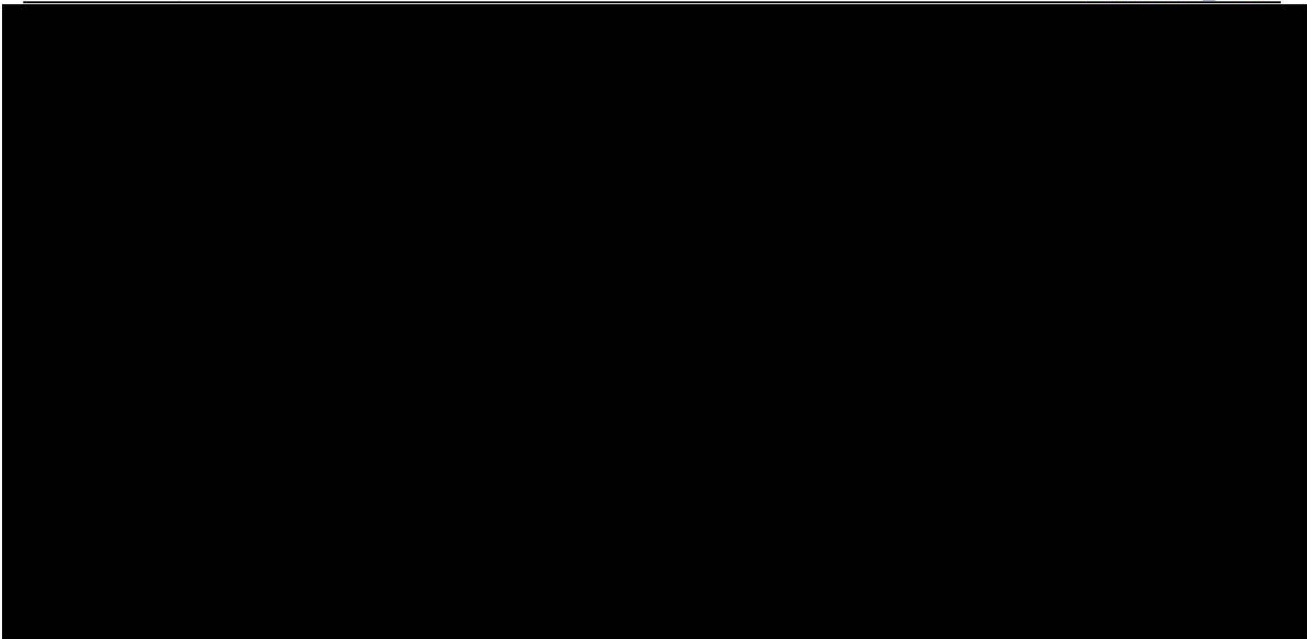




#### **D.2.3.2 SYSTEM DESIGN TO ACCOMMODATE EMERGING PRIVACY LAWS**



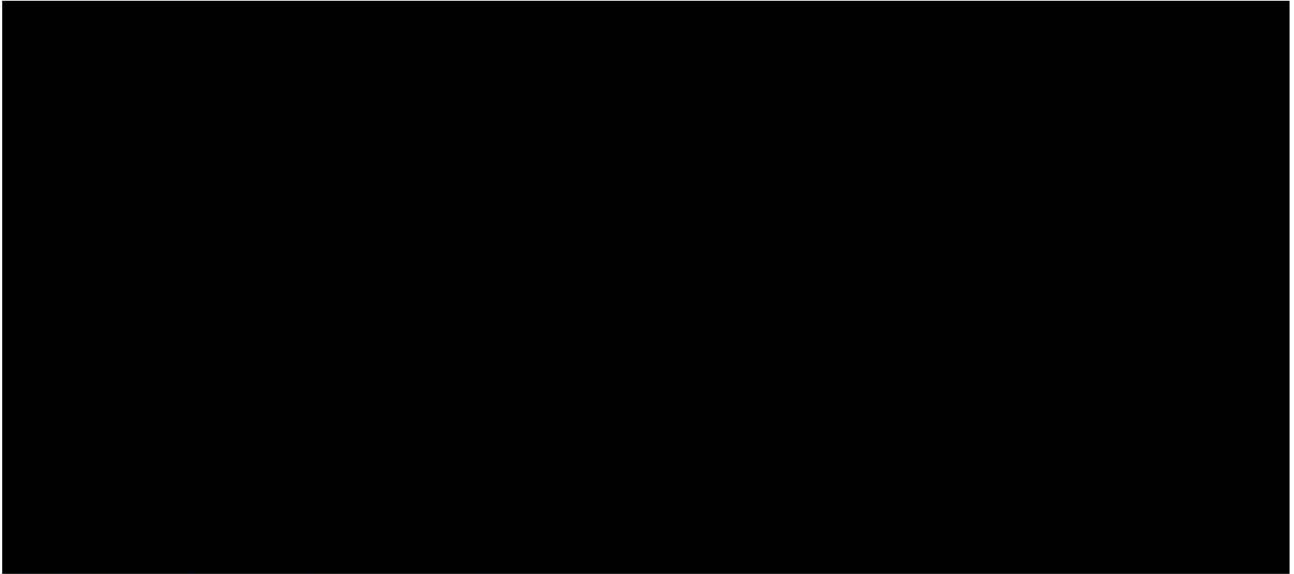


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- ▶ Update of Call Center and Online Terms and Conditions, along with call center training. This may include notifying all current users of the changes and obtaining their consent.
  - ▶ A review of all data collected to ensure it meets the law; this may entail updates to the application.
  - ▶ A review of purge rules to meet the legal requirements and ensure exposure is kept low.
  - ▶ Periodic review of all data to ensure accuracy such as addresses and phone numbers.
  - ▶ Additional audit compliance activities.

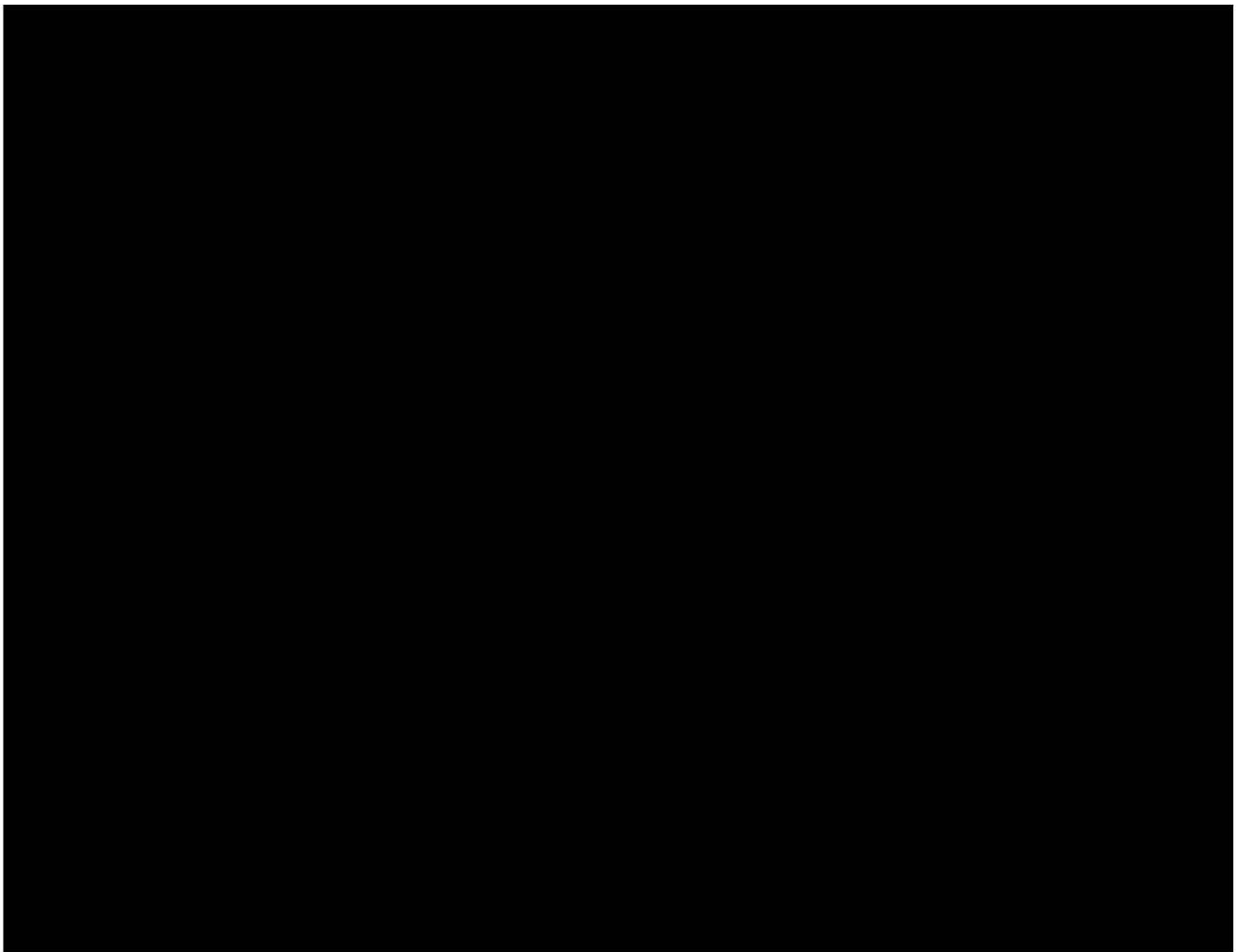
ETC has passed PCI and SOC related audits for its existing tolling systems and processes since 2004, so additional audit activities would not be onerous. *The core ERP and other proposed modules in riteHorizon are well documented and modular, and they will be easily modified to accommodate future privacy law changes as identified.*

#### D.2.3.3 APPROACH TO DATA SEGREGATION

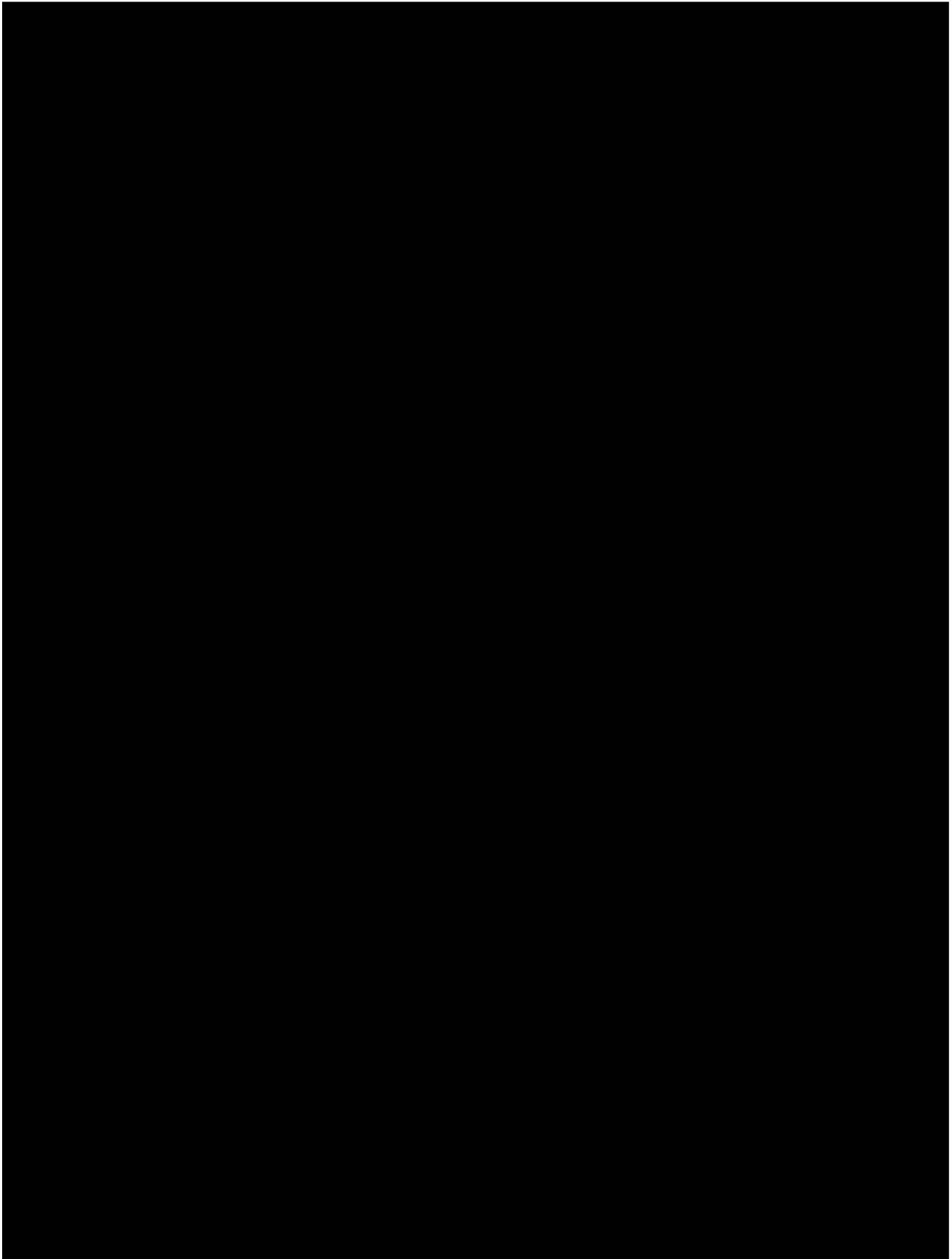




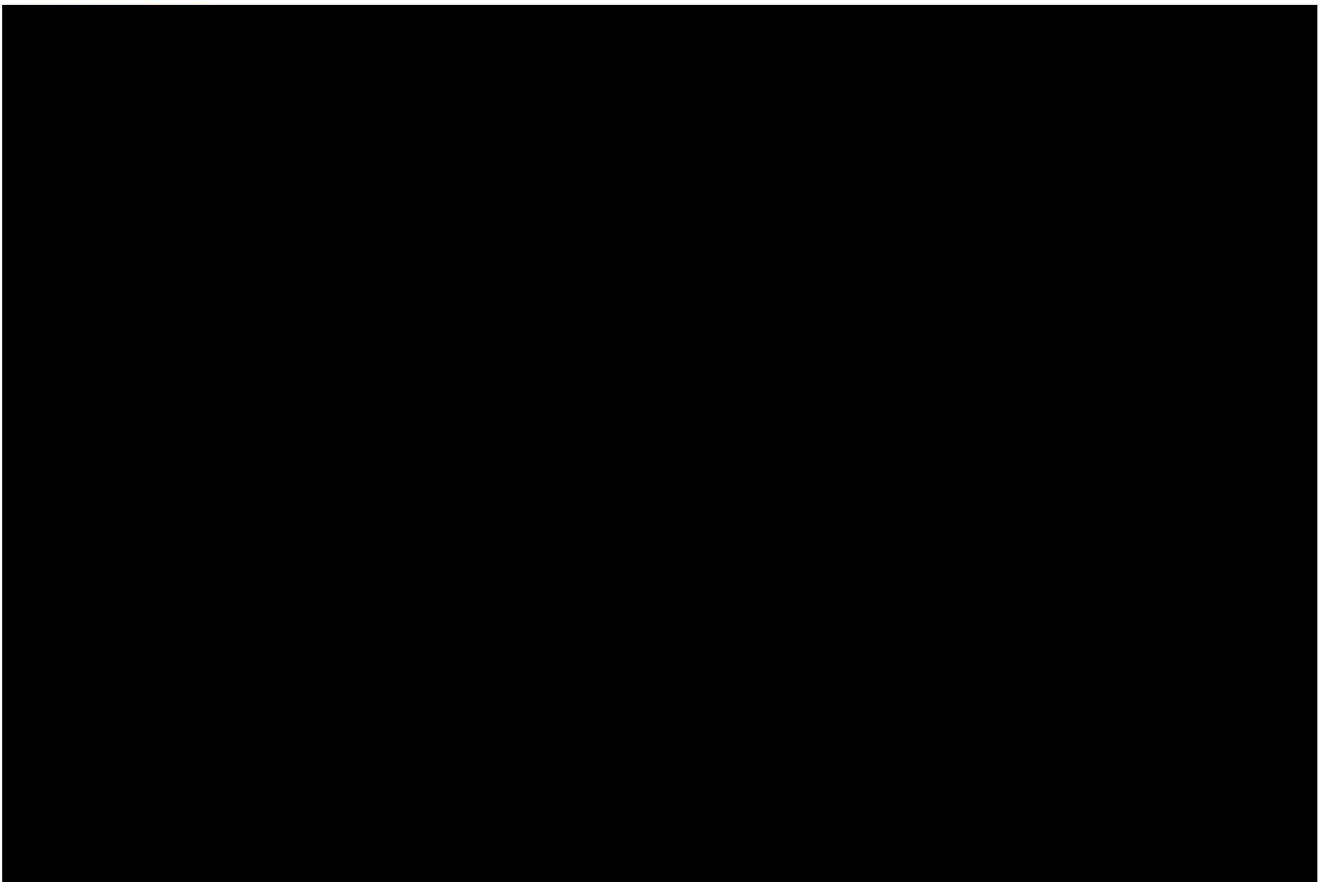
#### D.2.3.4 RITEHORIZON REPORTING SOLUTION



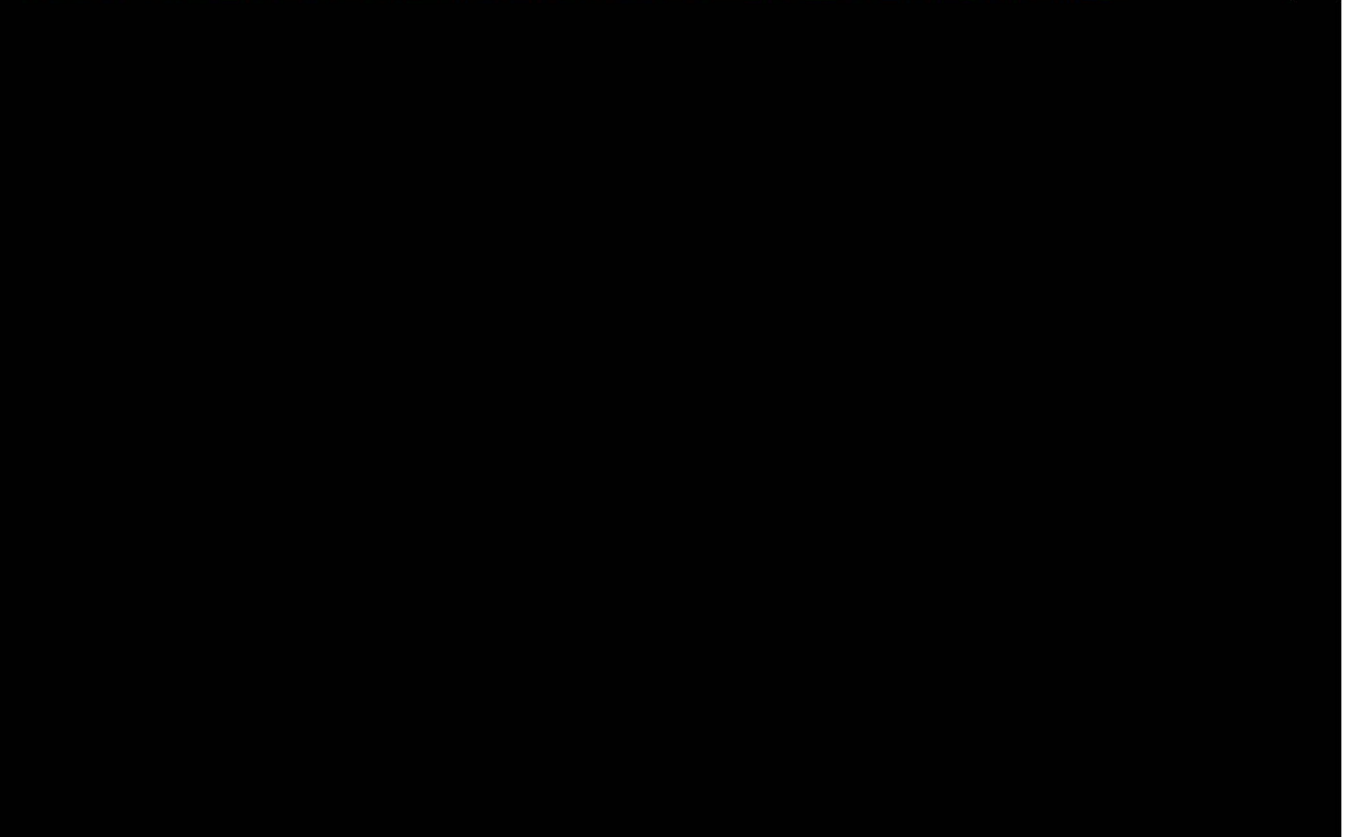




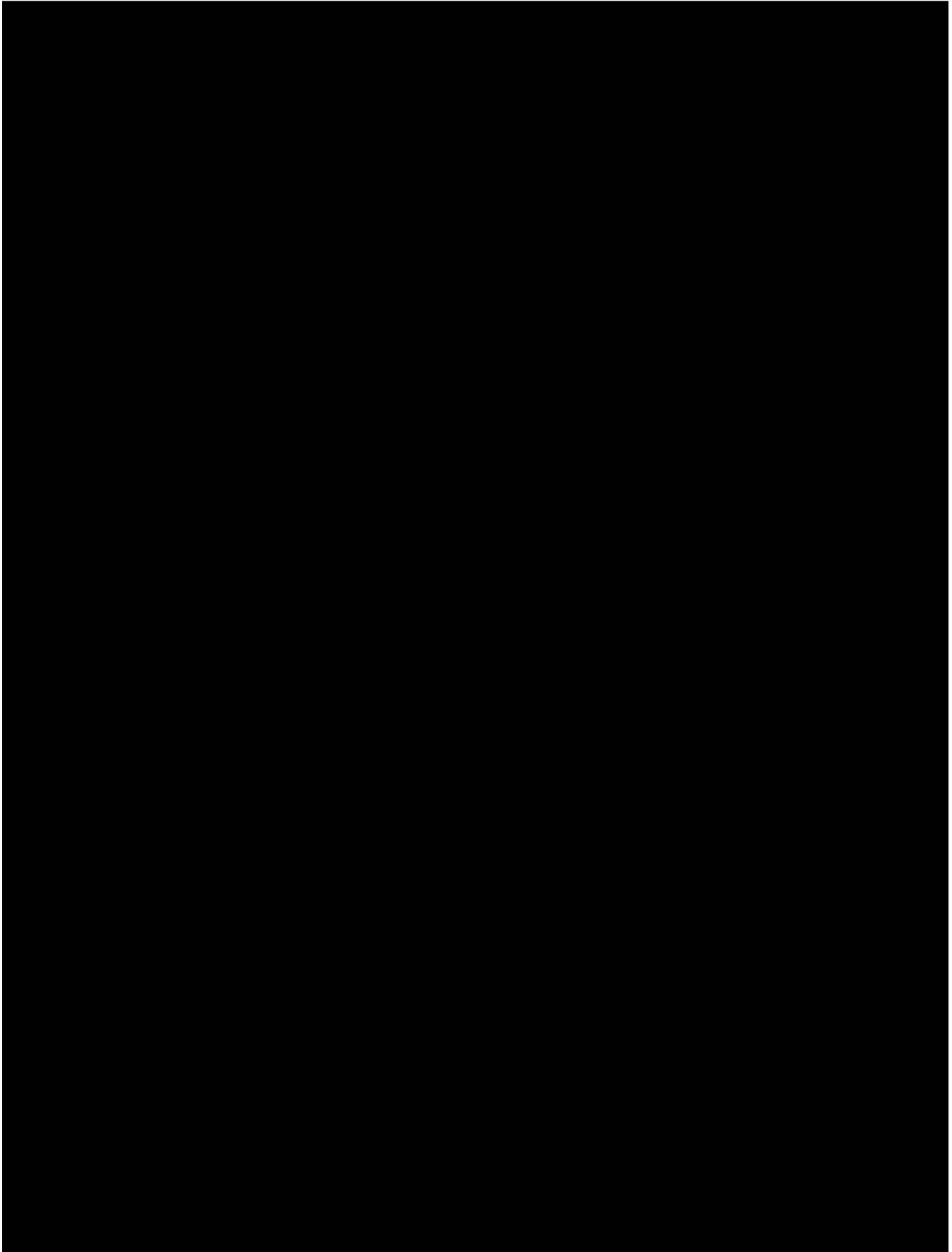




#### **D.2.3.5 SYSTEM CAPABILITIES TO SUPPORT CUSTOMER SELF-SERVICE CHANNELS**

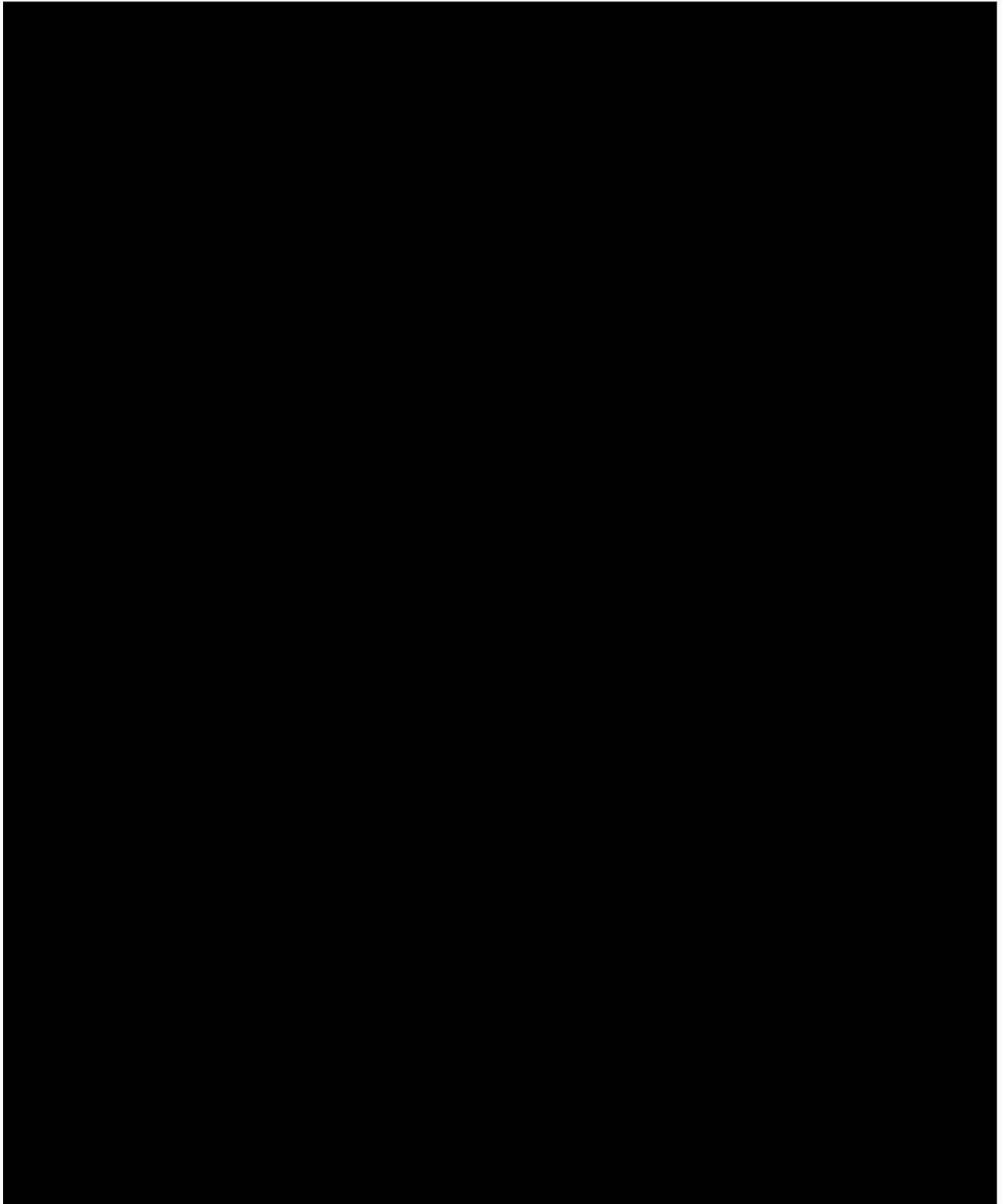






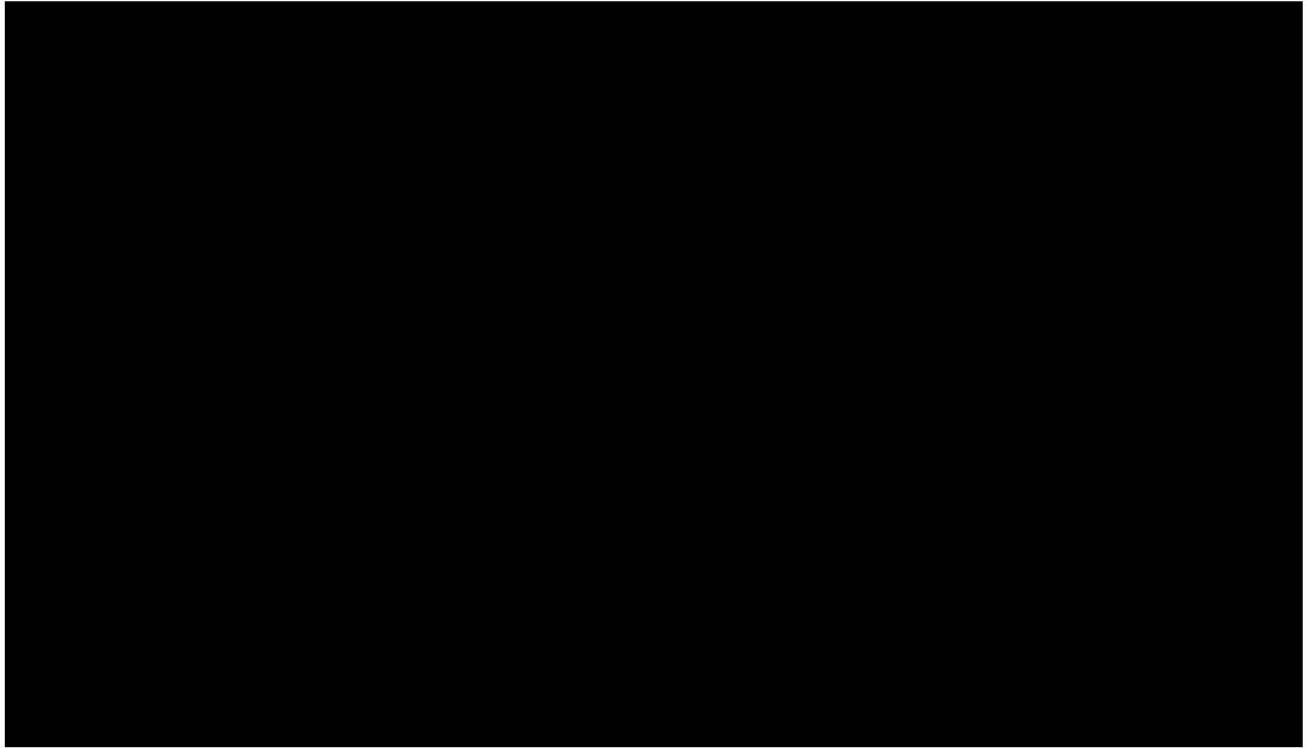


#### D.2.3.6 METHODS TO MAXIMIZE CUSTOMER SELF-SERVICE FUNCTIONALITY AND USE

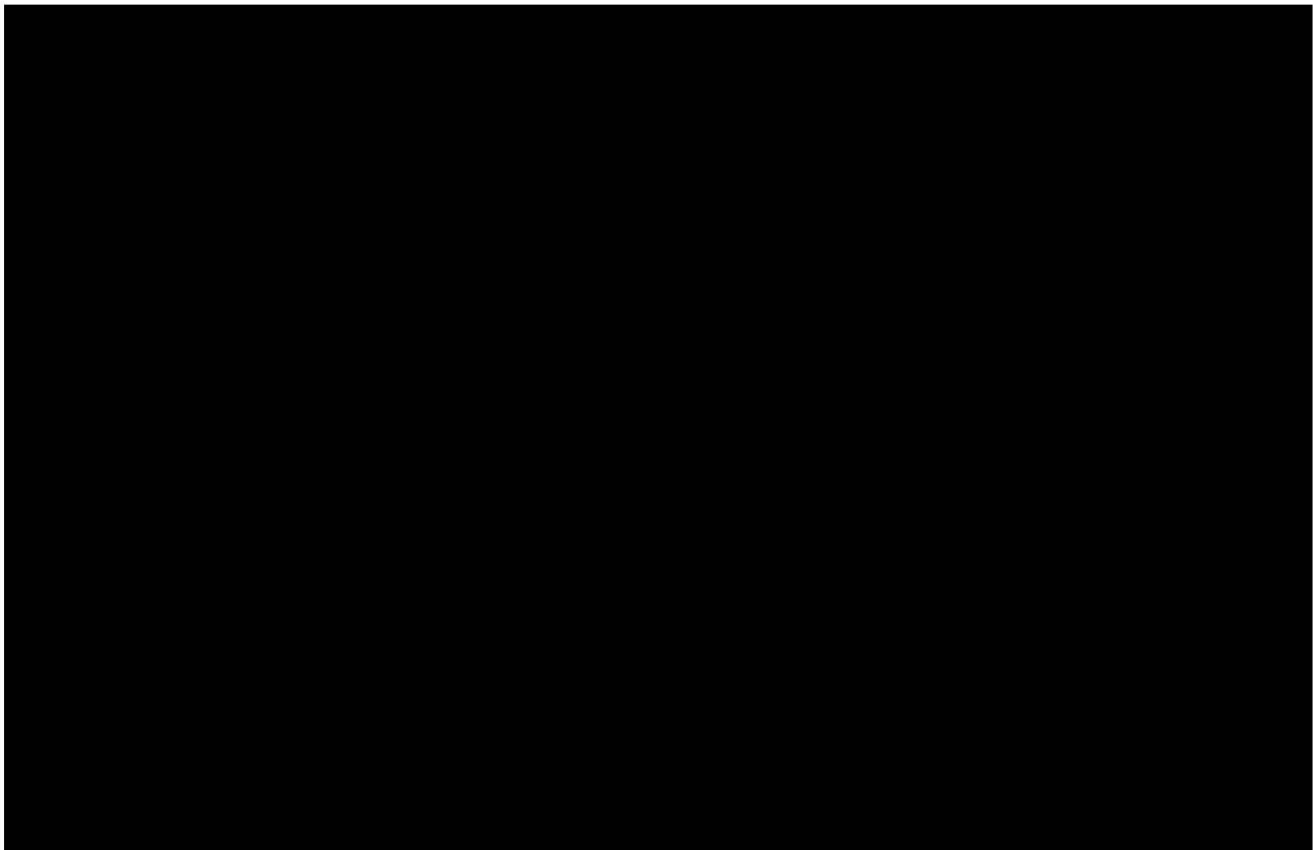




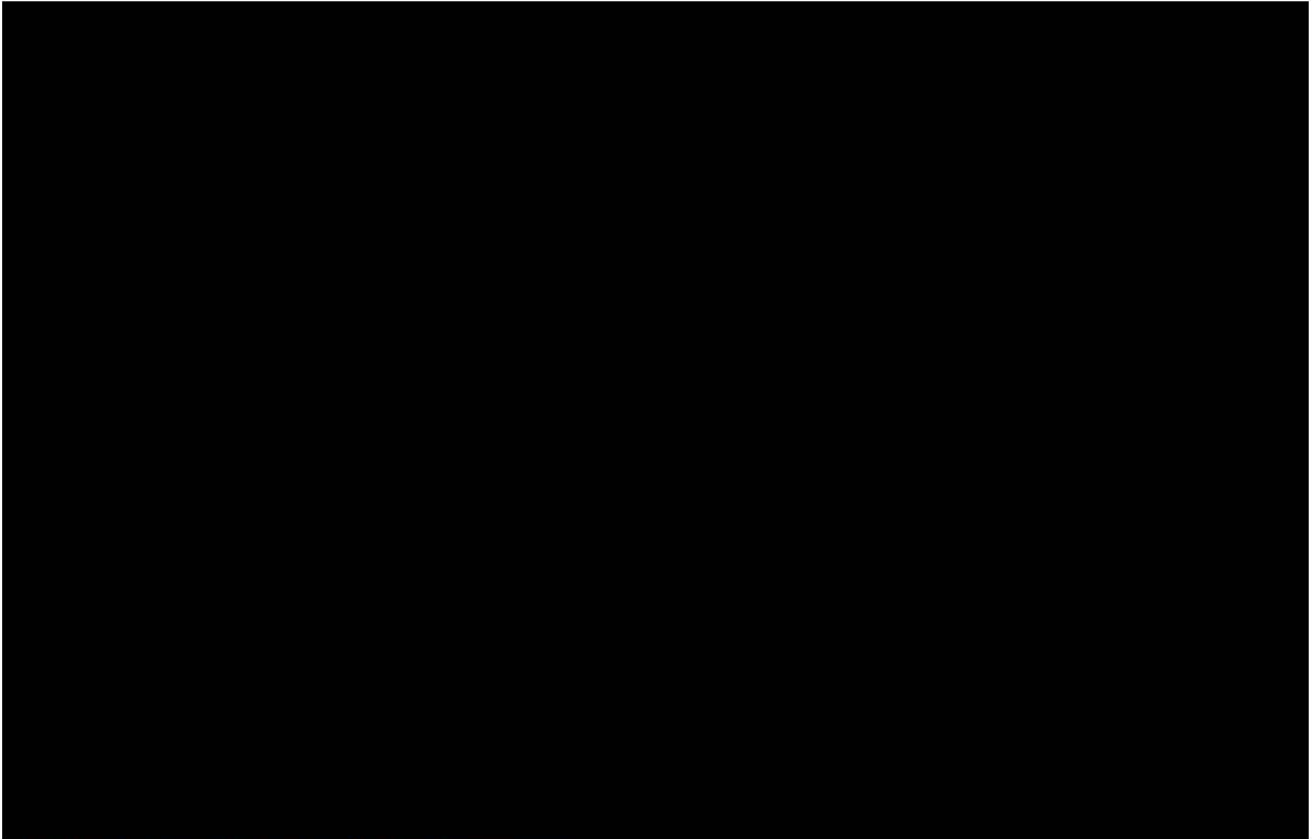
#### **D.2.3.7 SYSTEM ASPECTS TO CONVERT CUSTOMER TO SELF-SERVICE**



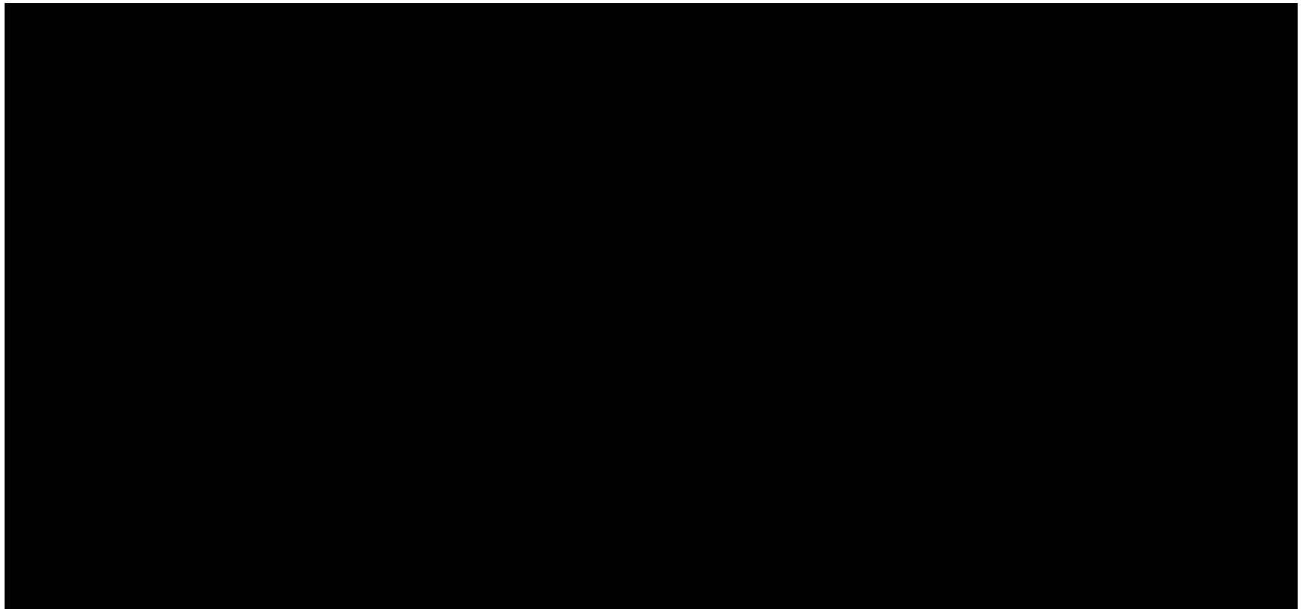
#### **D.2.3.8 CONTACT CENTER INTEGRATION EXPERIENCE / LESSONS LEARNED**



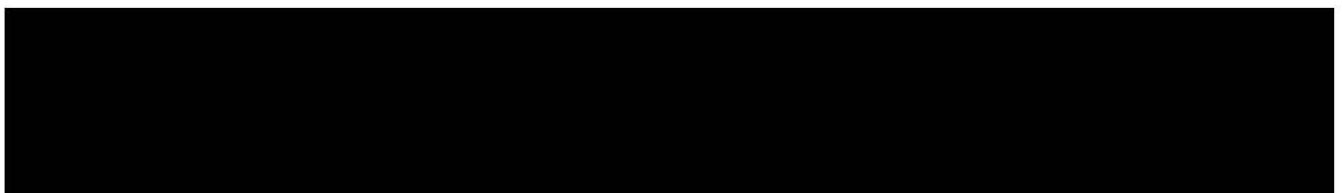




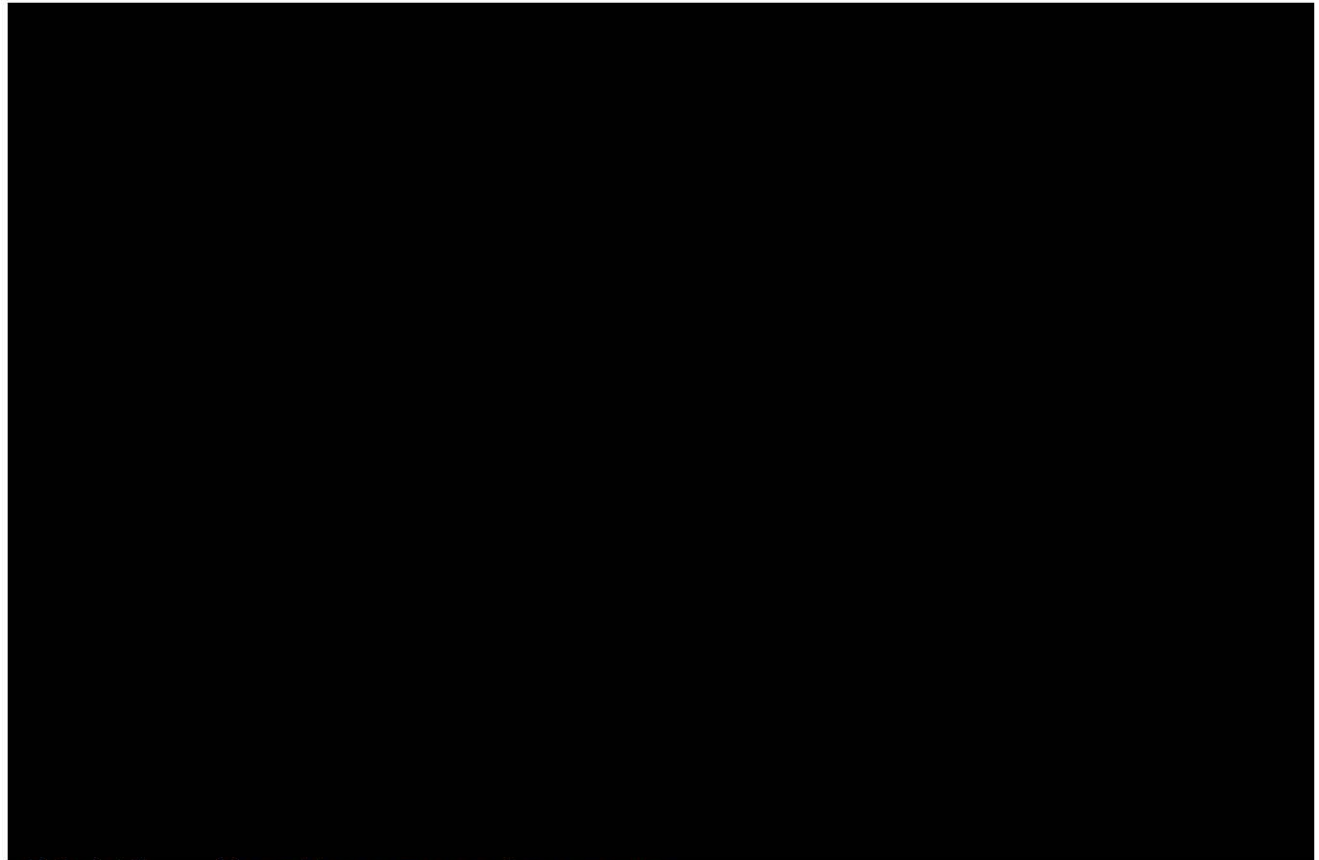
#### **D.2.3.9 APPROACH TO PCI COMPLIANCE**



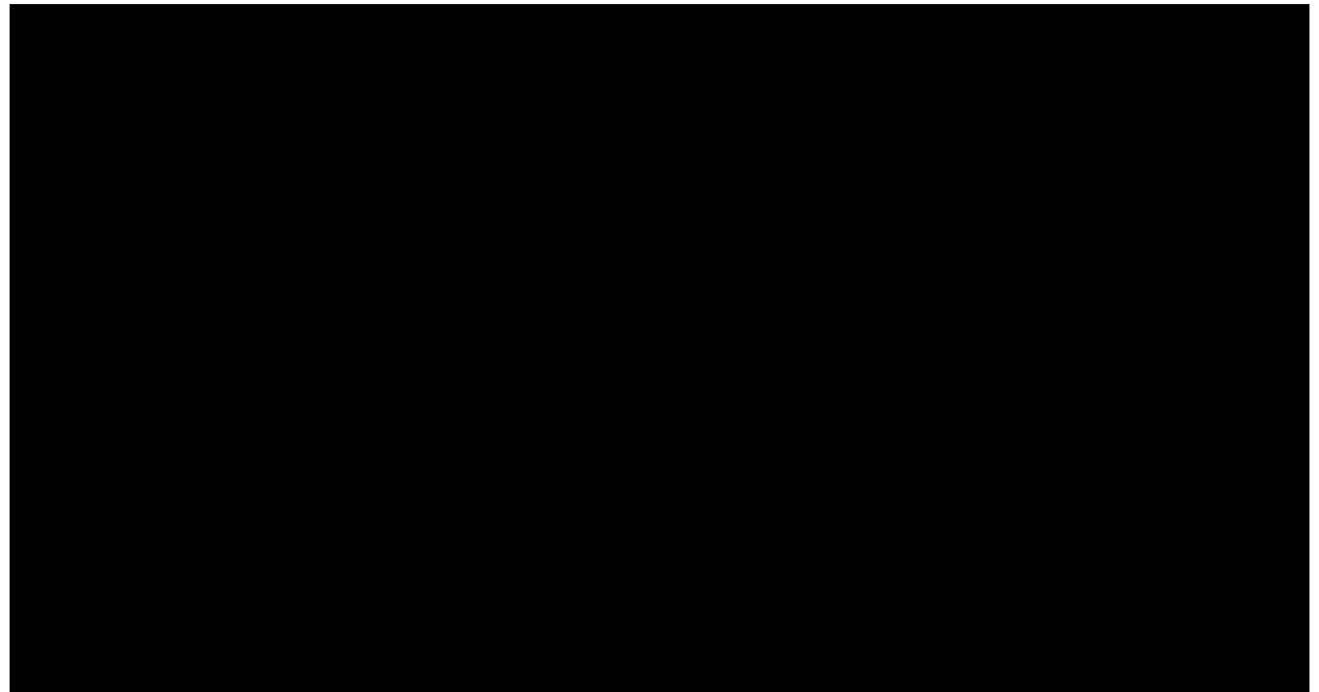
#### **D.2.3.10 ACCOUNT MANAGEMENT – ACCOUNT TYPES AND TRANSITIONING ACCOUNTS**



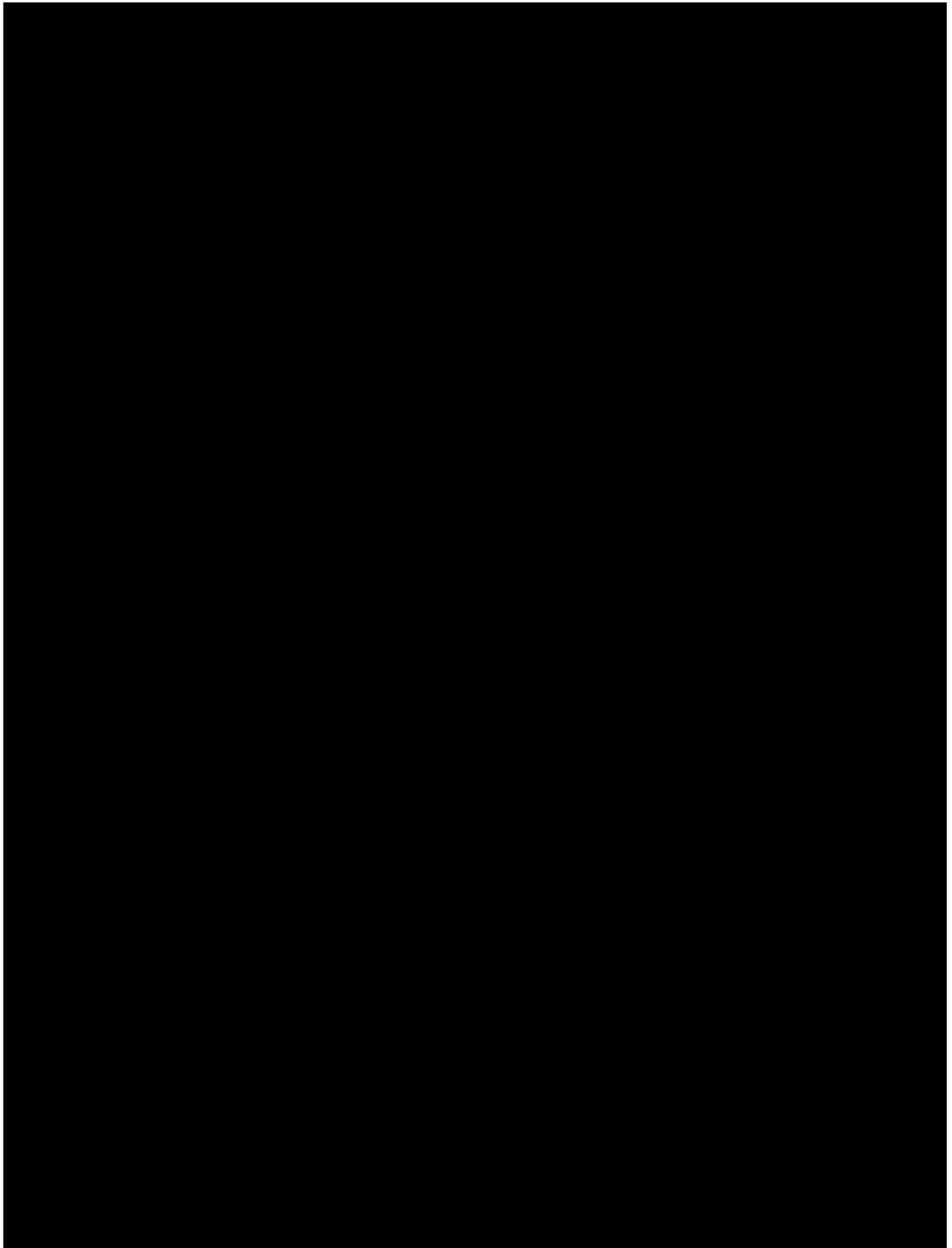




**D.2.3.11 CASE MANAGEMENT CAPABILITIES**

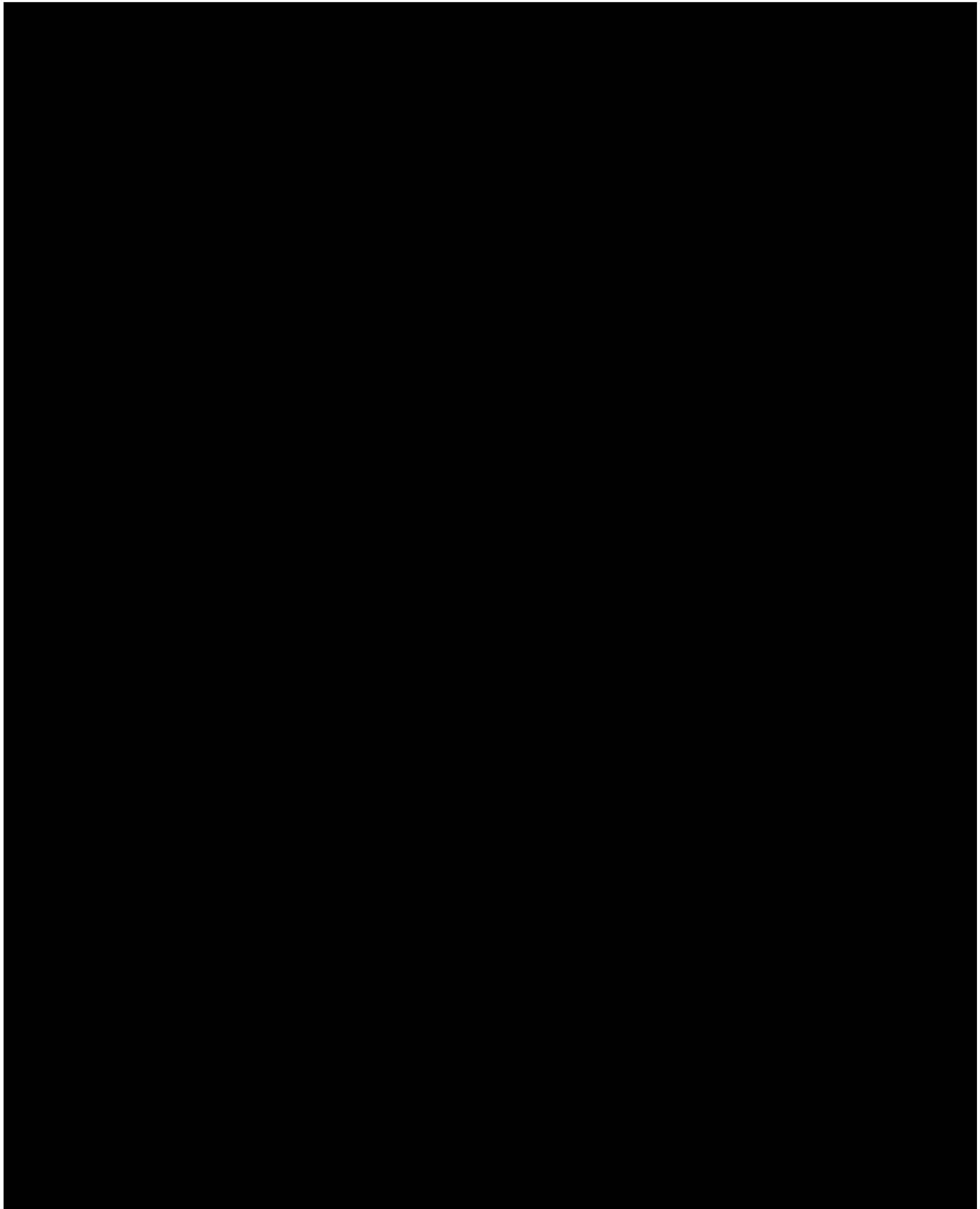








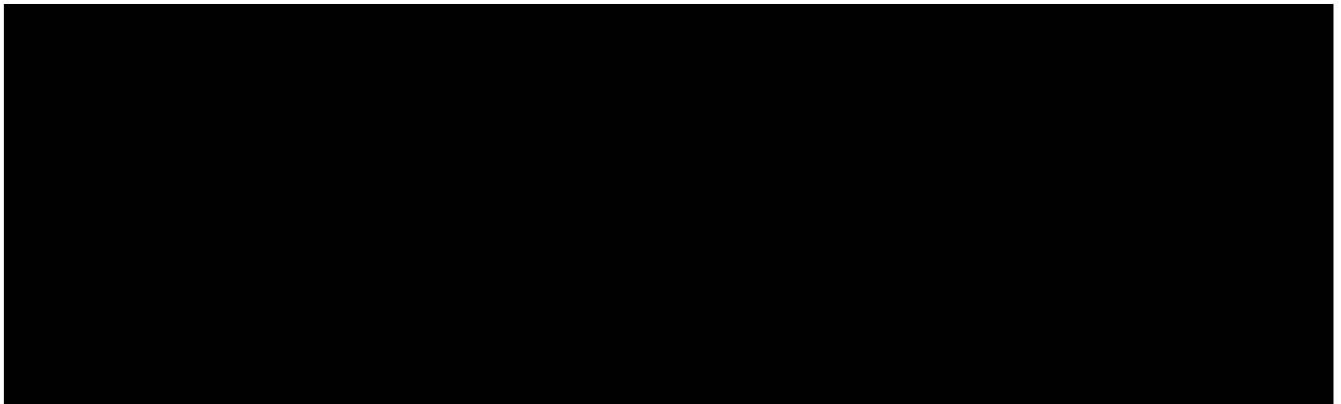
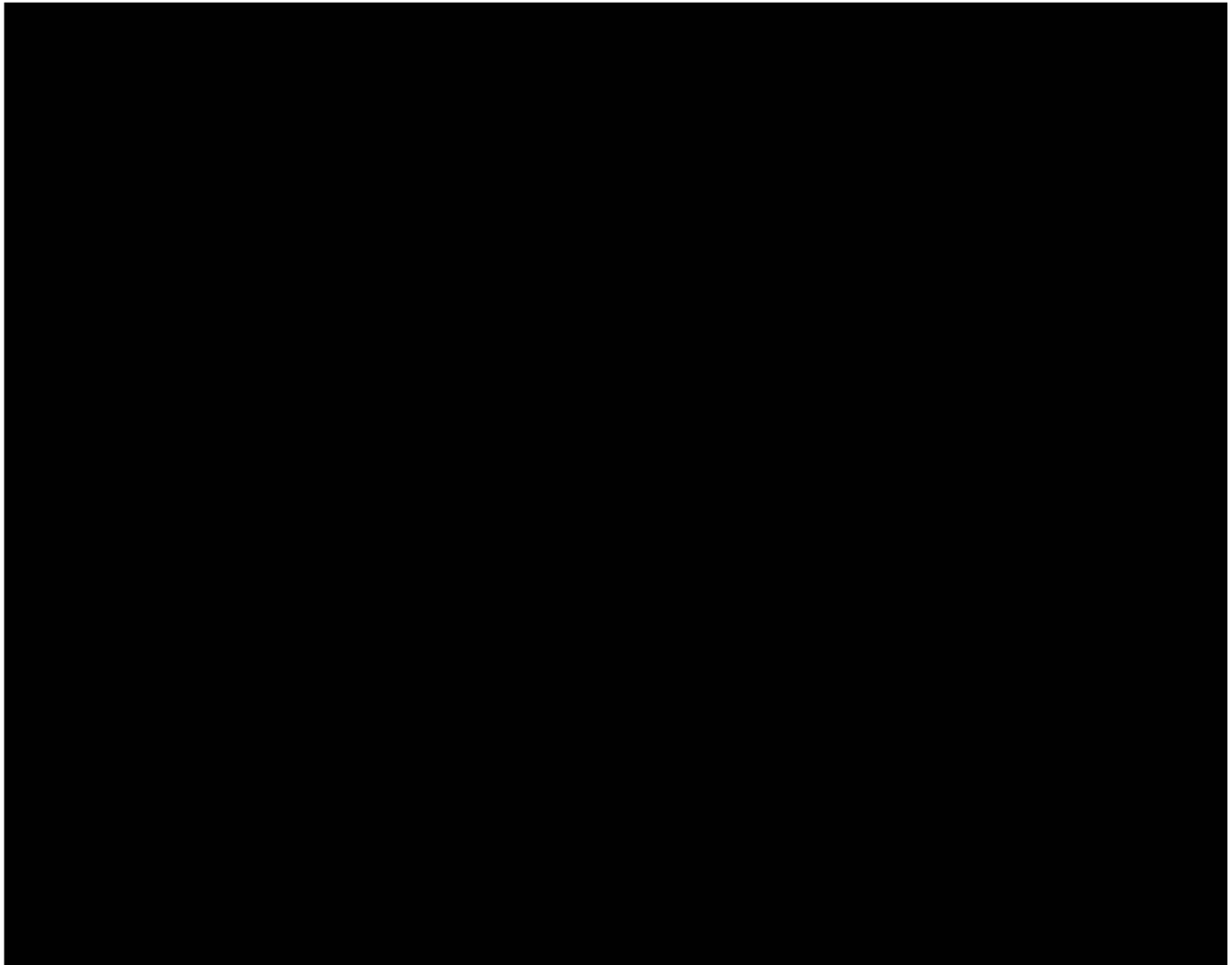
**D.2.3.12**      **ASSOCIATING CUSTOMER COMMUNICATIONS TO ACCOUNTS**







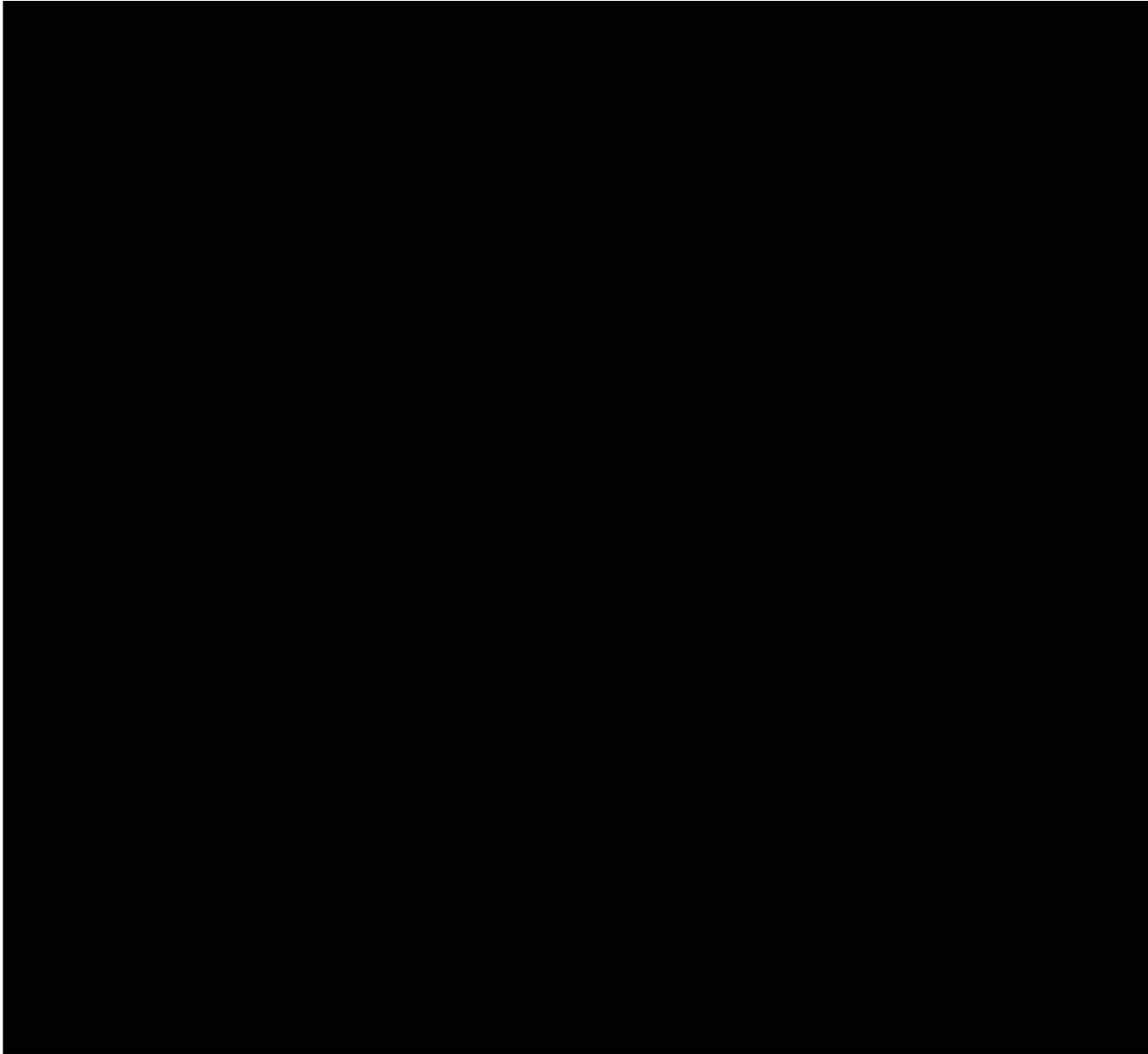
#### D.2.3.14 TRANSACTION LIFECYCLE TRACKING



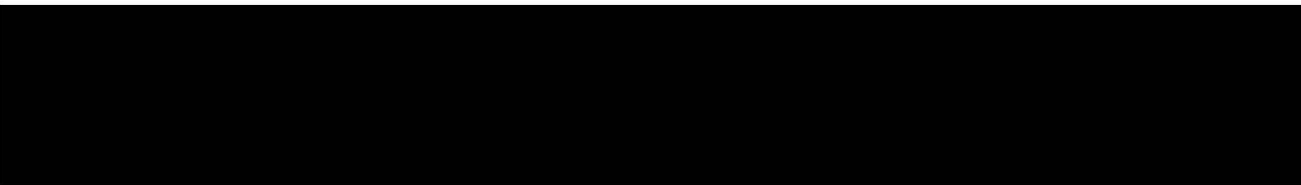




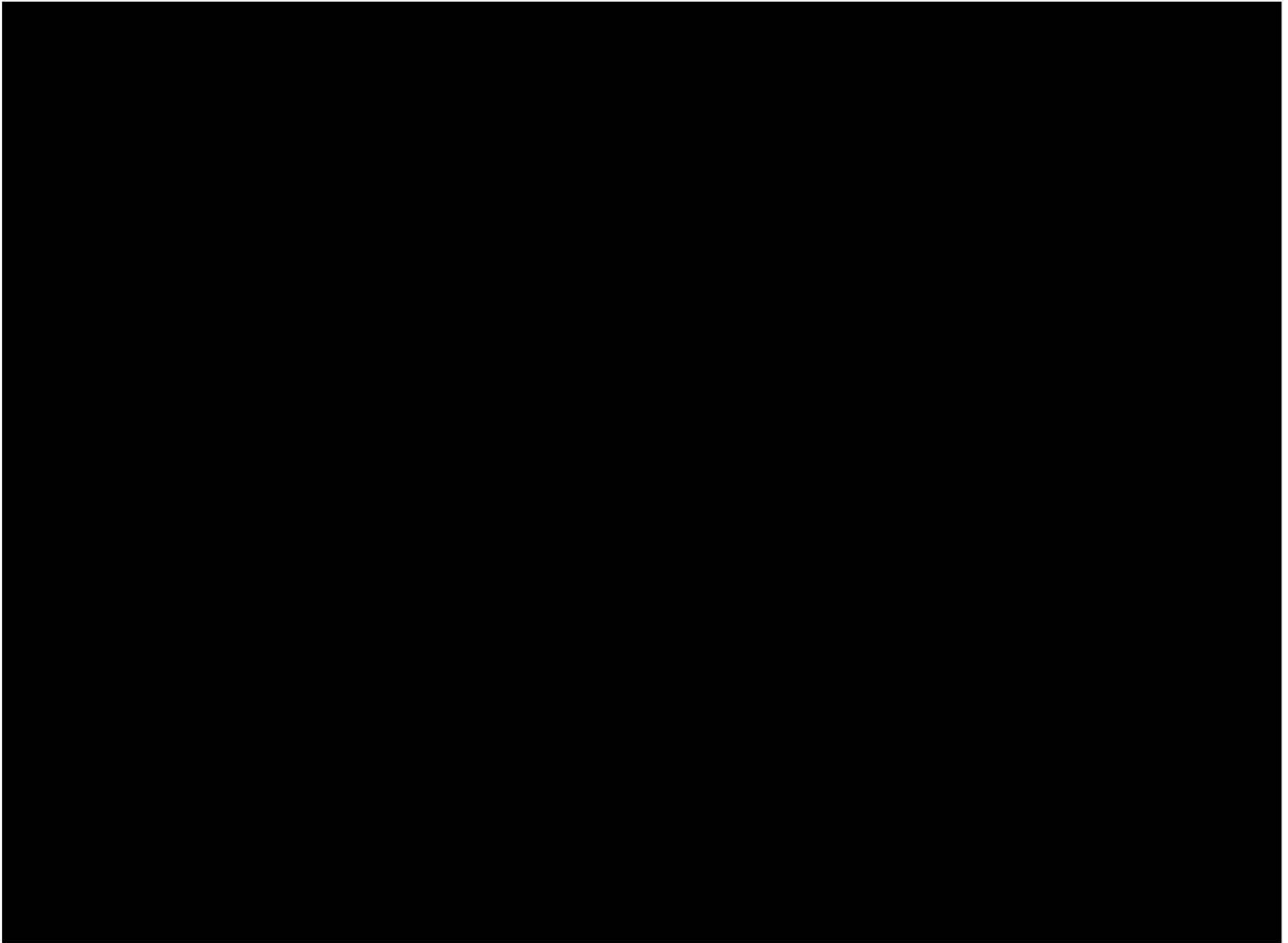
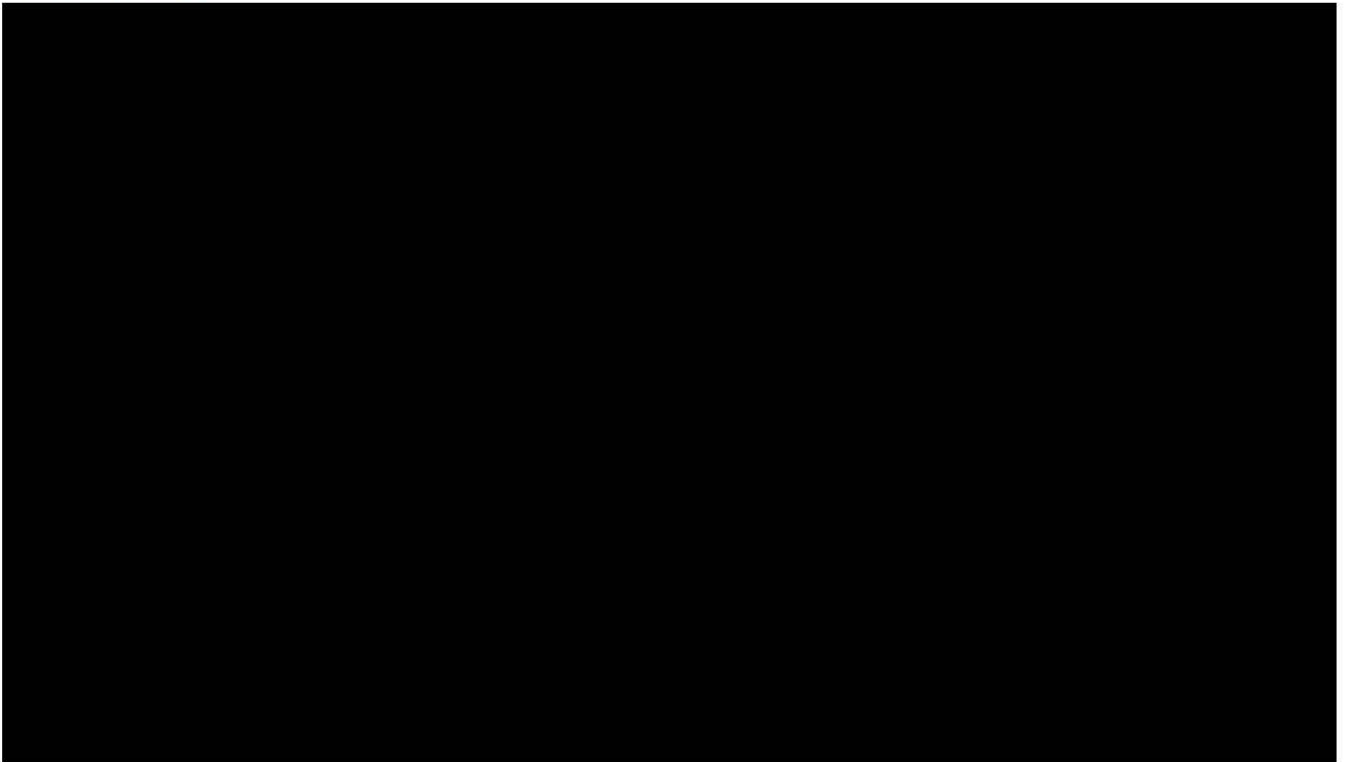
**D.2.3.15 TRANSACTION REPORTING AND LEDGER ACCOUNT STRUCTURE**



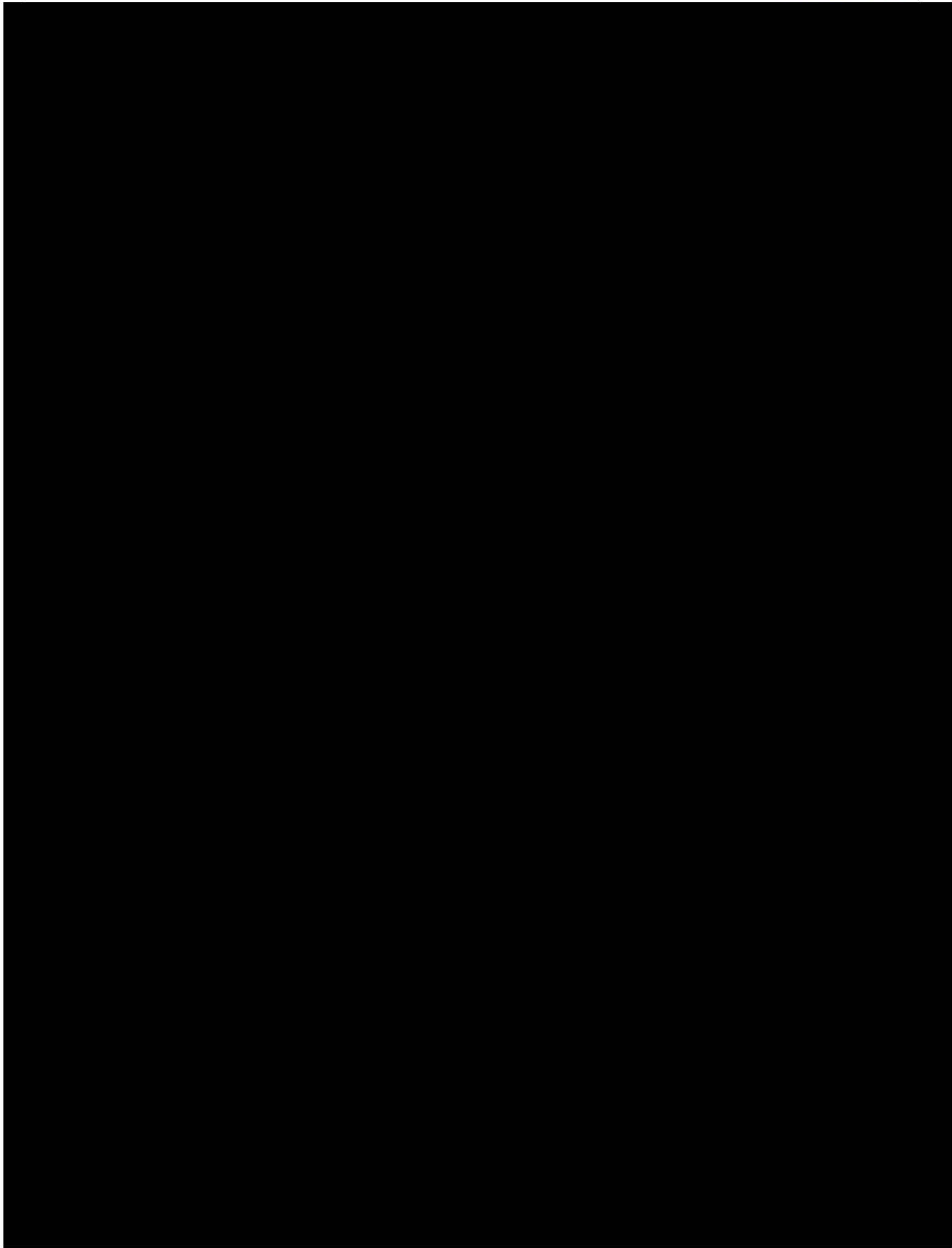
**D.2.3.16 DISASTER RECOVERY AND BUSINESS CONTINUITY (2 PAGES)**



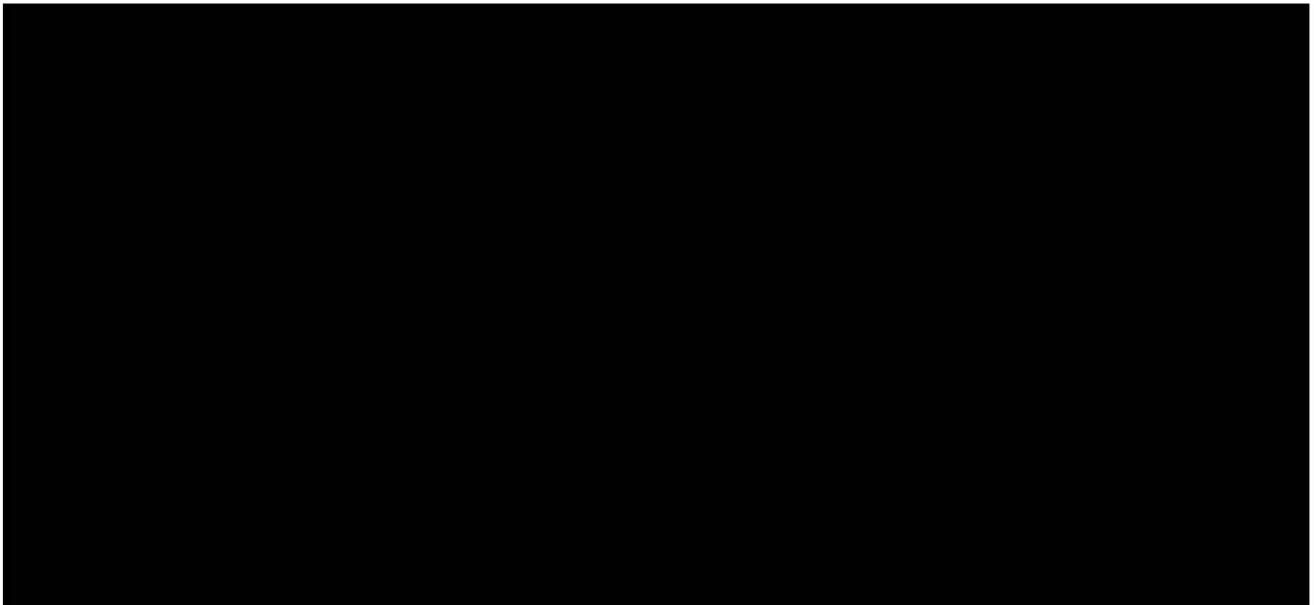




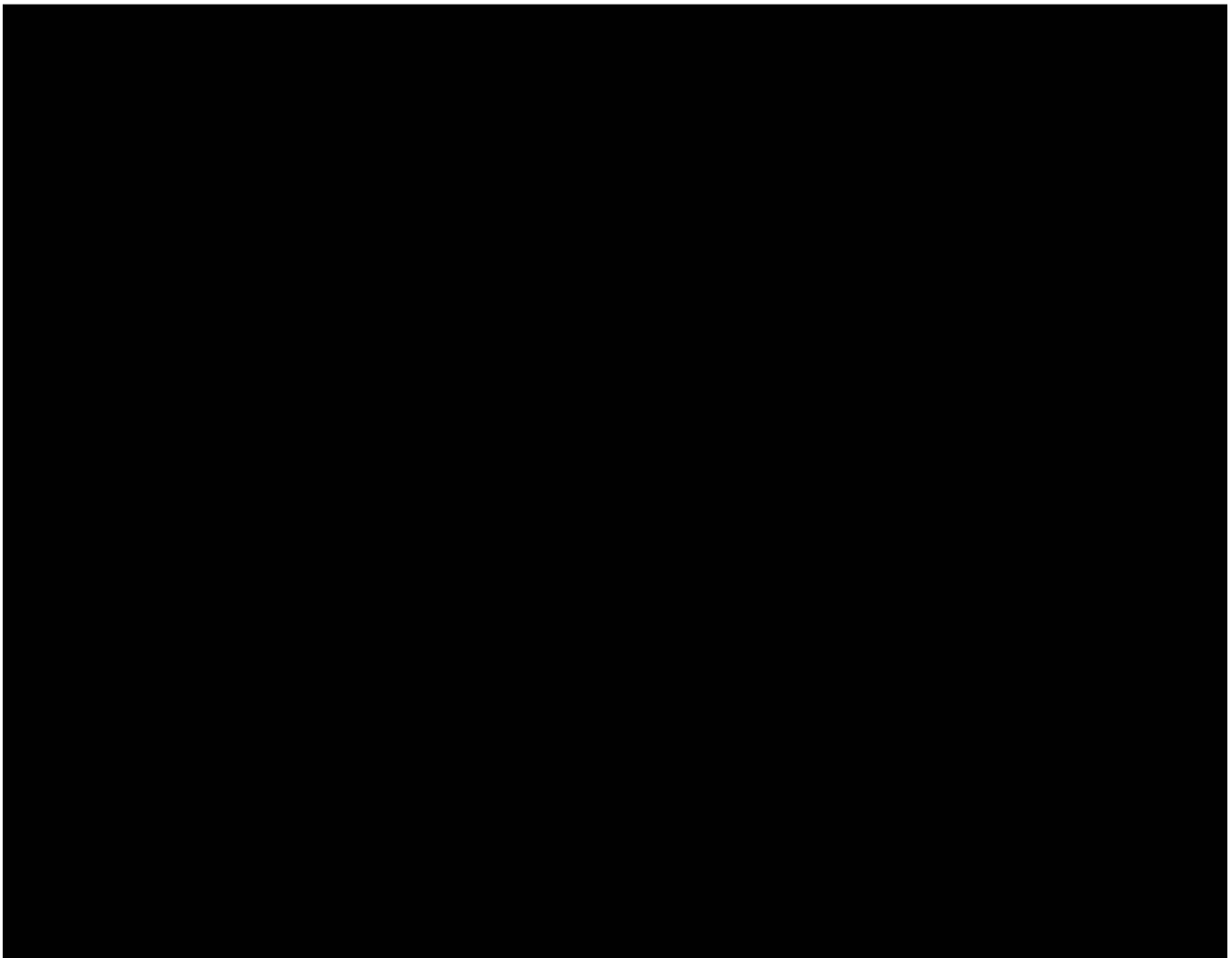




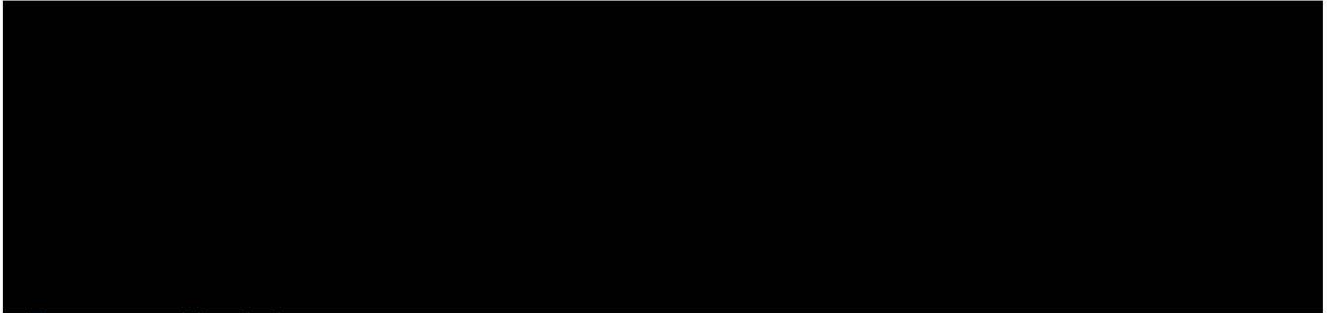




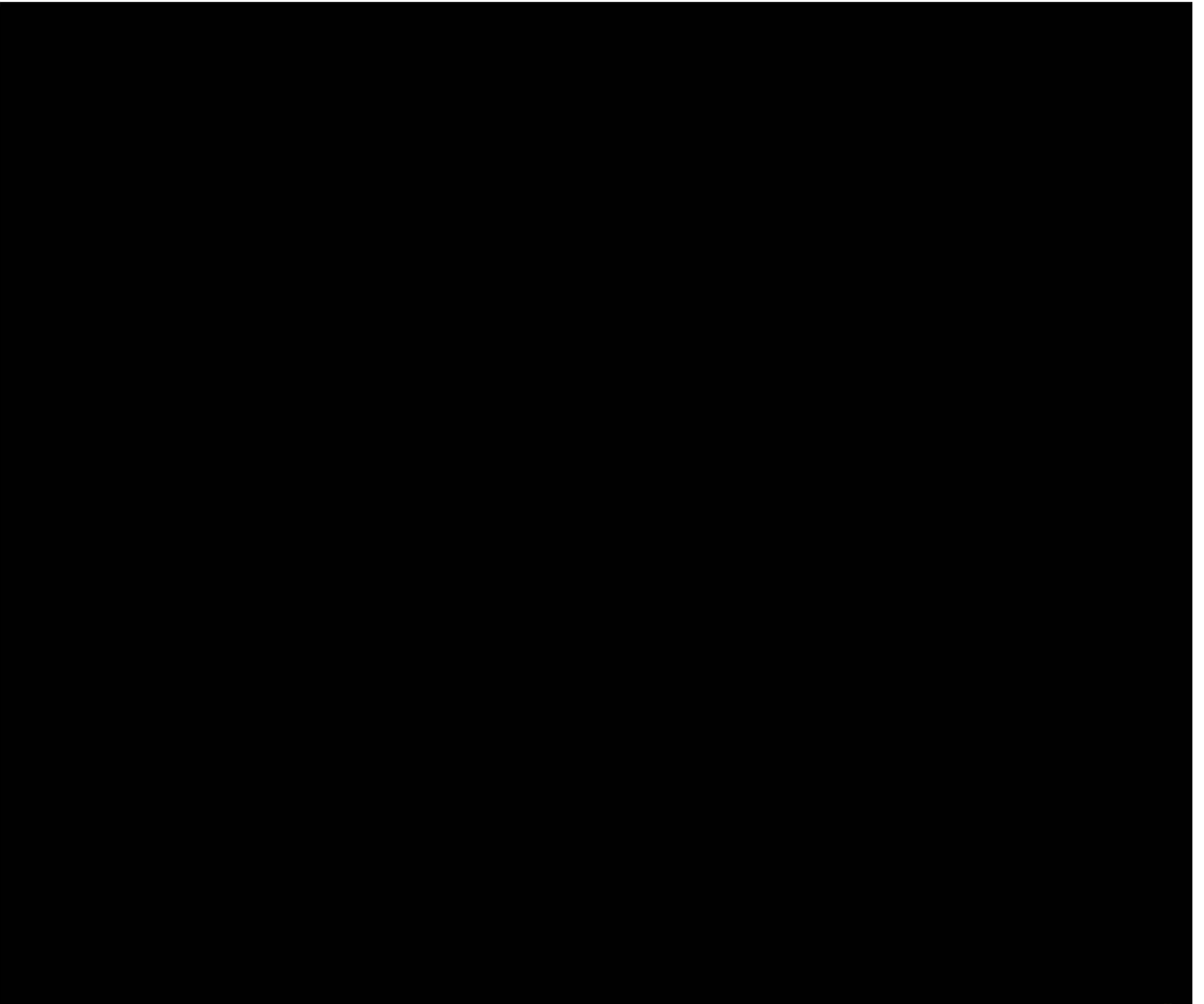
#### **D.2.3.17 DATA RECONCILIATION**



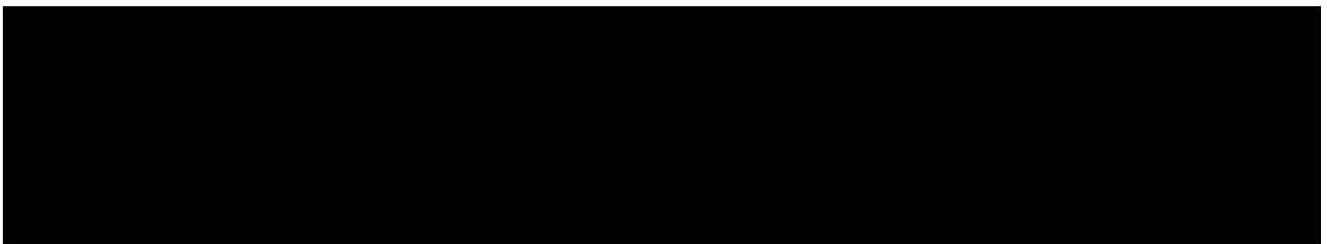




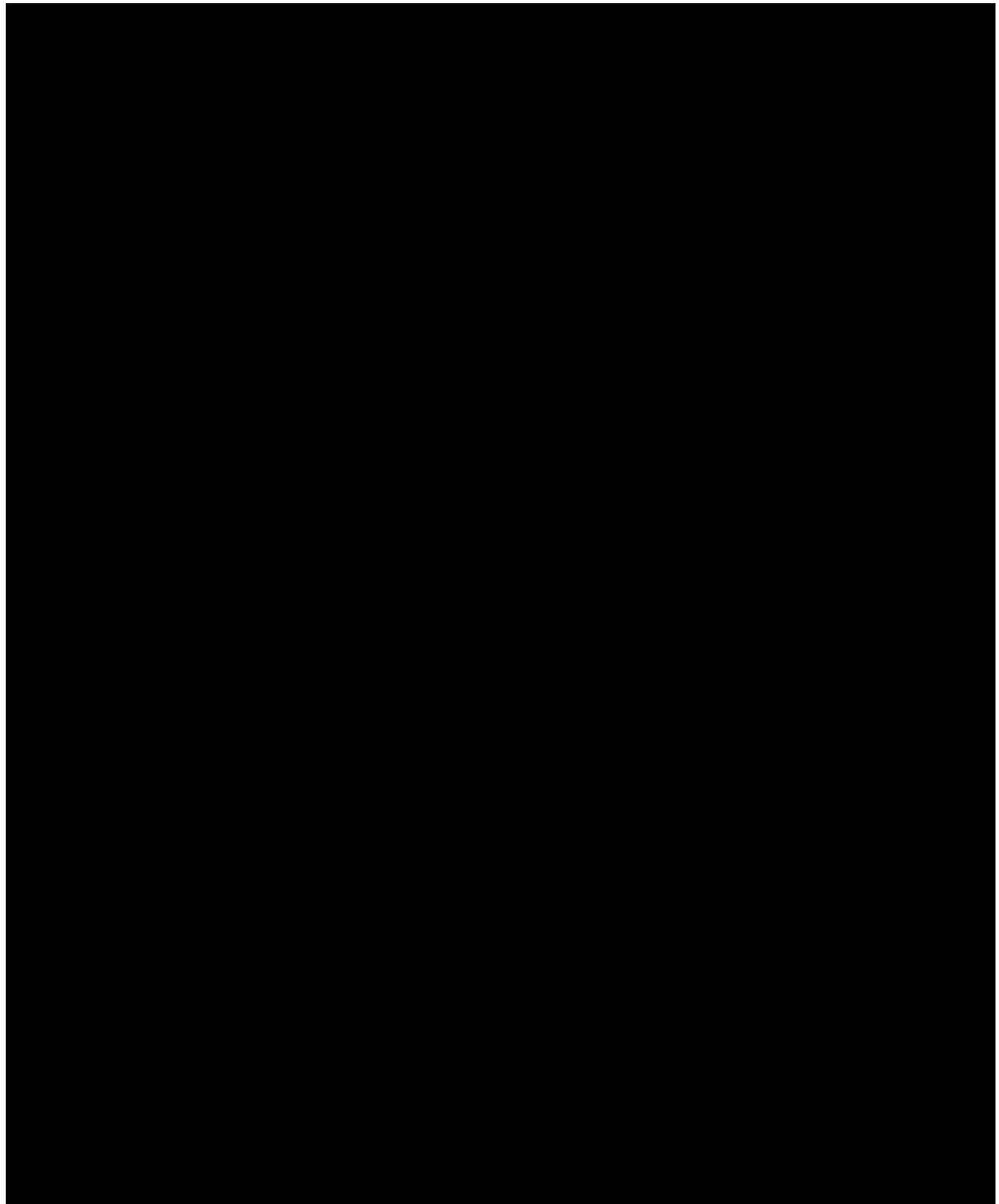
*Treasury Module*



**D.2.3.18 THE RITE® FINANCIAL SYSTEM**



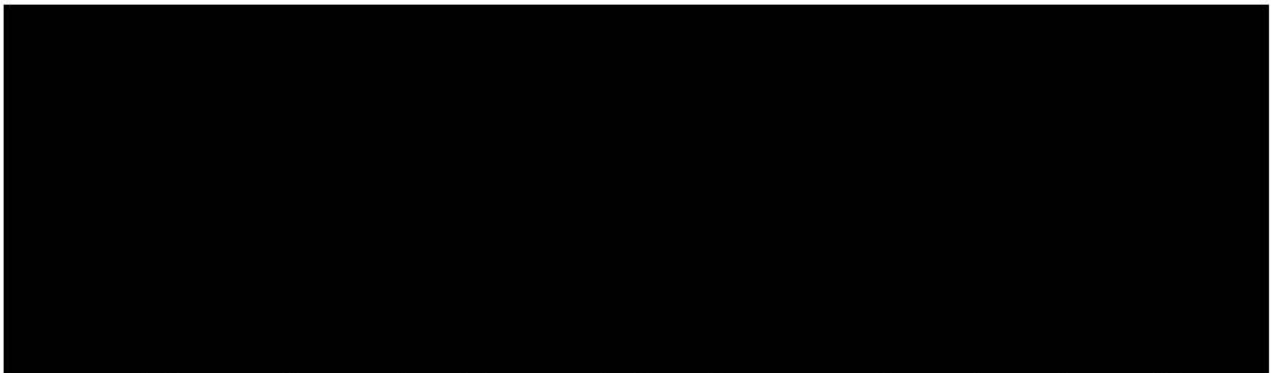
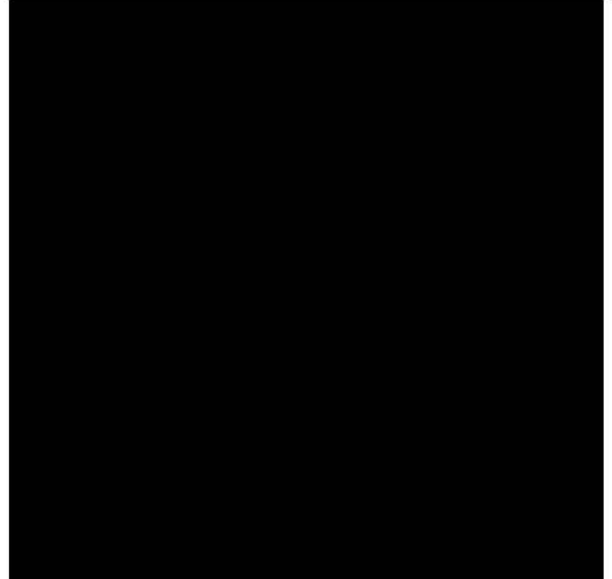




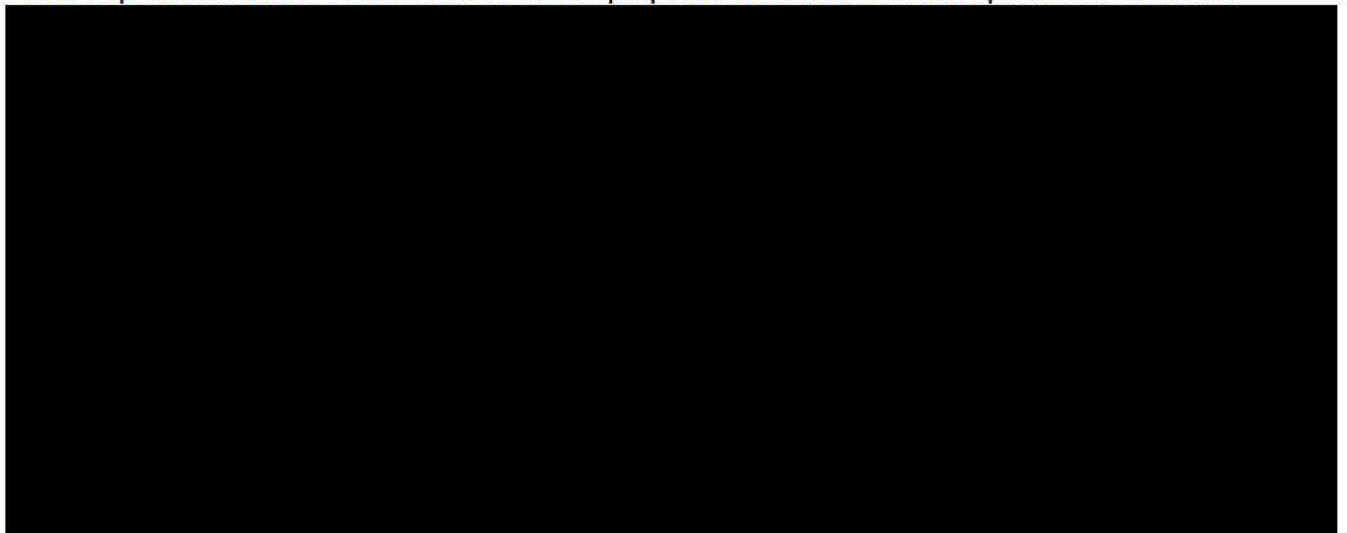


## D.2.4 APPROACH TO OPERATIONS AND MAINTENANCE (K-4)

ETC will provide a complete operations and maintenance program with proven technologies, highly skilled personnel, and demonstrated operational programs that will meet and exceed the Project's defined goals and requirements with an absolute minimum impact on customers. We have designed a comprehensive solution by combining our suite of intuitive systems for back office processing and systems monitoring tools (the RITE® Solution) with a team of highly experienced technical and analytical professionals who will provide cost-effective and operationally efficient operational and maintenance activities. We offer considerable component and system redundancy engineered into our solutions, providing the highest levels of revenue assurance and system availability. Our operations philosophy is simple:



Our approach to operations and maintenance is based on years of experience in providing systems operations and maintenance for some of the largest Tolling Authorities in the United States, all of which require 24/7/365 availability with strict operationally available requirements. This experience forms the foundation for our proposed maintenance and operational services.





#### D.2.4.1 APPROACH TO MONITORING AND TROUBLESHOOTING

To ensure the complete Program is operating to stated service levels and KPIs, we monitor and engage at both the BOS and Operational Program level.

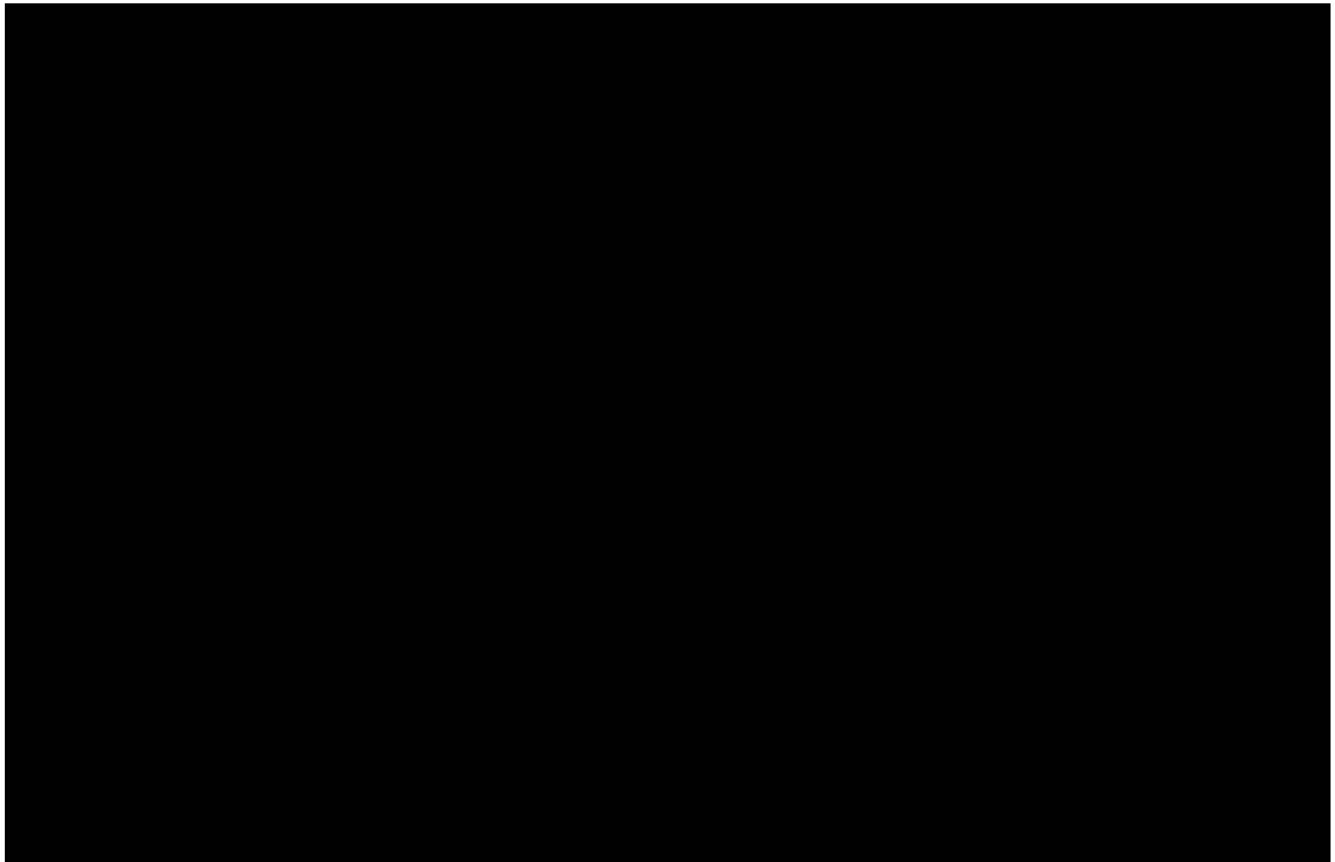
##### *BOS Maintenance and Troubleshooting*



ETC's maintenance monitoring system, known as riteOSS™ is more than just a MOMS. With our approach, we have integrated a complete IT Service Management System (ITSM) enabling access to information across the entire system, with intuitive technologies engaged to accomplish both maintenance and monitoring oversight, as well as accomplishing our incentivized, metric-driven Continuous Improvement Program previously described.

riteOSS consists of several off-the-shelf subsystems that are customized for our back-office system and the tolling industry. As illustrated and discussed below, riteOSS and its subsystems will provide more comprehensive, accurate, and current monitoring information than the traditional custom-built MOMS offerings commonly seen in our industry today. riteOSS is a new and innovative way of looking at and providing performance measurement and monitoring.

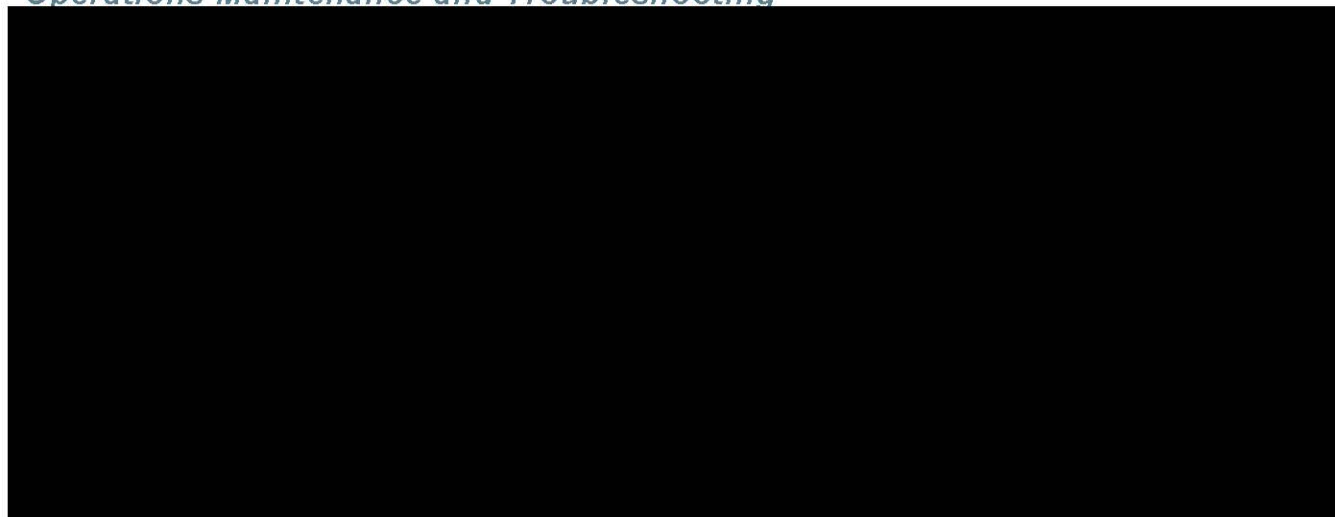




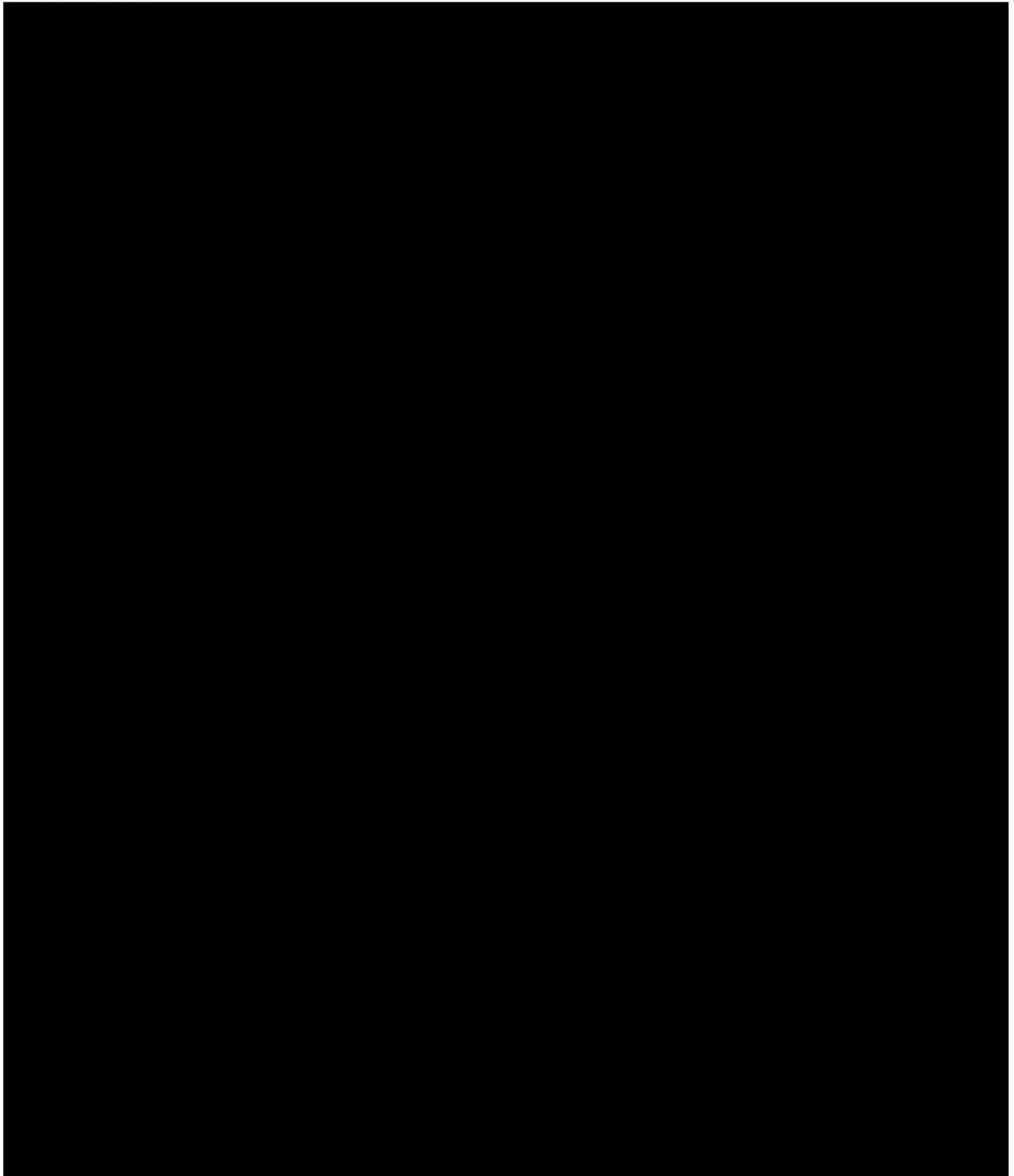
suite. It has all the tools, analytics, detailed and summary reporting, and dashboards to provide a view of the system in real-time as well as over time. riteOSS will be the platform used generate daily, weekly, and monthly reports on system KPIs as well as on all other system performance measurements.

The leadership of the maintenance team as well as the Joint Board representatives will use riteOSS to monitor, track and trend system status. They will also be able to create support tickets via several methods to include email, phone call, and by directly entering them. They can then check status via the same methods.

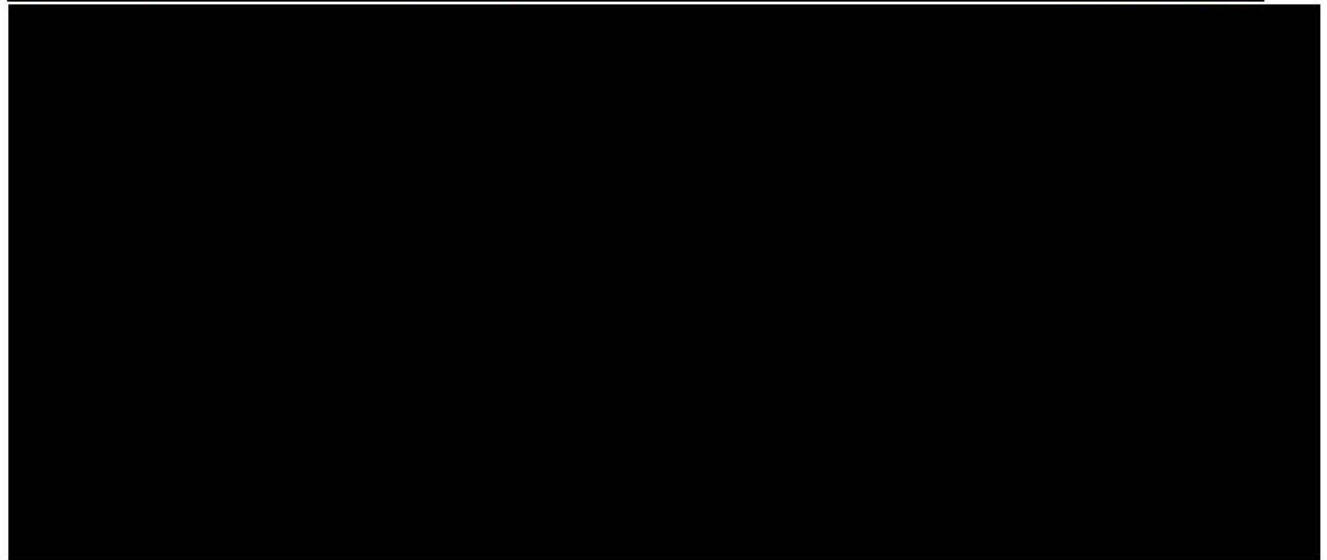
#### *Operations Maintenance and Troubleshooting*





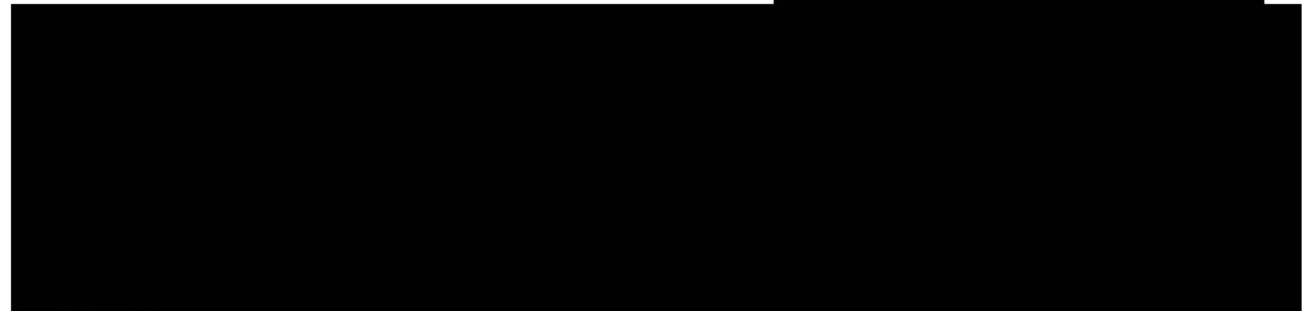
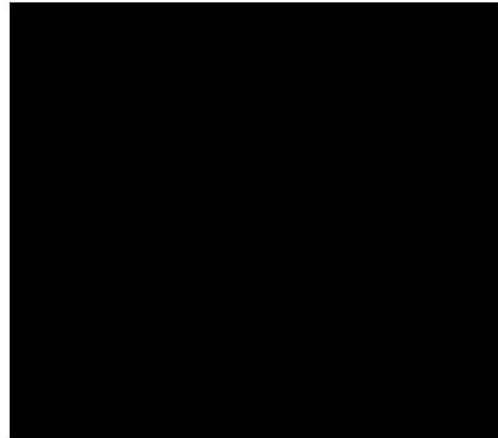




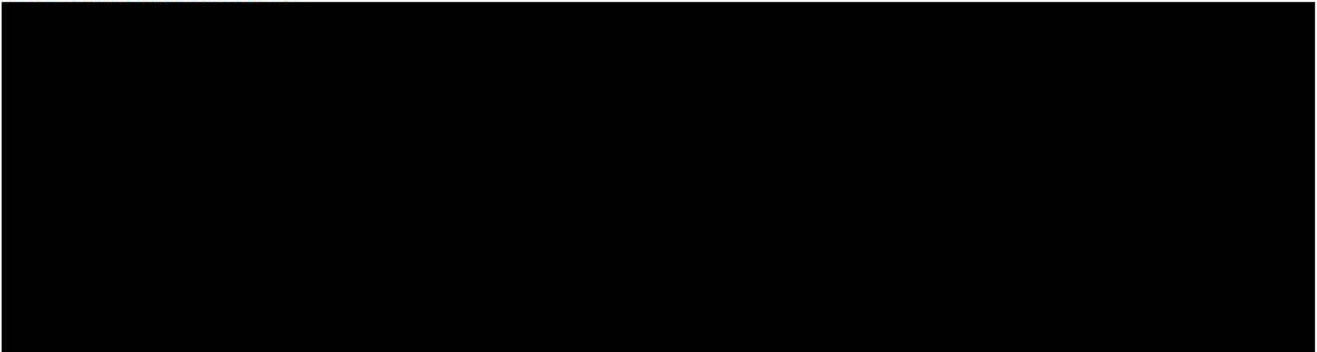


#### **D.2.4.2 MAINTENANCE APPROACH**

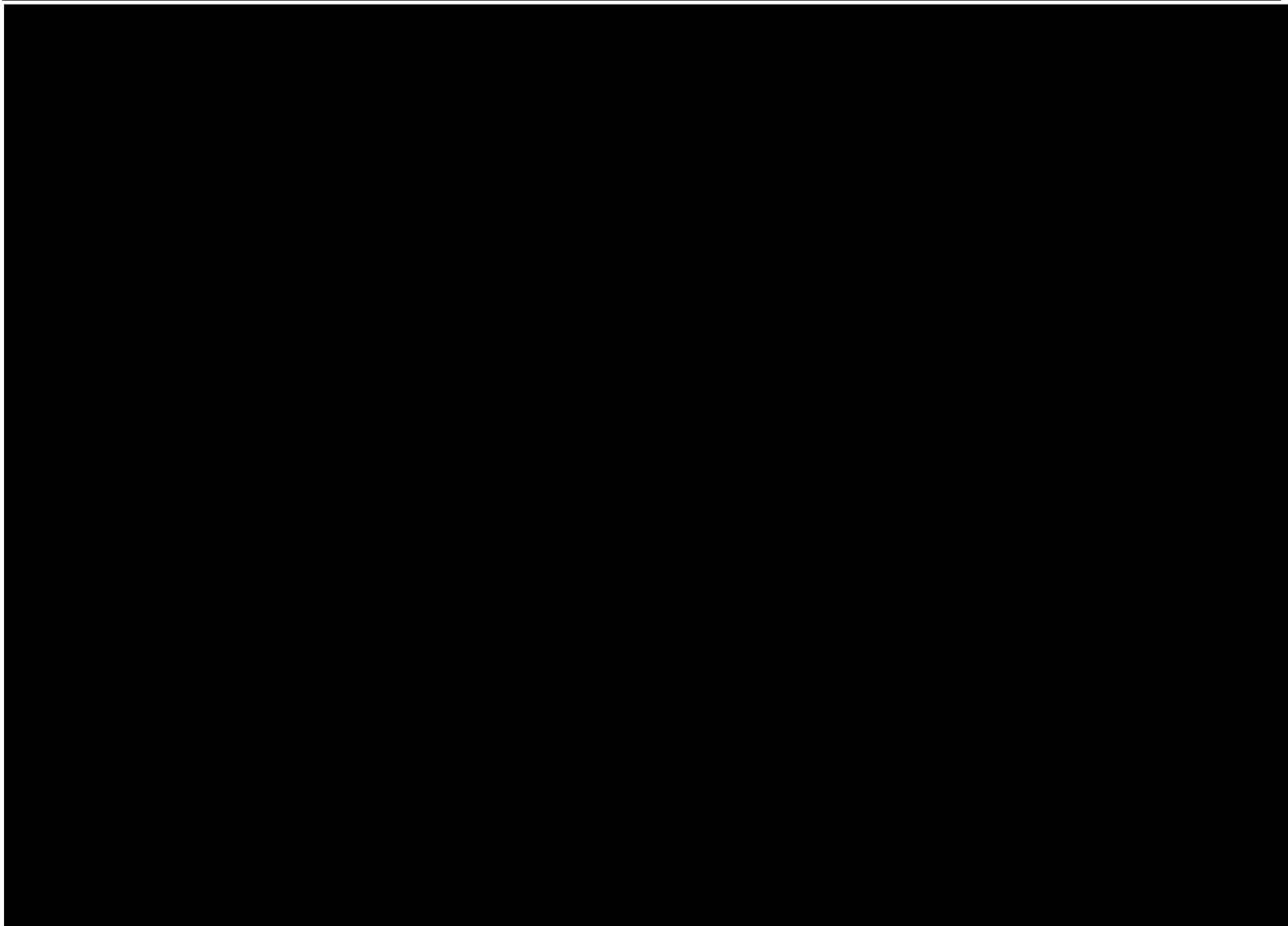
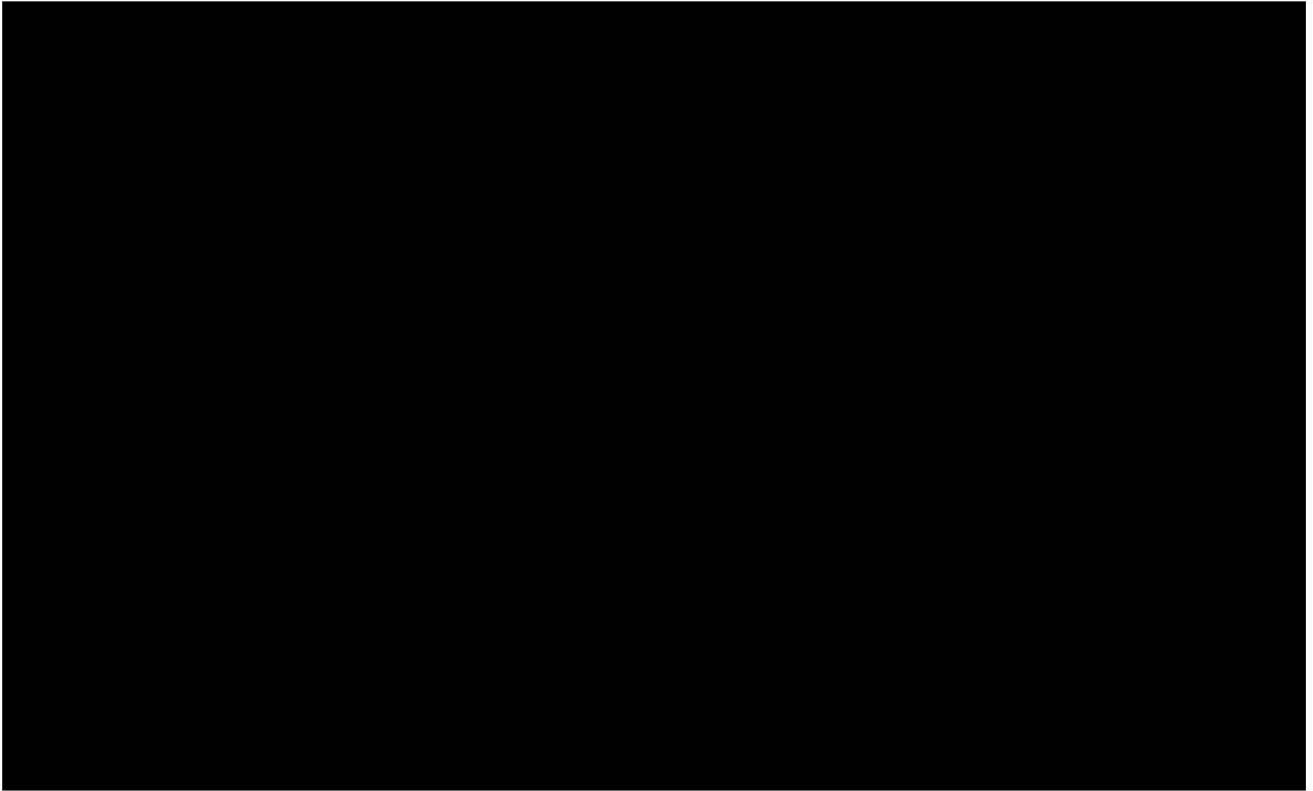
Expanding on our approach to maintenance described above, ETC will deliver a Maintenance Plan as part of the design phase of the delivery. This plan will define the objectives of the maintenance process and cover all activities to support. It will provide a listing of regularly scheduled activities on a weekly, monthly, quarterly, and annual basis to support the objectives of the Maintenance Program as well as the staff roles to accomplish those activities. Finally, it will define the change management and approval process that will drive the delivery of the services.



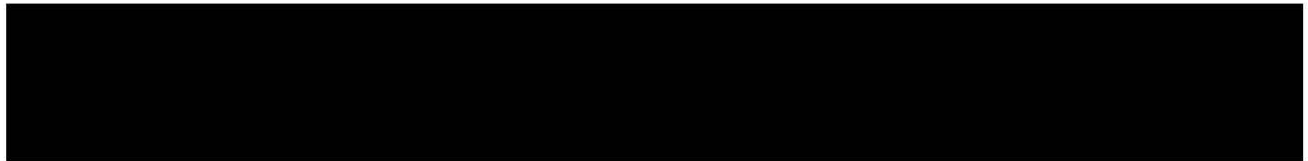
#### **BOS Maintenance**



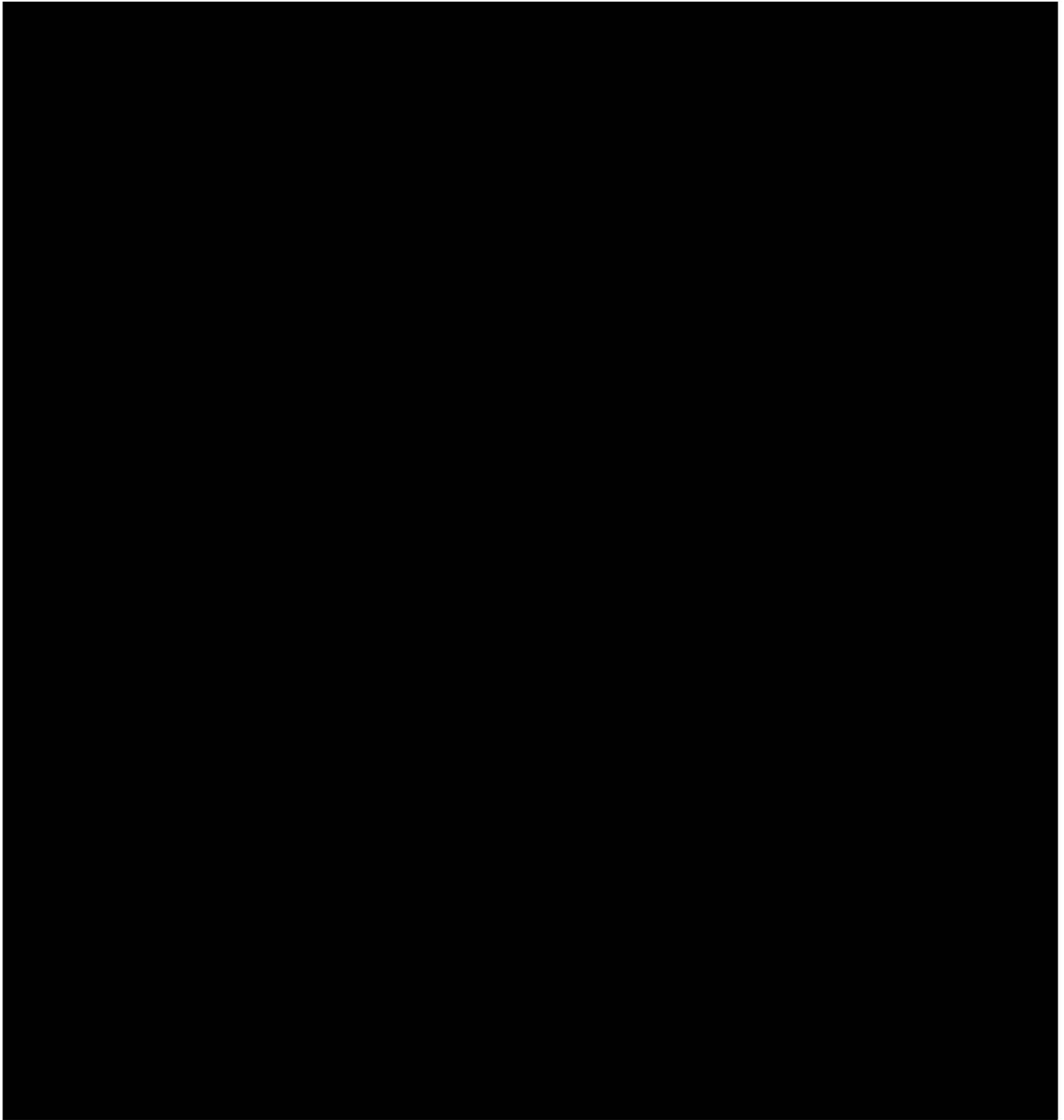








#### **D.2.4.3 MAINTENANCE SCHEDULING - UPDATES AND UPGRADES**





#### D.2.4.4 APPROACH TO QUALITY ASSURANCE

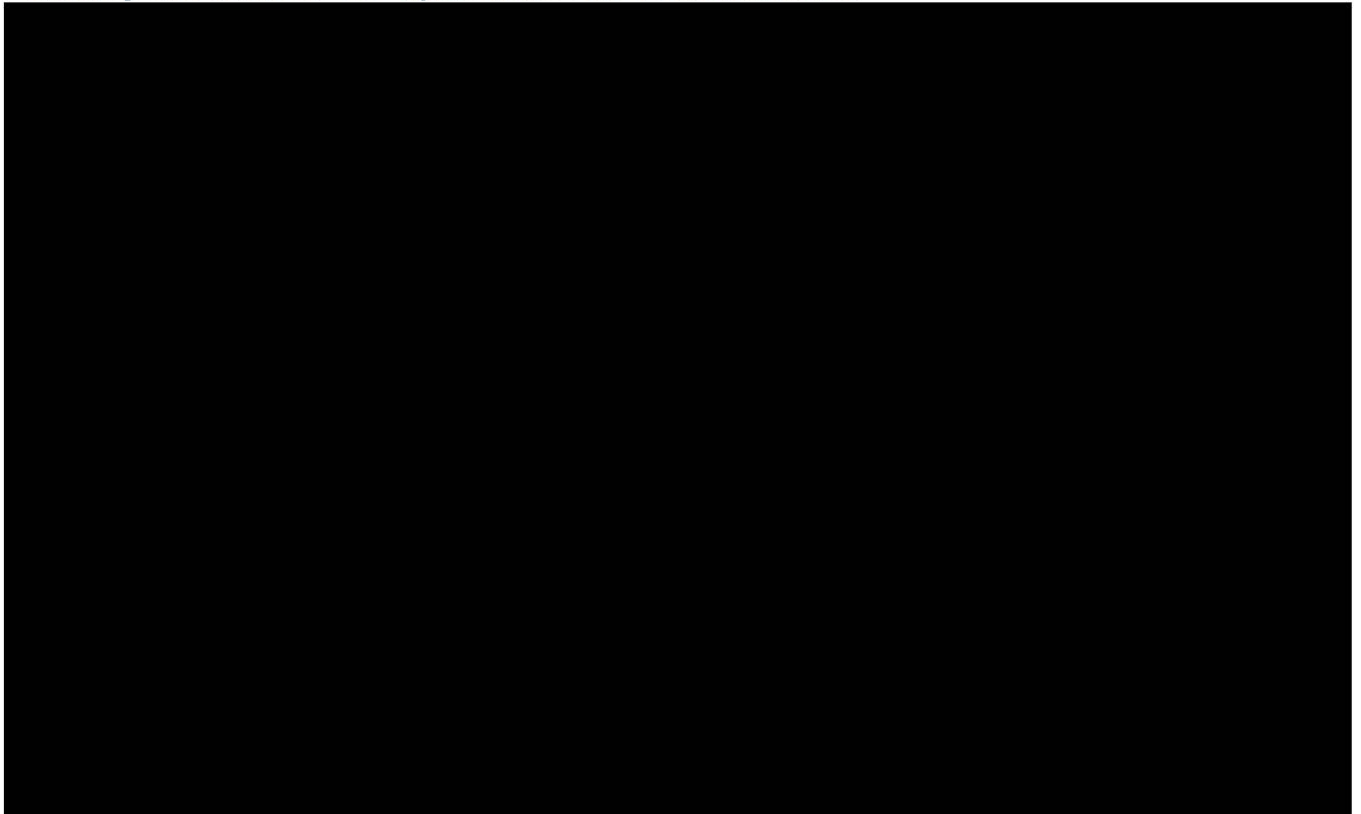
Section [D.2.1.1.3, Quality Control and Assurance](#) provide details of organization, operations, and methods for implementation. Due to page count limitations, we will use this section to describe ETC's overall Quality Assurance function, then describe our approach during operations and maintenance.

ETC has created a quality-conscious environment, fully supported at all levels of management. Each department follows processes and procedures that depend on milestones, measurements, and corrective actions that ensure superior results.





*Quality Assurance for Operations and Maintenance*



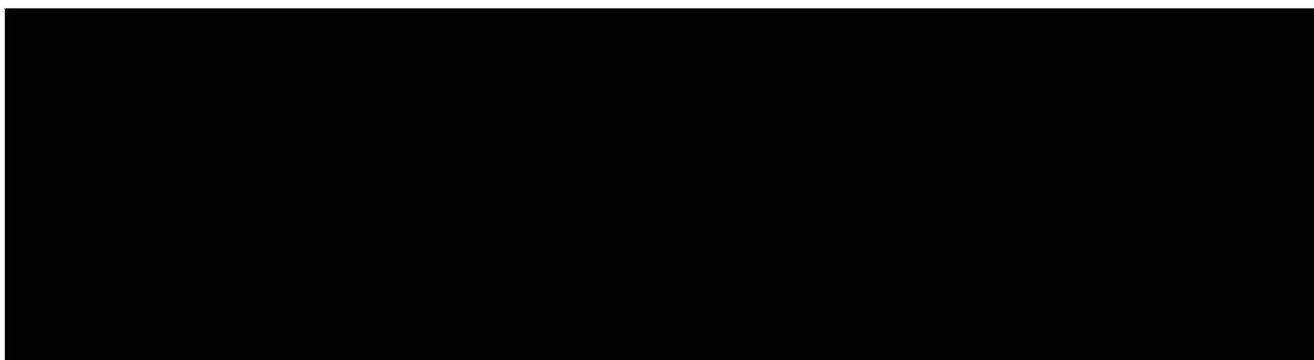






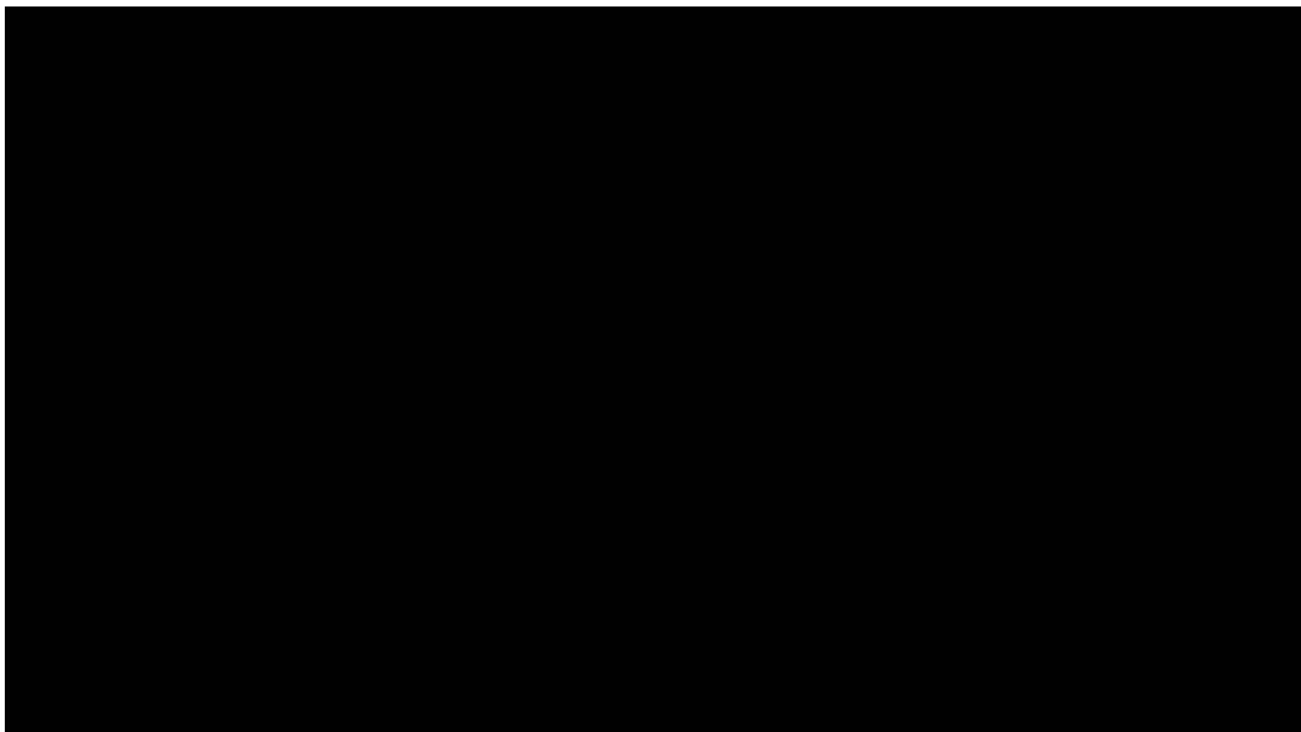
## D.2.5 APPROACH TO BOS AND CSC TRANSITION (K-5)

ETC has comprehensive and successful transition experience from both perspectives: as the incumbent and as the new integrator. Moreover, the proposed core ETC staff specifically come with such experience from both perspectives, so it will guide and inform the anticipated transition in every aspect, from the strategic top-level approach to hands-on transition logistics at a task-by-task level. As a new vendor, we successfully transitioned systems from legacy vendors on a number of projects listed below. ETC also has broad and comprehensive experience in integrating contact centers from new and incumbent third-party vendors to ETC's back-office systems. Regardless of whether contact center operations are moving to a new vendor or remain with an incumbent call center provider, ETC ensures a smooth transition to our system on Day One. Reference projects include:

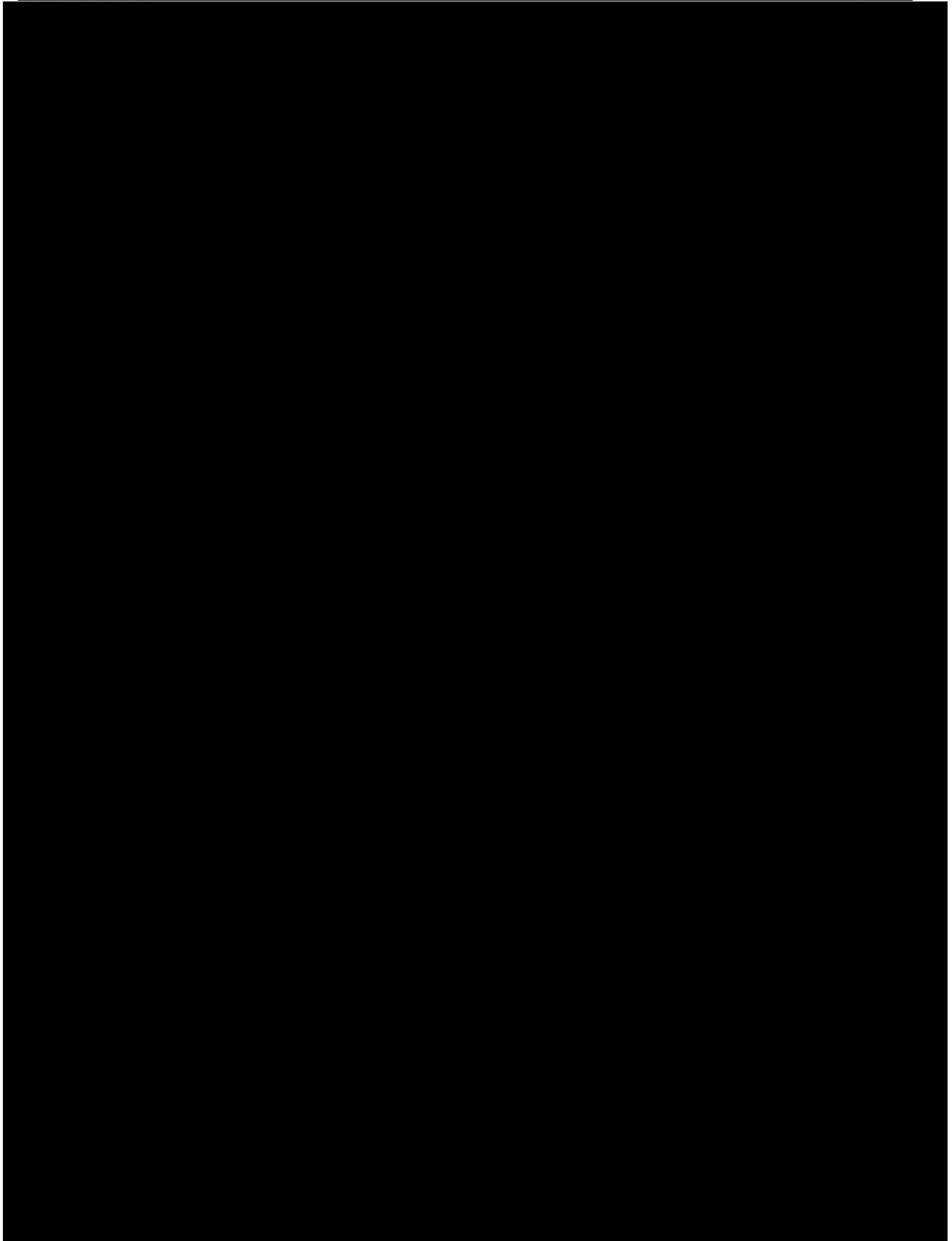


### D.2.5.1 POTENTIAL TRANSITION ISSUES AND MITIGATION STRATEGIES

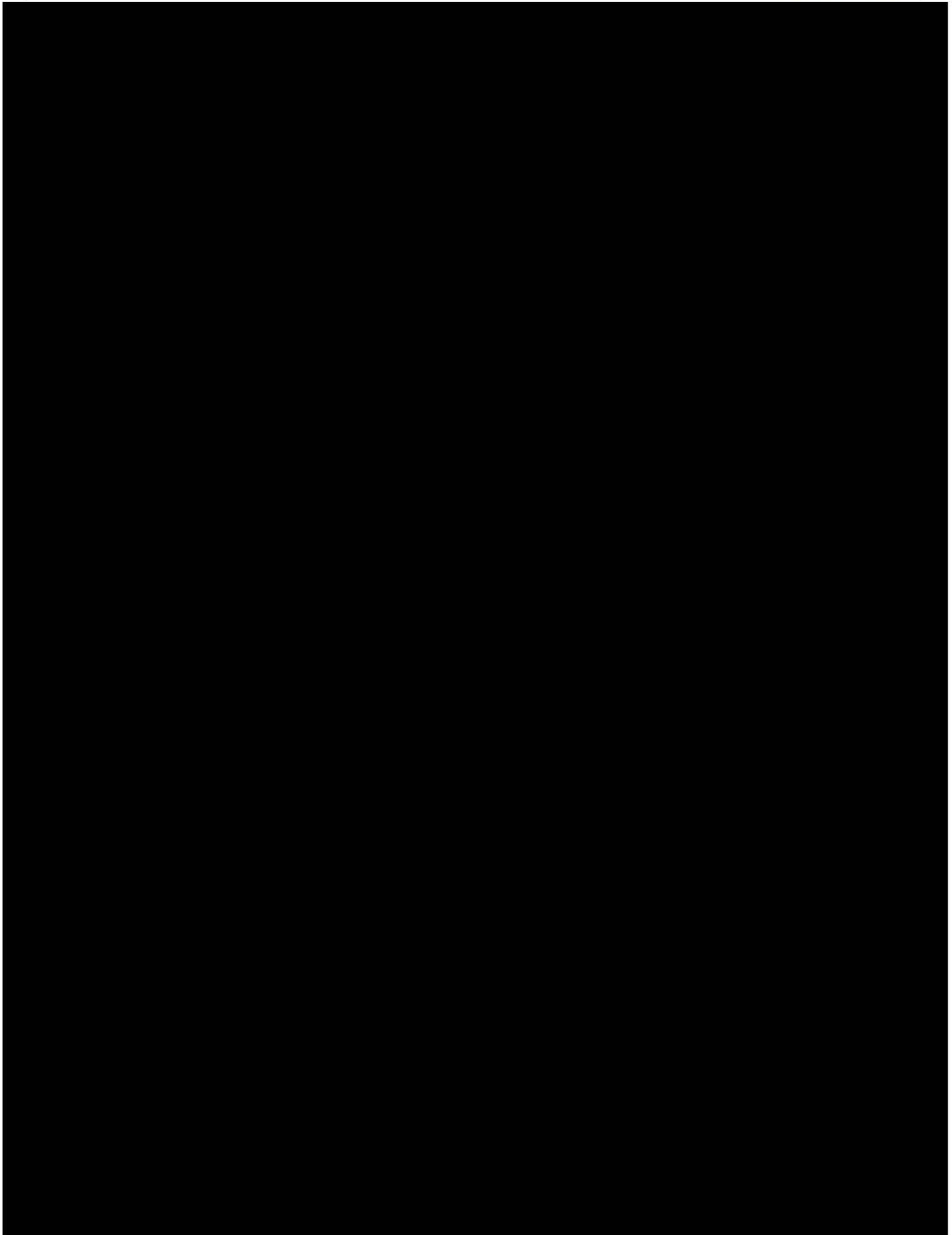
Throughout our 21 years of tolling, we have developed a proven transition strategy that builds upon lessons learned through multiple successful transitions we have performed and ensures that same success for the RiverLink Project as it transitions from the incumbent service provider to the rite® Solution suite and Operational Program. The tracks discussed in this section are those we have identified are the most important to a successful system and services transition.



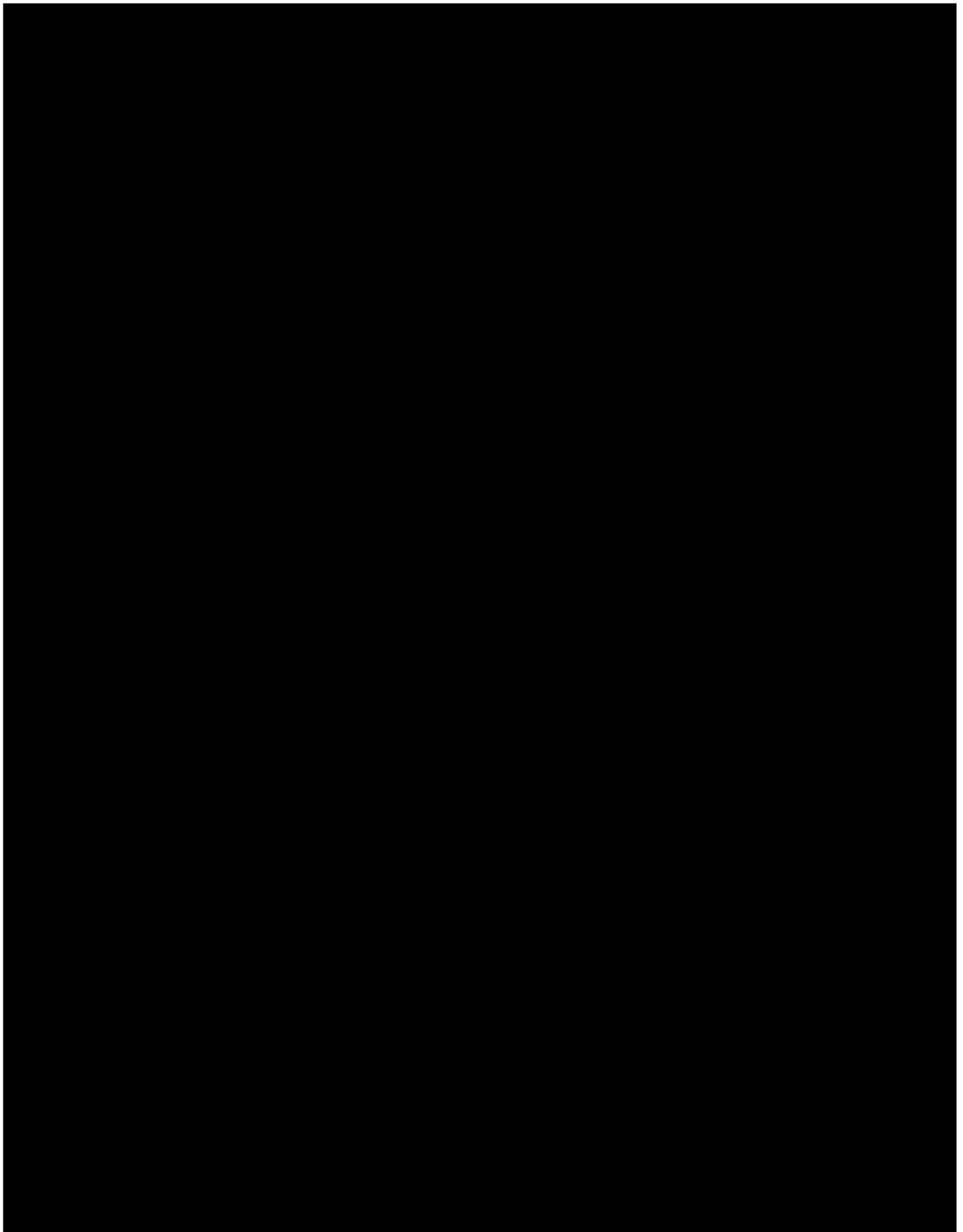




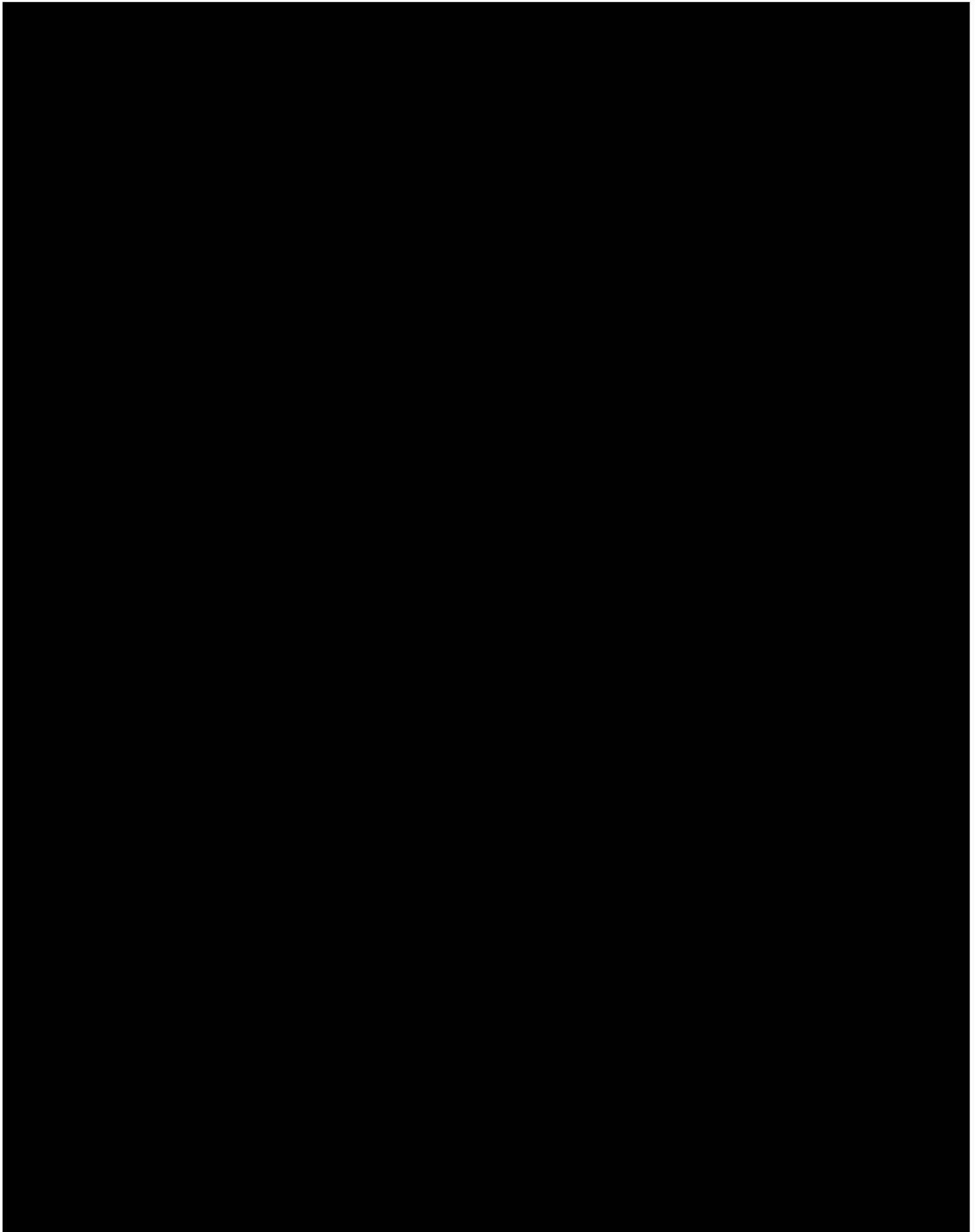




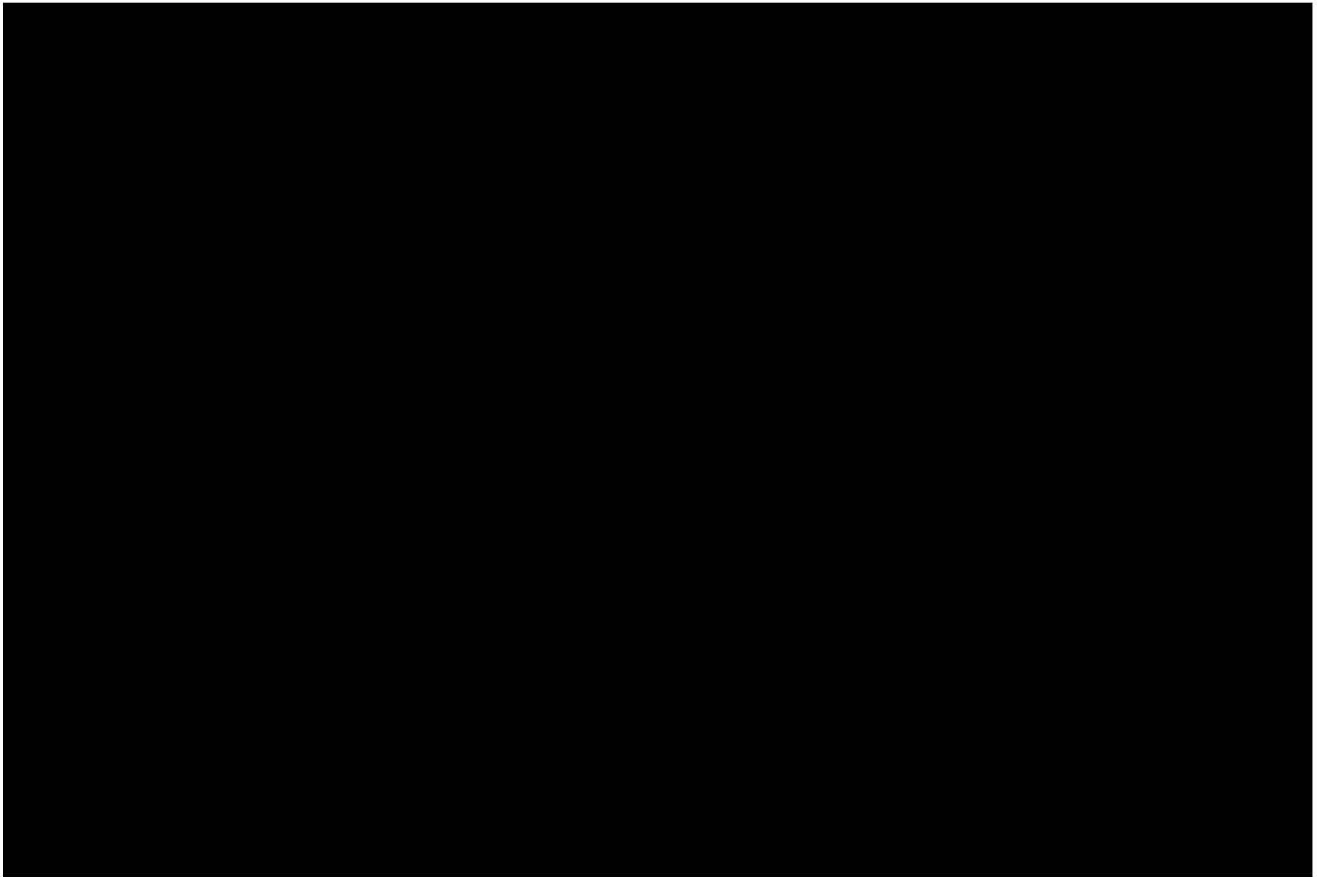




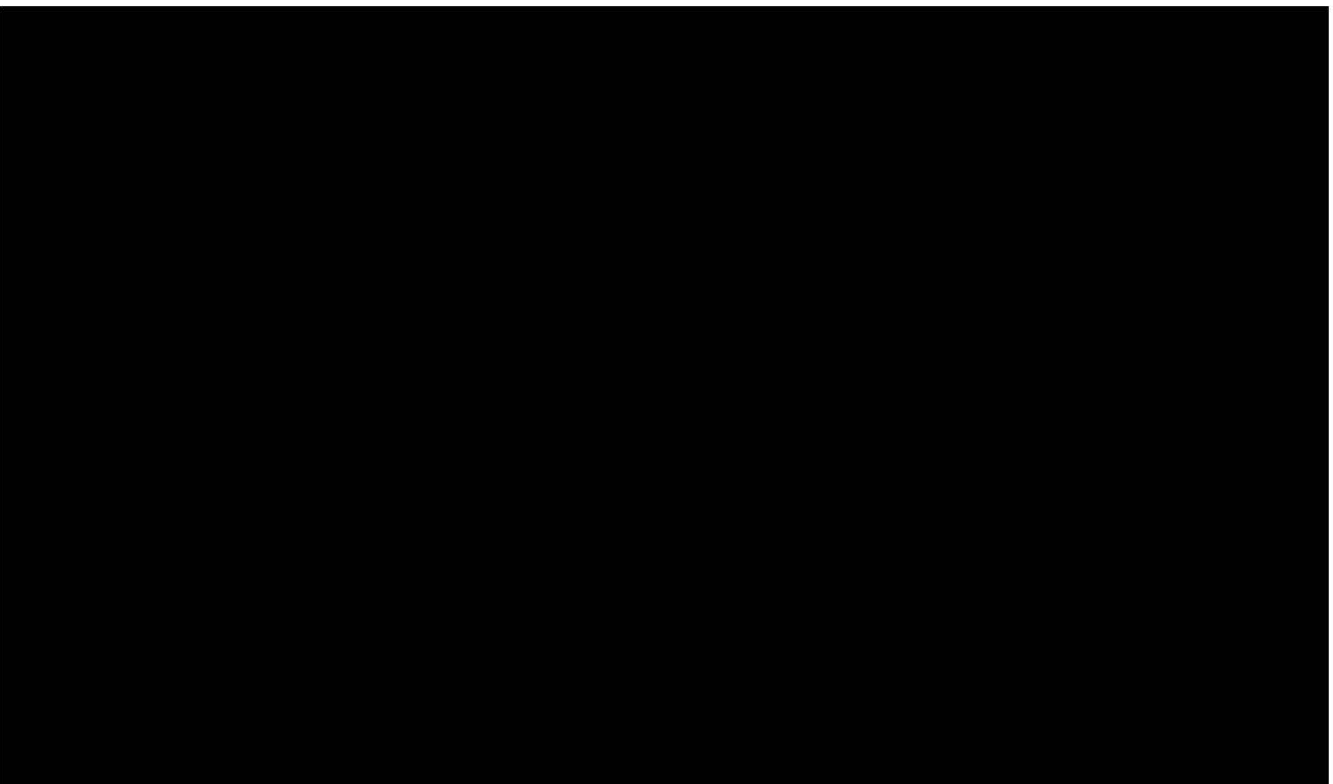




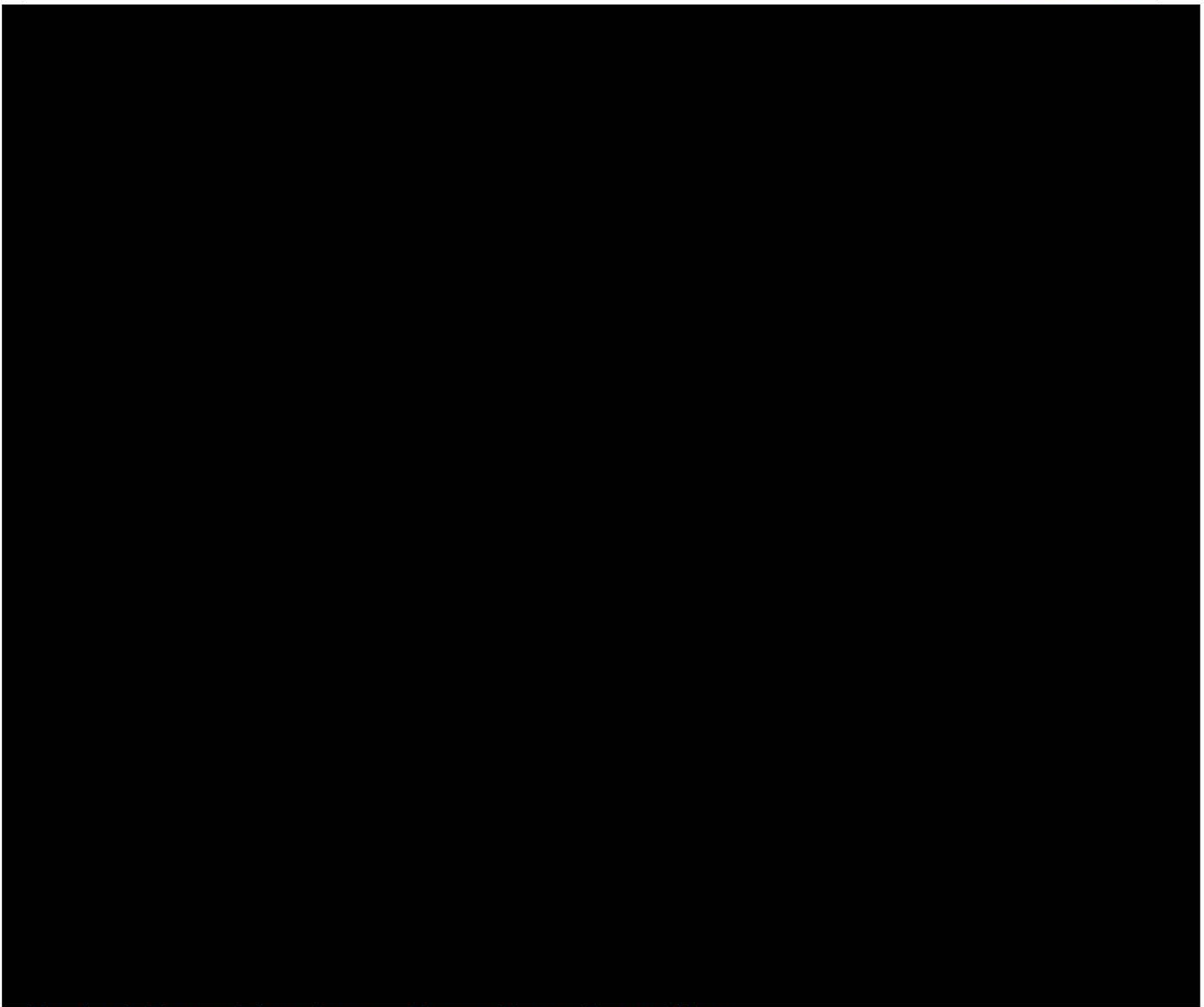




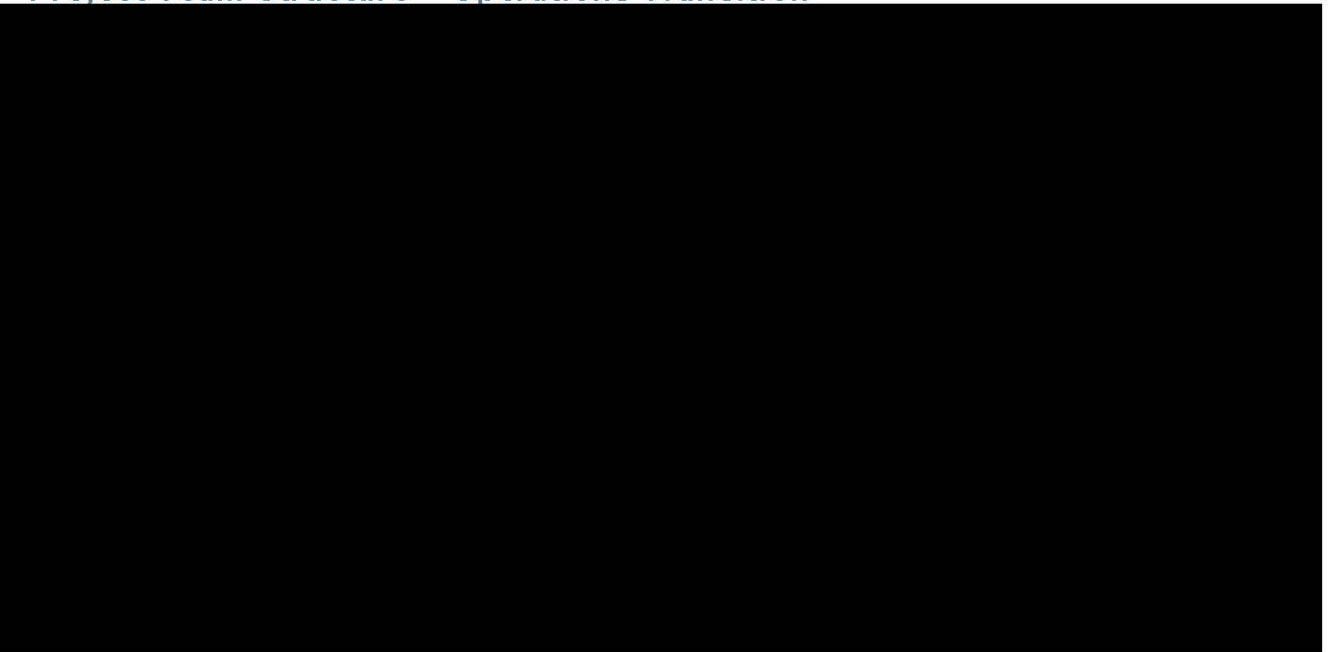
#### D.2.5.2 COORDINATION OF TRANSITION ACTIVITIES







*Project Team Structure – Operations Transition*





### Core Project Team – Operations Transition

The Project Manager will be supported by department champions from Workforce Management, Human Capital, Training, Quality, Operations, Facilities, Technology, Security, and Compliance, to ensure a seamless deployment and transition to steady-state operational management.

The matrices in [Table 3](#) and [Table 4](#) below outlines the typical core project resources necessary to transition and deploy a new program. Additional resources may be engaged depending on the size, scope, and complexity of the deployment.

*Table 3. Project Deployment | Key Roles and Responsibility Matrix – Project Team*

ETC Team Resources	Project Role
Project Sponsor	
Key Stakeholder / Business Owner	
Project Manager – Primary	
Client Relationship Executive	
Technology Project Manager	
Human Capital Lead	



ETC Team Resources	Project Role
Quality Lead	
Leadership Learning & Development	
Global Workforce Management Lead	
Reporting Lead	

Table 4. Project Deployment | Key Roles and Responsibility Matrix – Joint Board

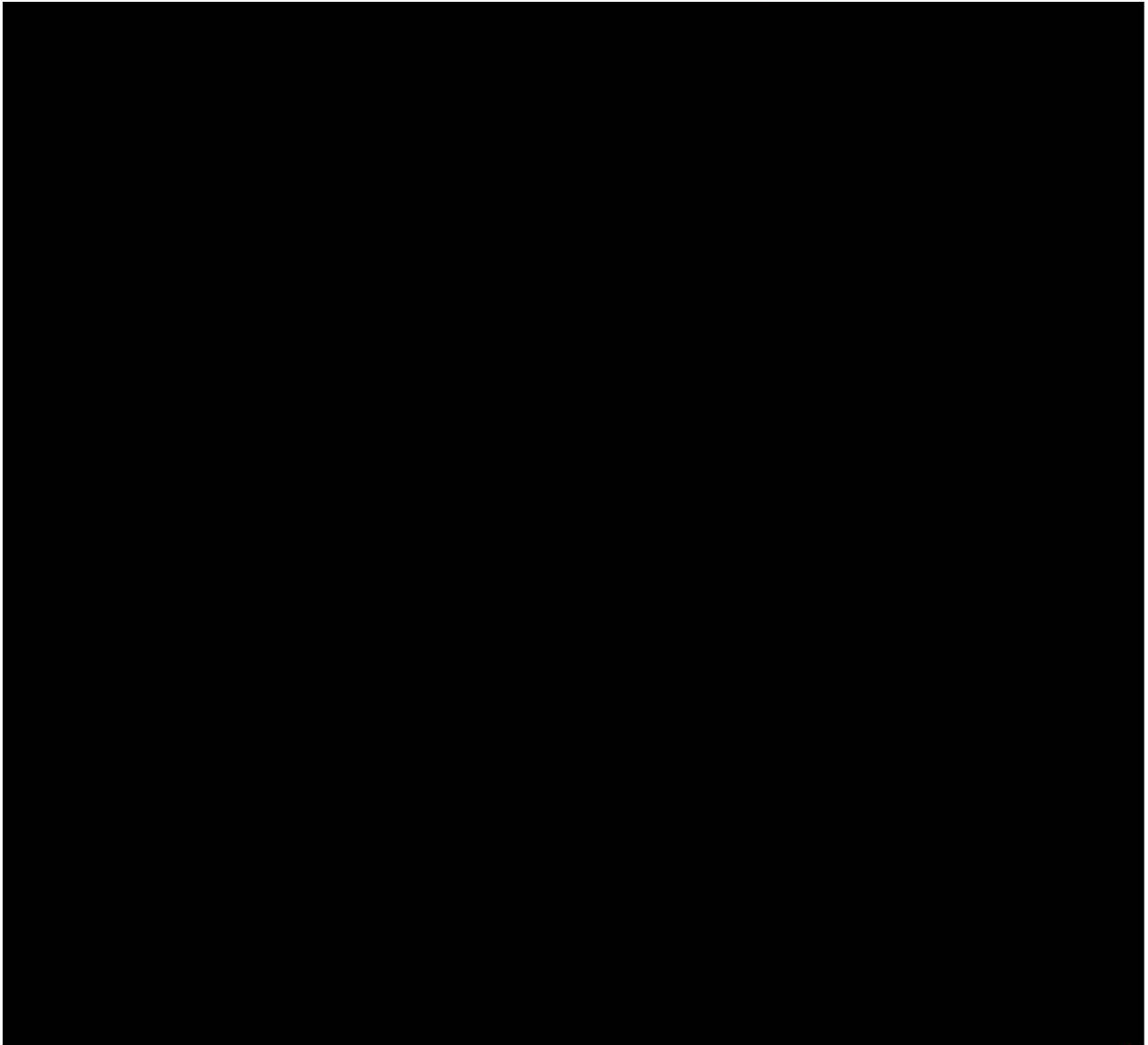
Joint Board Resources	Project Role
Joint Board Project Sponsor	
Joint Board Business Owner / Stakeholder	
Joint Board Project Lead / Project Owner	



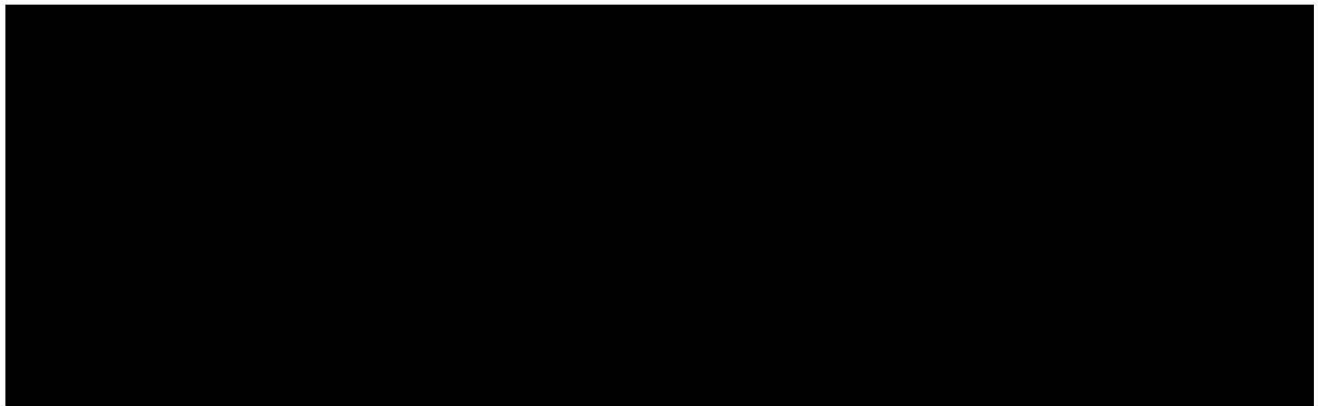
Joint Board Resources	Project Role
Technology Point of Contact (Voice, Data and Applications)	
Quality Subject Matter Expert	
Reporting Subject Matter Expert	



## D.2.6 APPROACH TO CSC WORKFORCE MANAGEMENT (K-6)



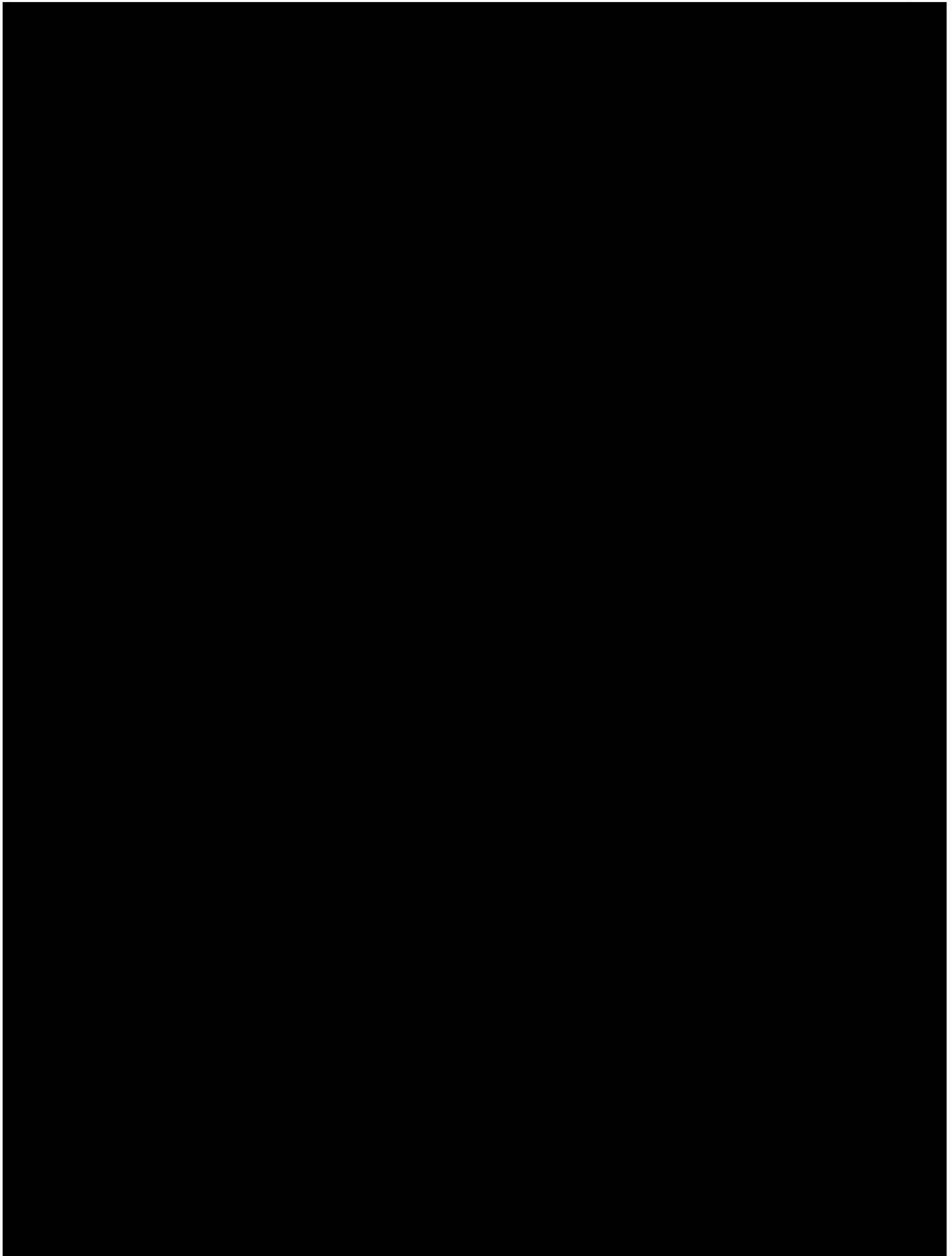
### D.2.6.1 APPROACH TO WORKFORCE MANAGEMENT



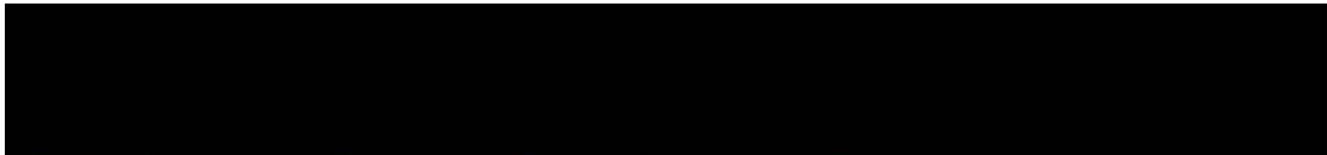


*Workforce Management Value Proposition*

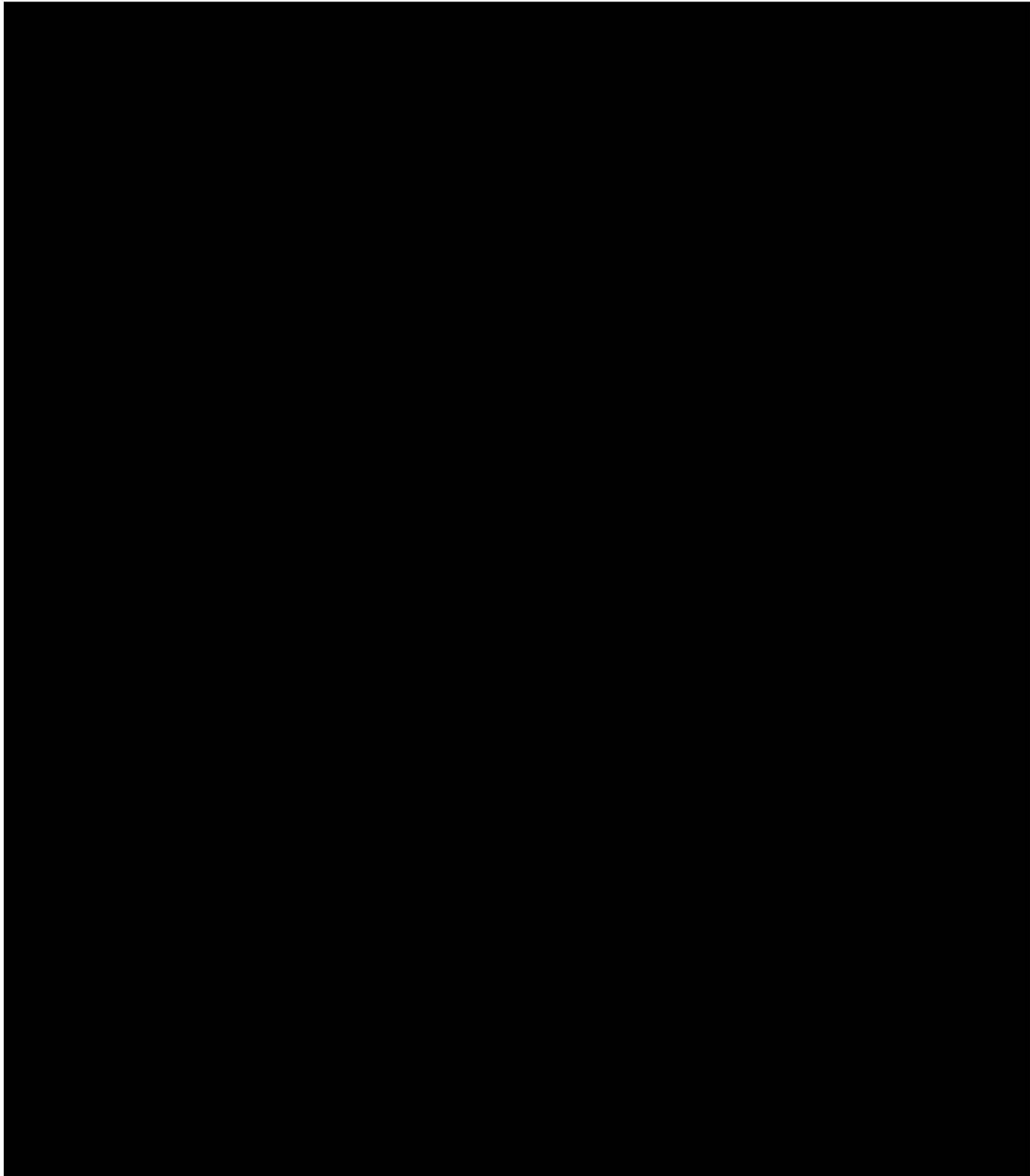




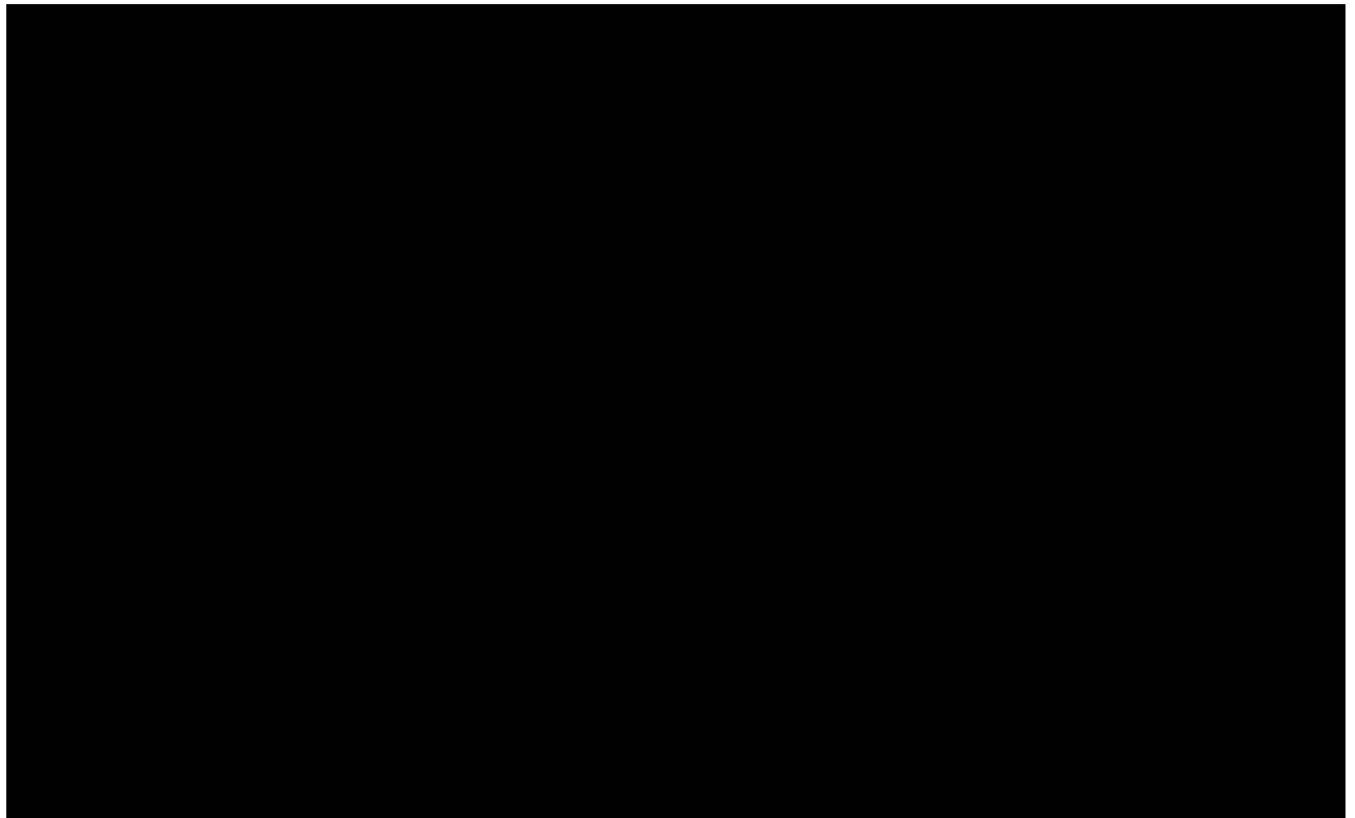
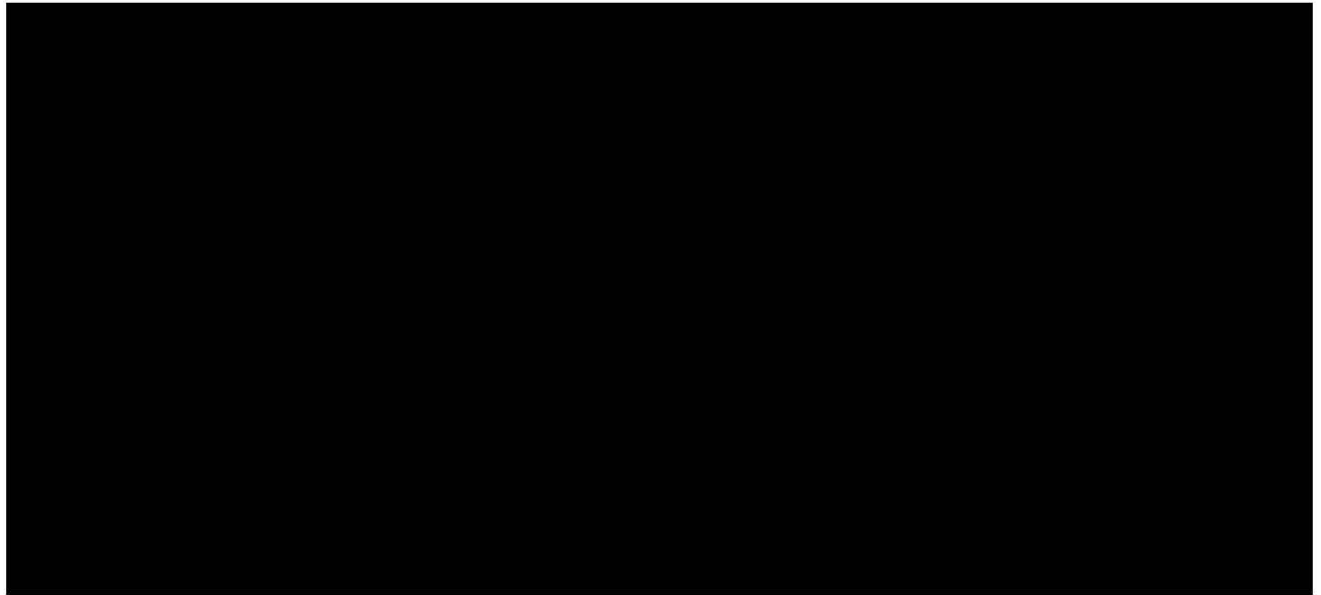




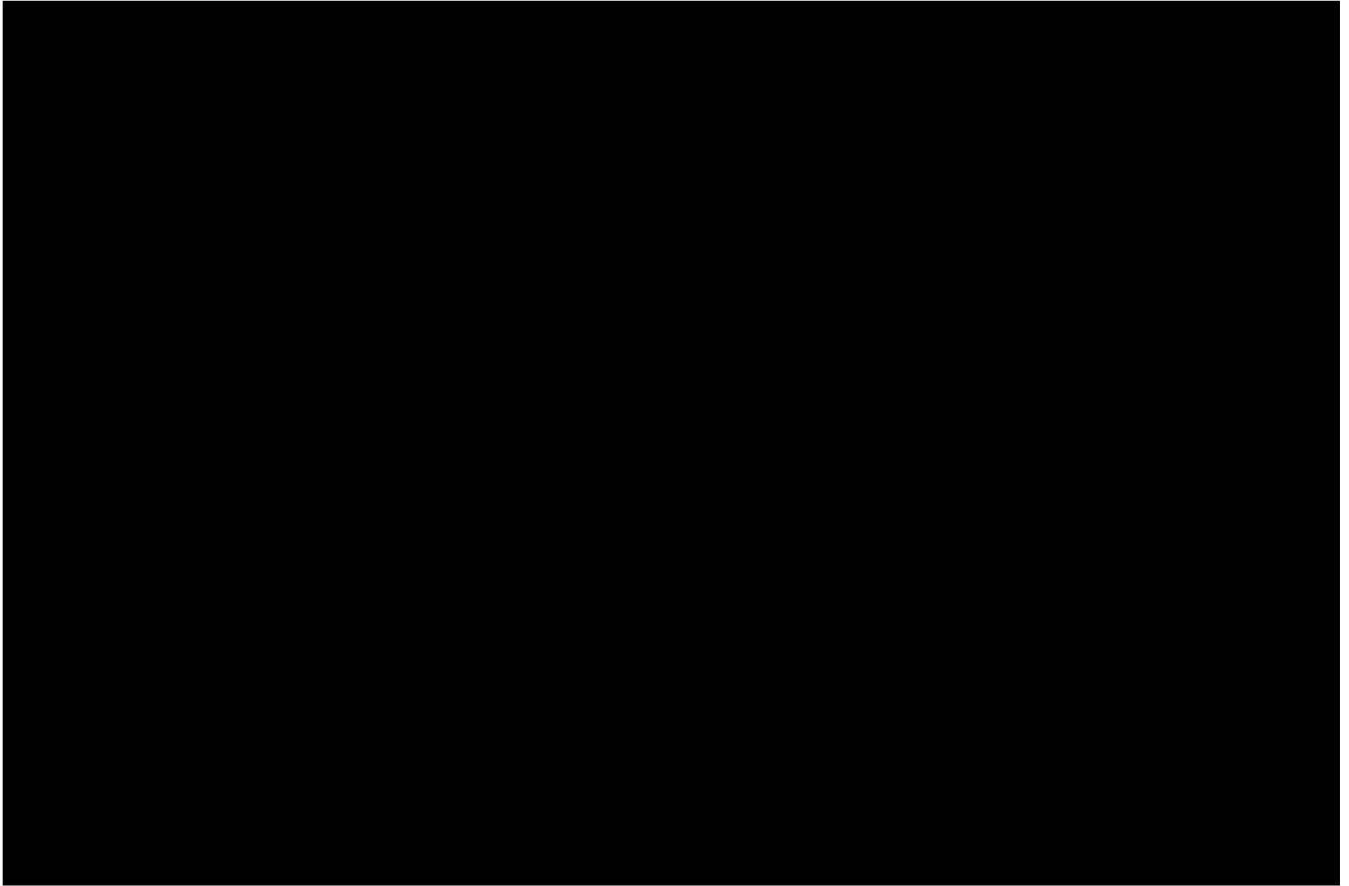
#### D.2.6.2 WORKFORCE MANAGEMENT TOOLS, METHODS AND BENEFITS













### D.2.7 APPROACH TO KEY PERFORMANCE INDICATORS (K-7)

Since 1999, ETC has provided successful implementation, operations, and maintenance of both Back Office Systems (BOS) and Customer Service Operations Programs. [REDACTED]

[REDACTED] we offer the necessary experience to successfully execute both the system and service operations.

The approach we take to ensure KPI adherence involves several tracks:

The table below summarizes RiverLink Program KPIs provided in the RFP with the riteHorizon missed occurrence rate during 2020.



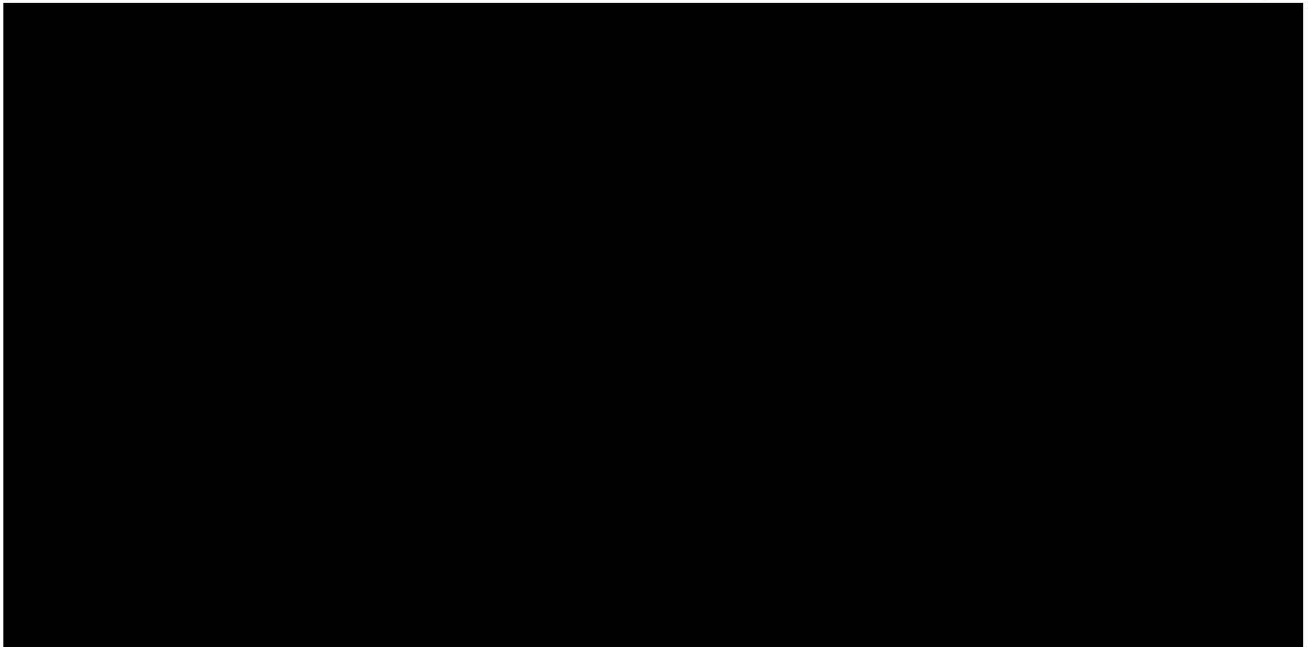
Table 6. KPI and SLA Measures for the Harris County Toll Road Project.

RFP Requirement / Key Performance Indicator / SLA Measure	Missed Count 2020
[Redacted Table Content]	


The additional tables below demonstrate our capabilities to meet system and maintenance KPIs, across multiple Programs that compare similarly in scope to the RiverLink Program, with higher processing volumes than estimated for this project.

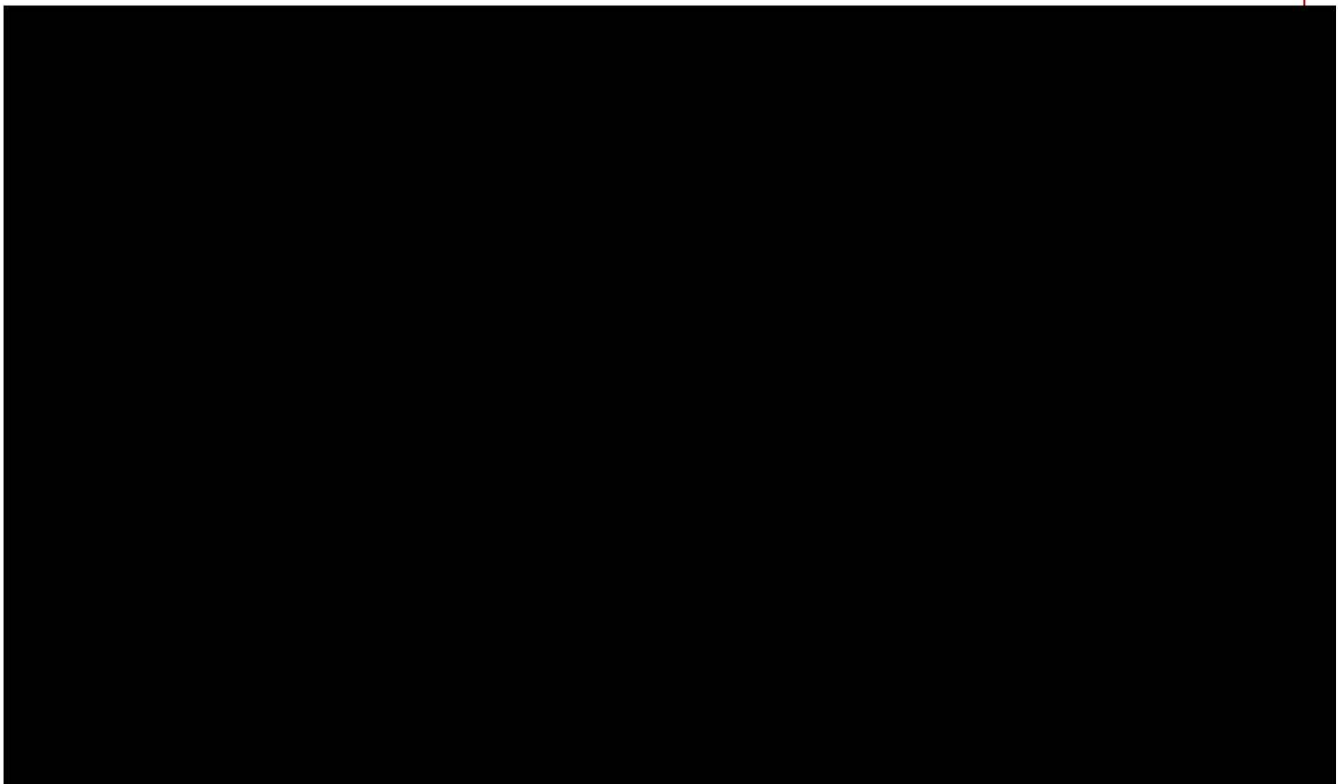
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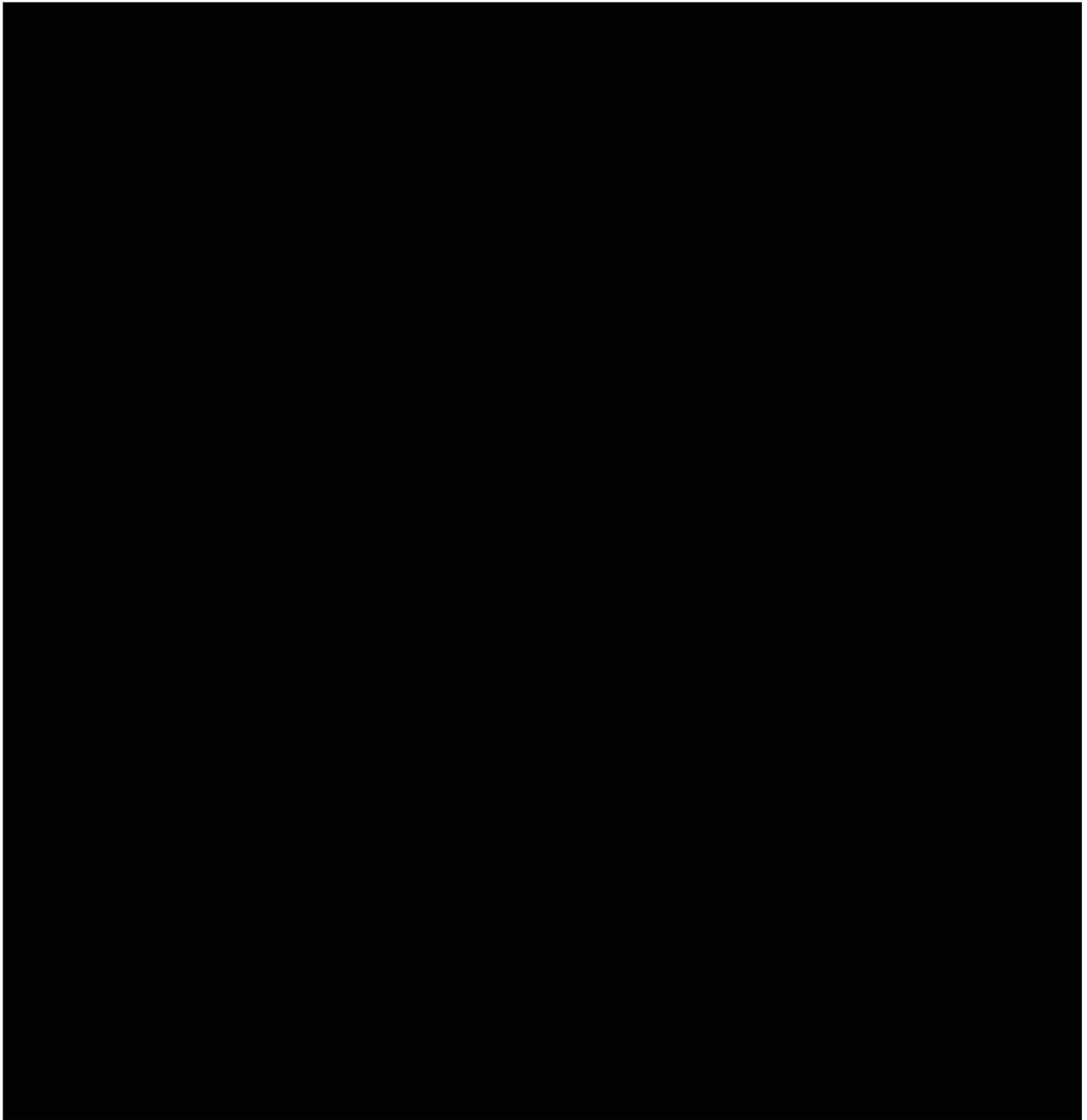


#### D.2.7.1 KEY PERFORMANCE INDICATOR MANAGEMENT TOOLS AND METHODS

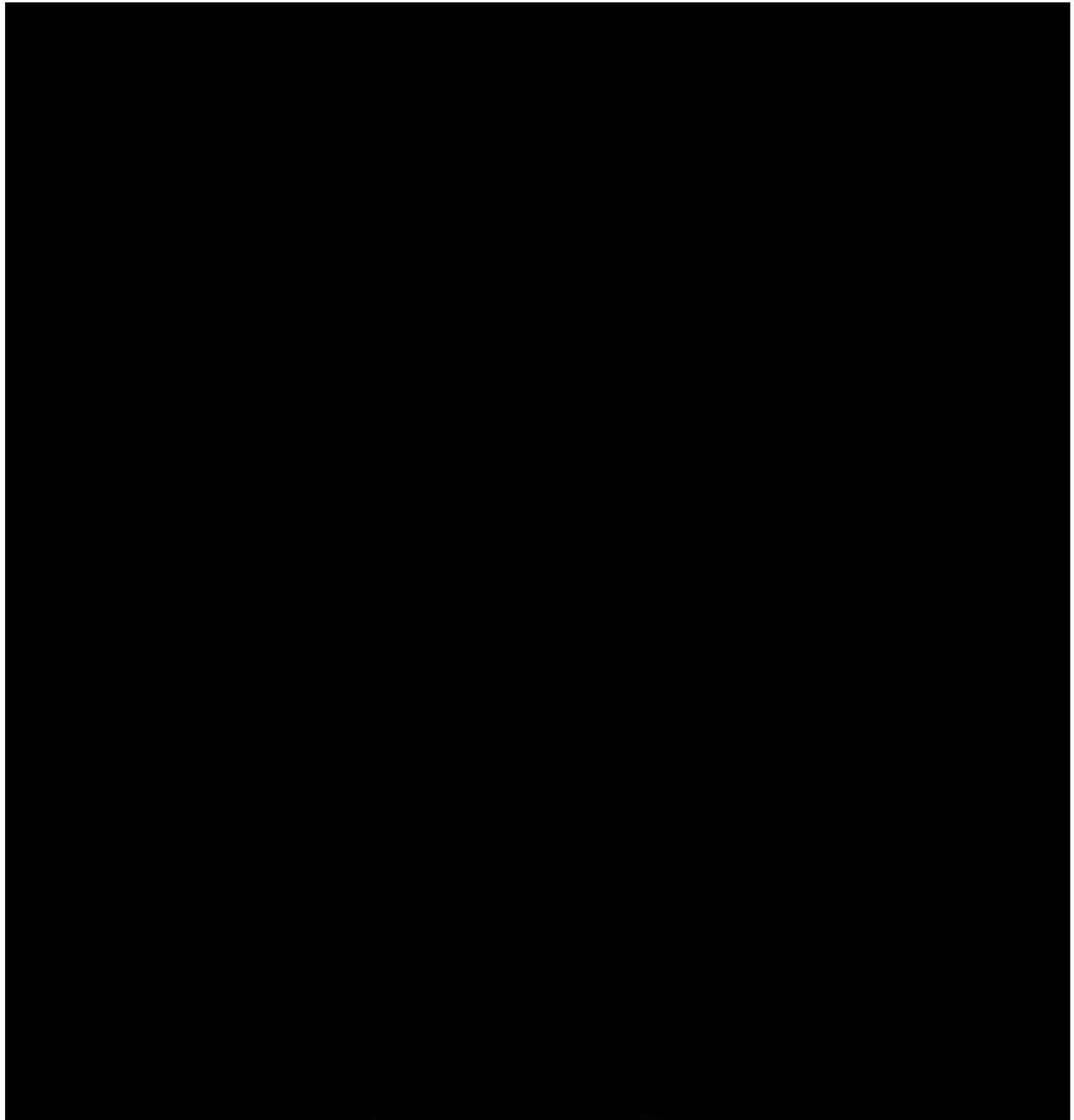
Using the right tools and procedures make all the difference in validating KPI performance. 





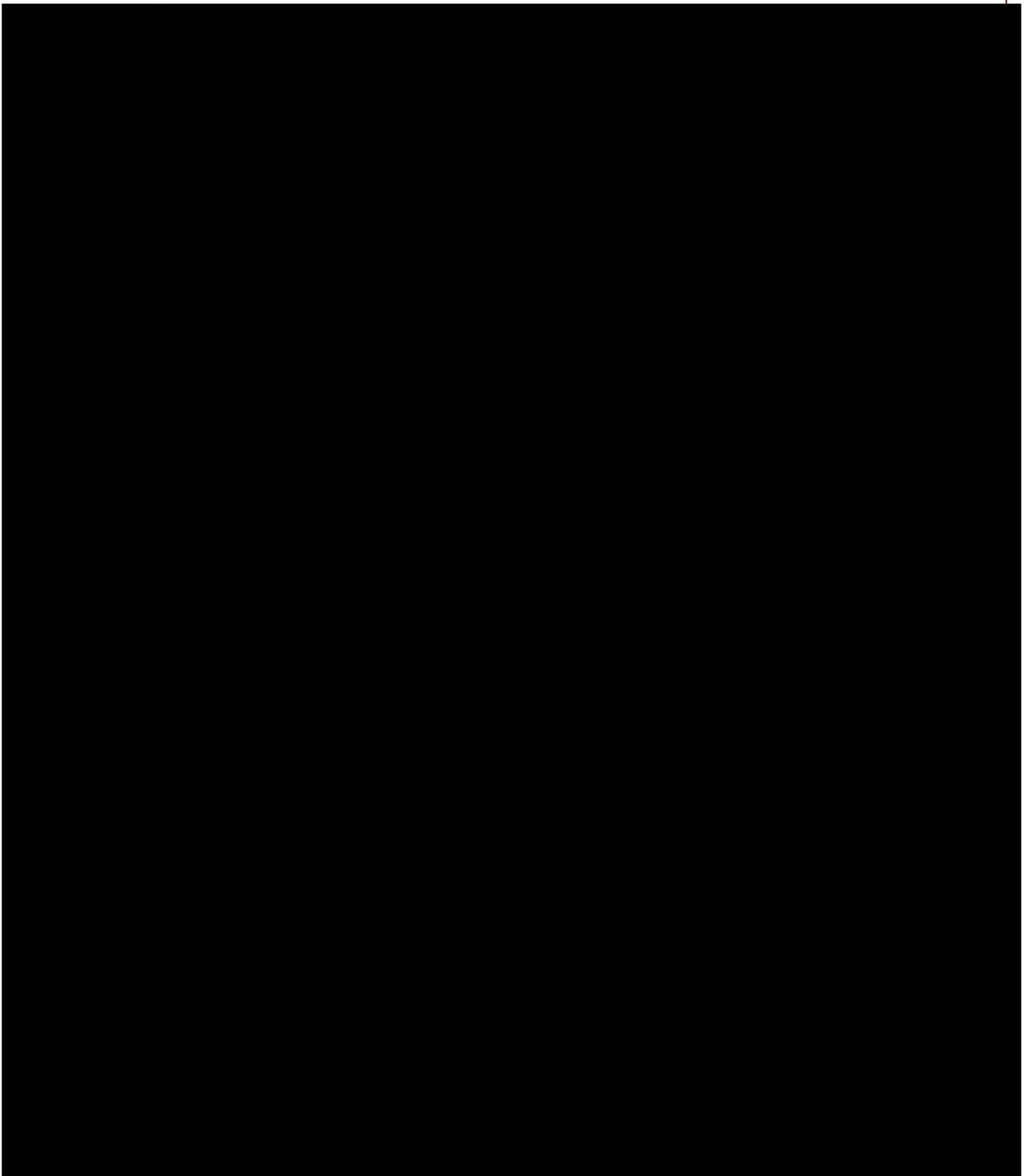






- |                   |                   |                                   |
|-------------------|-------------------|-----------------------------------|
| ▶ Cloud Dashboard | ▶ Email Alerts    | ▶ Daily Jobs Views                |
| ▶ Daily Checks    | ▶ Spot checks     | ▶ Key data points - transactions, |
| ▶ System Alerts   | ▶ Various Reports | MBS, Payments, etc.               |

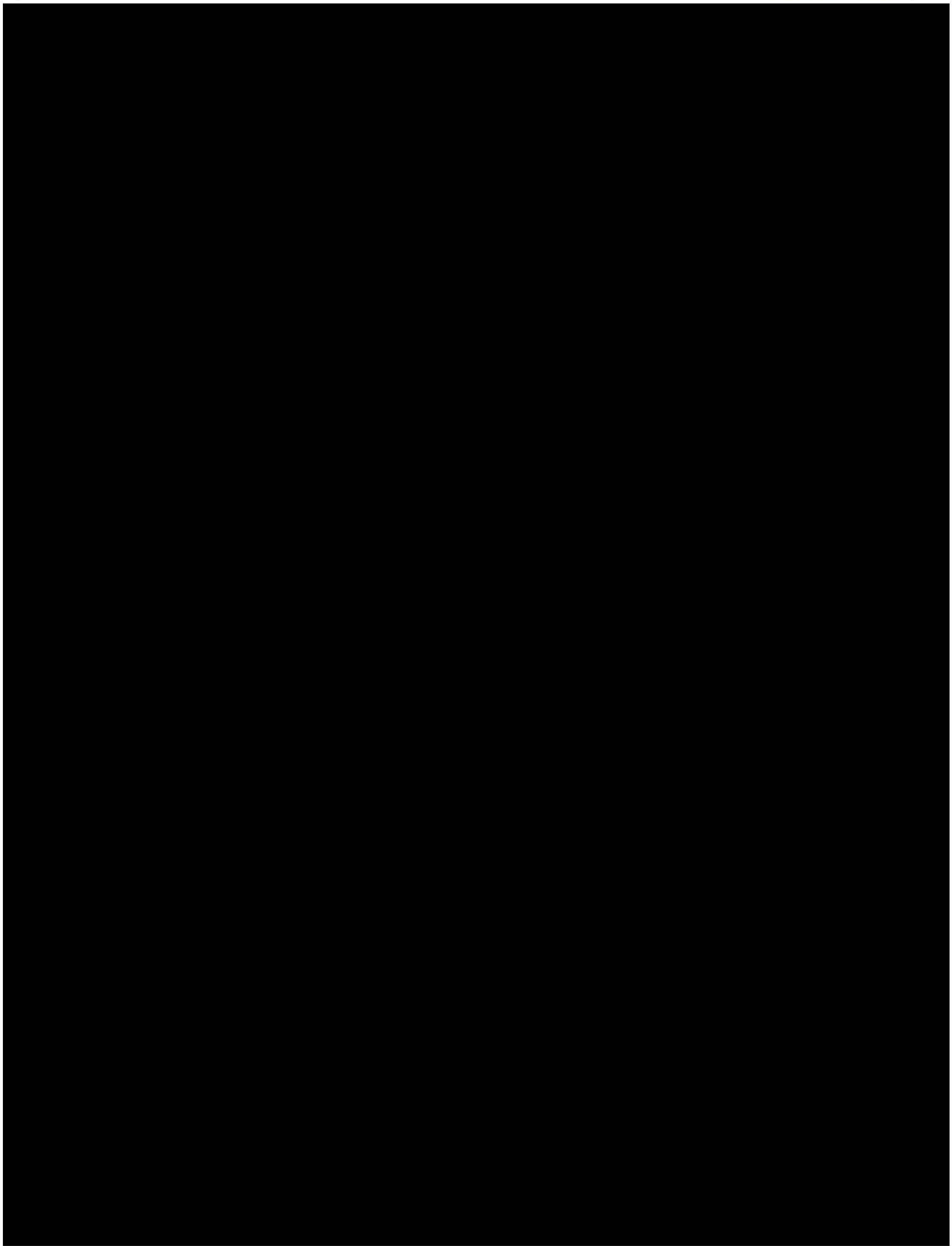




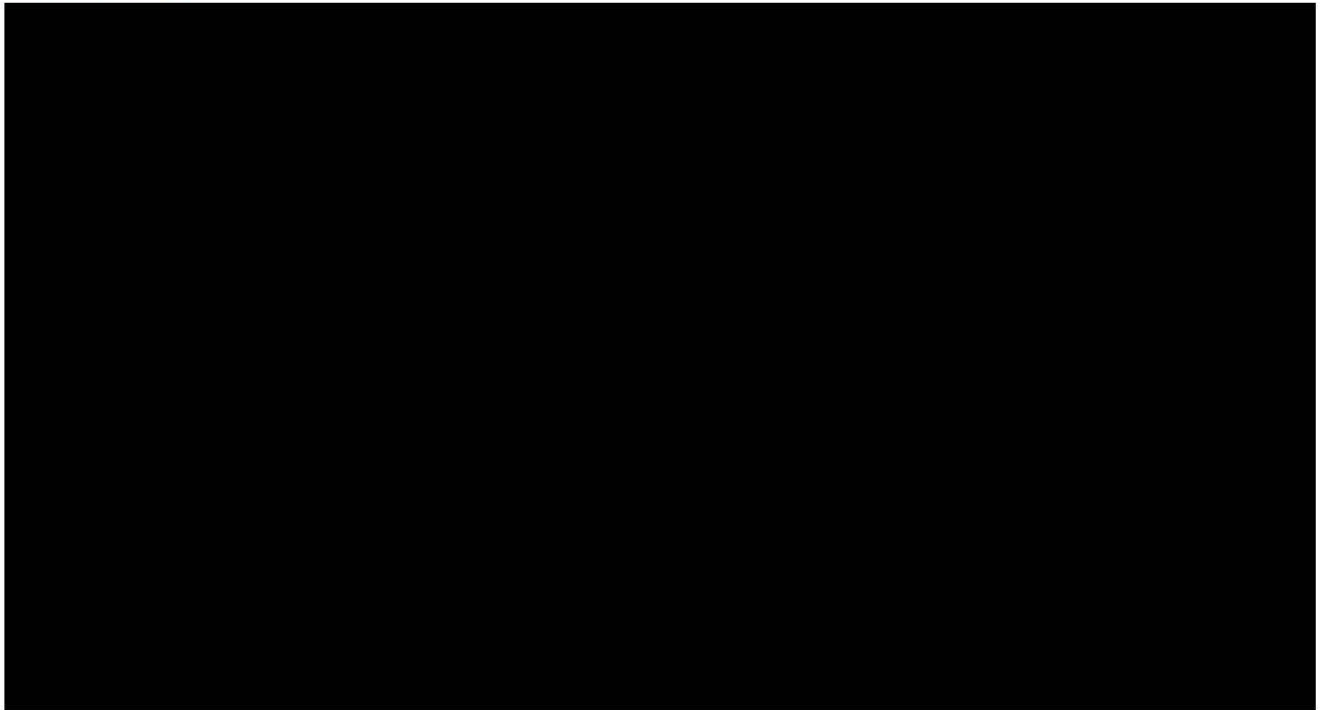
#### **D.2.7.2 APPROACH TO JOINT BOARD COMMUNICATIONS AND DISPUTE RESOLUTION**







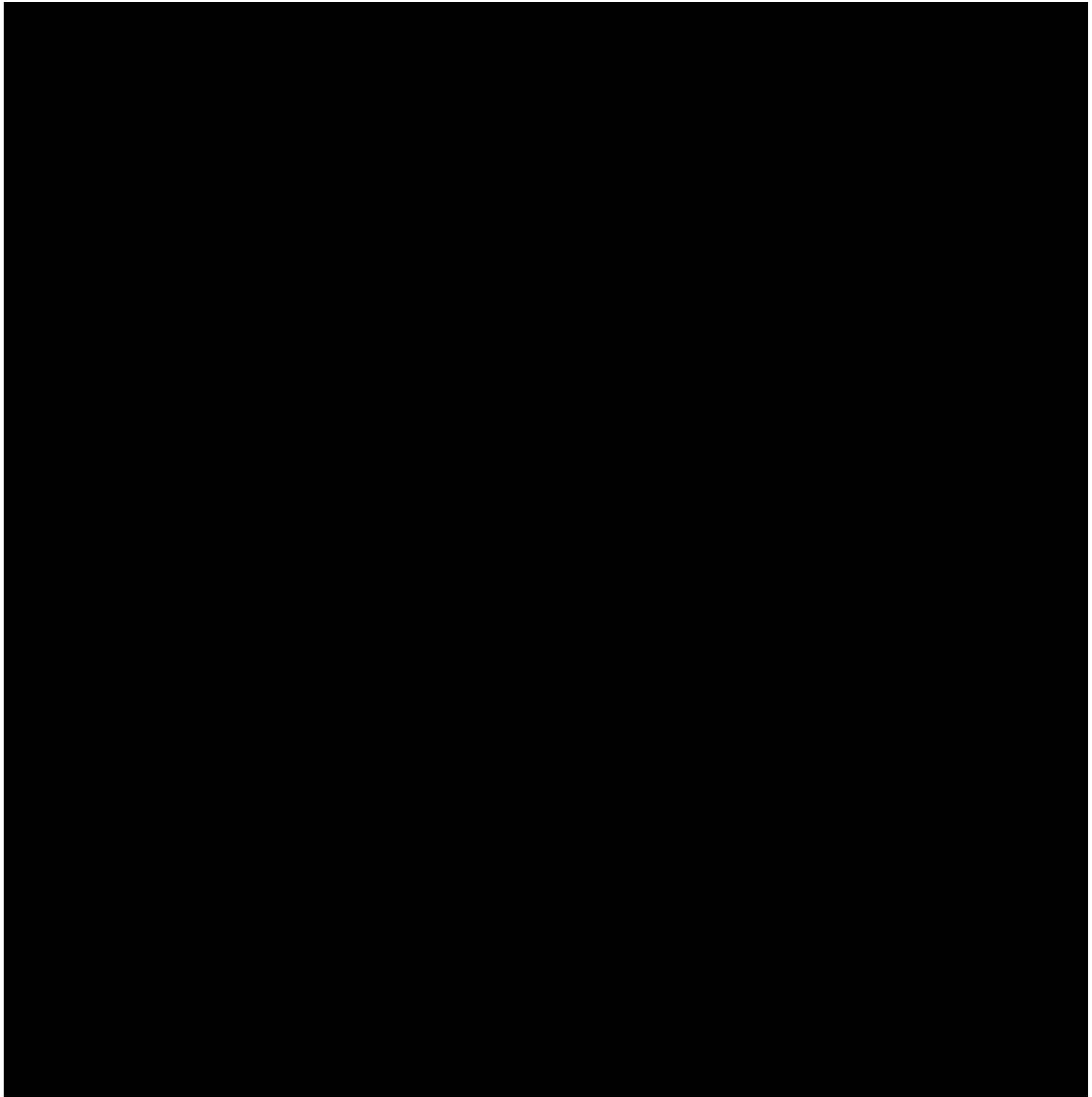




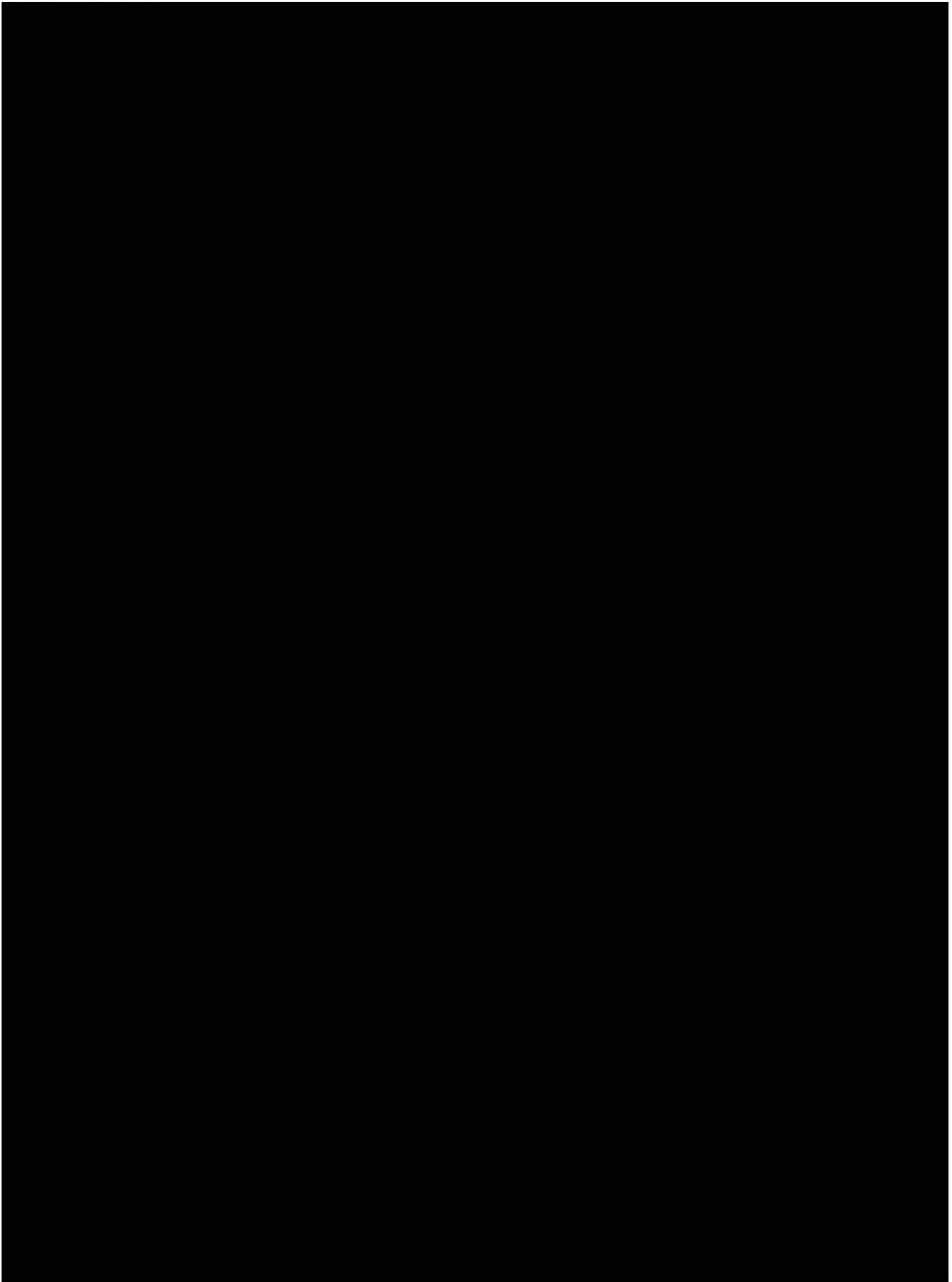


## D.2.8 APPROACH TO TECHNOLOGY AND TELEPHONY (K-8)

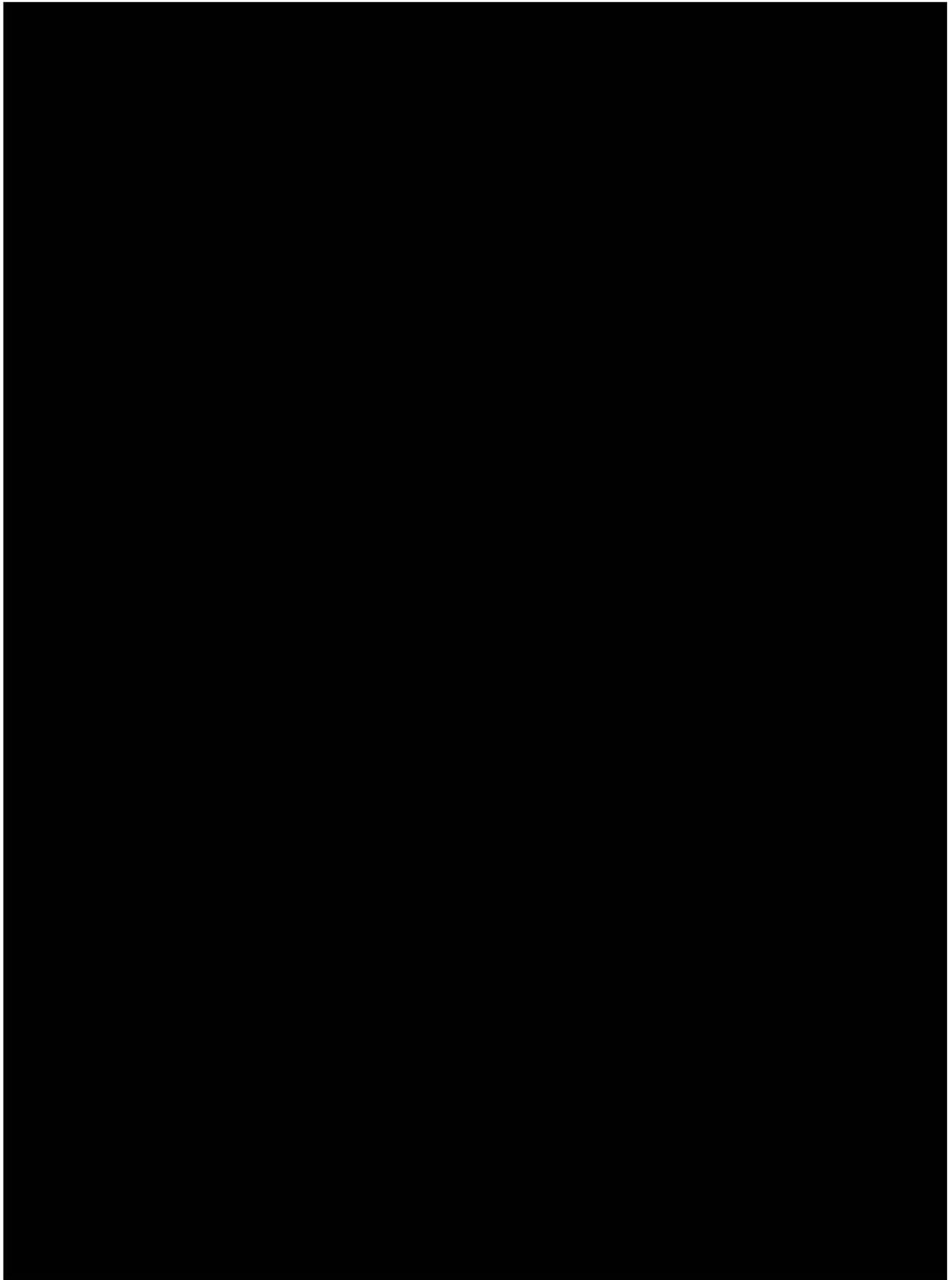
### D.2.8.1 INFRASTRUCTURE SOLUTIONS



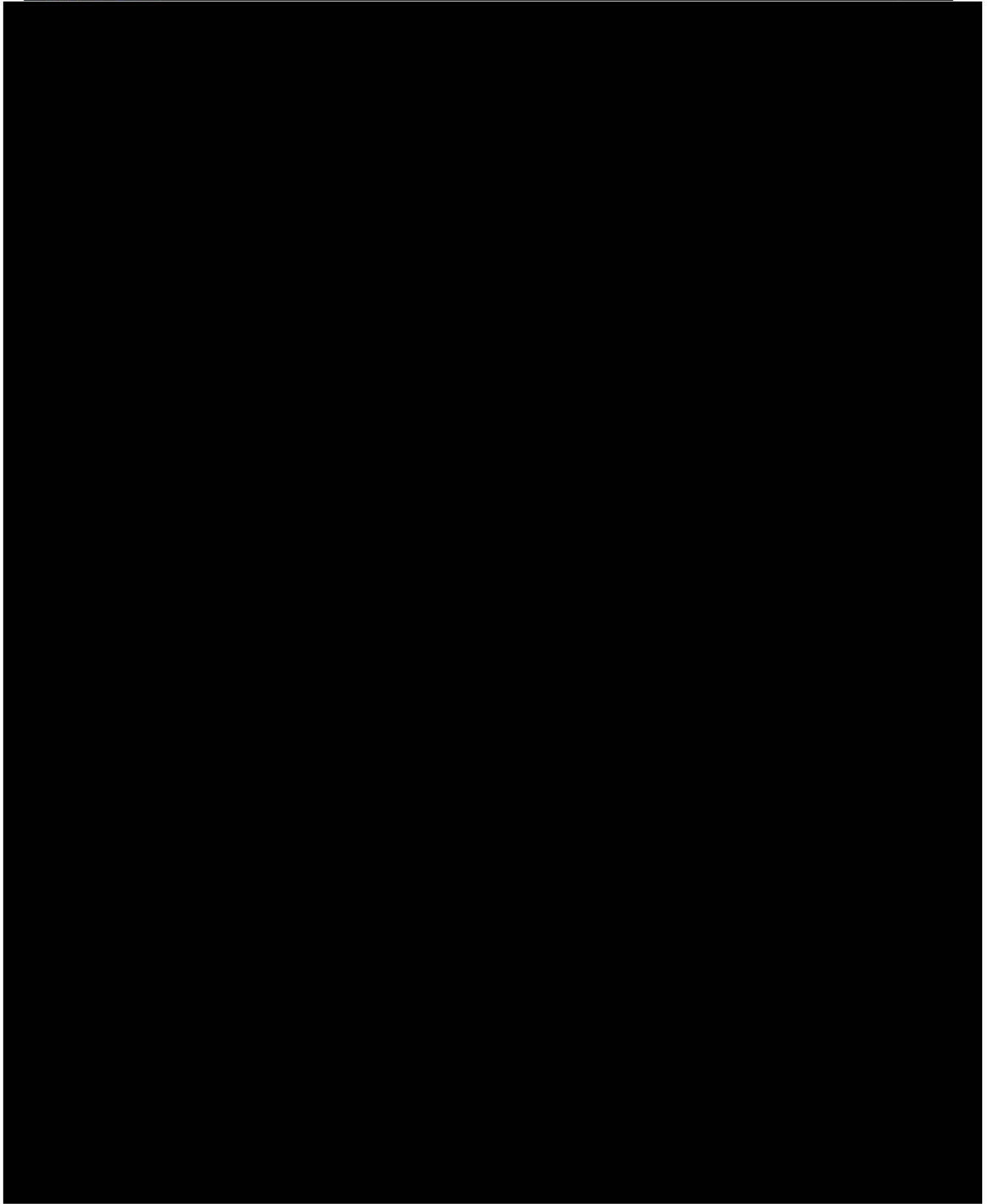




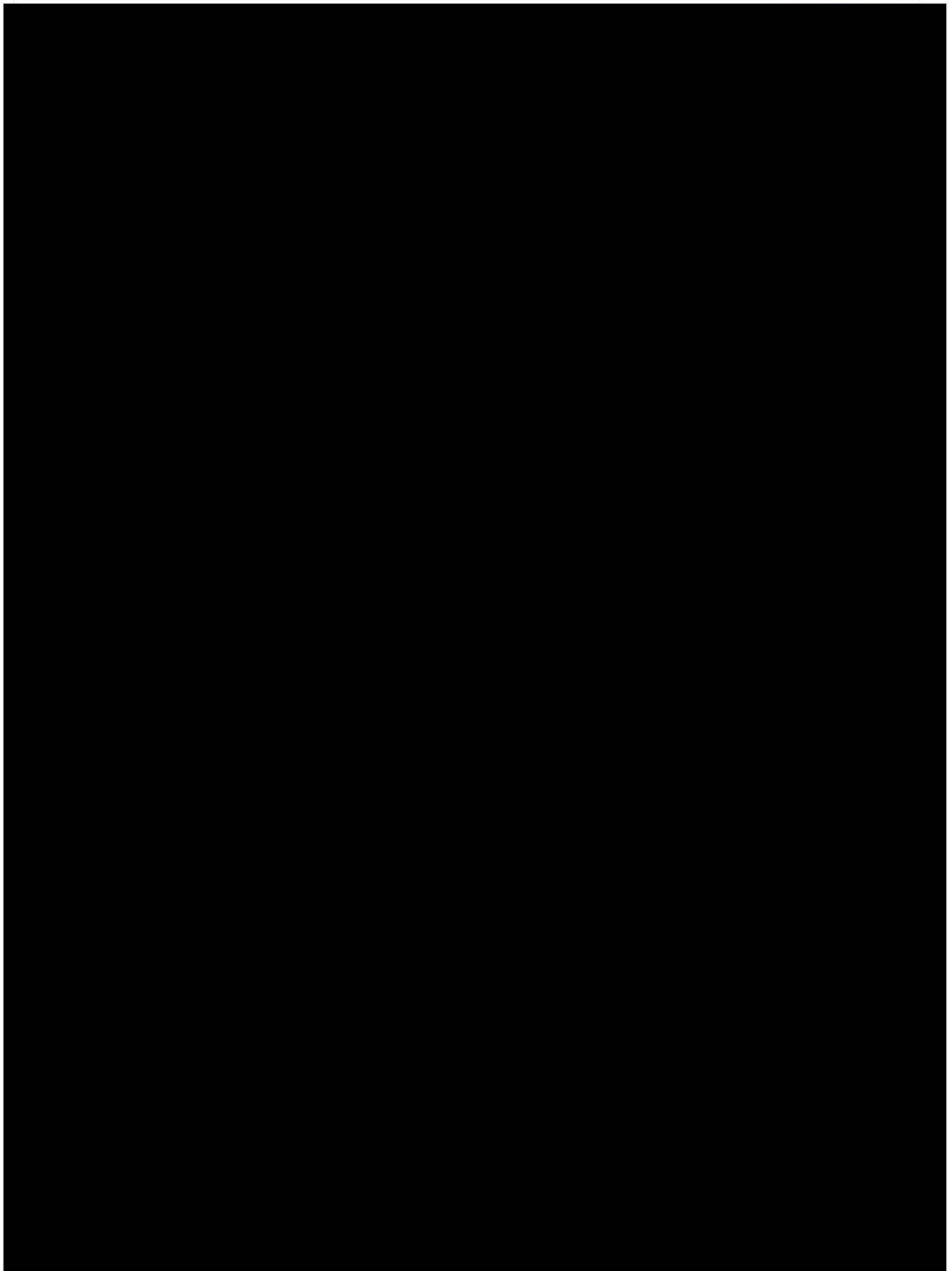




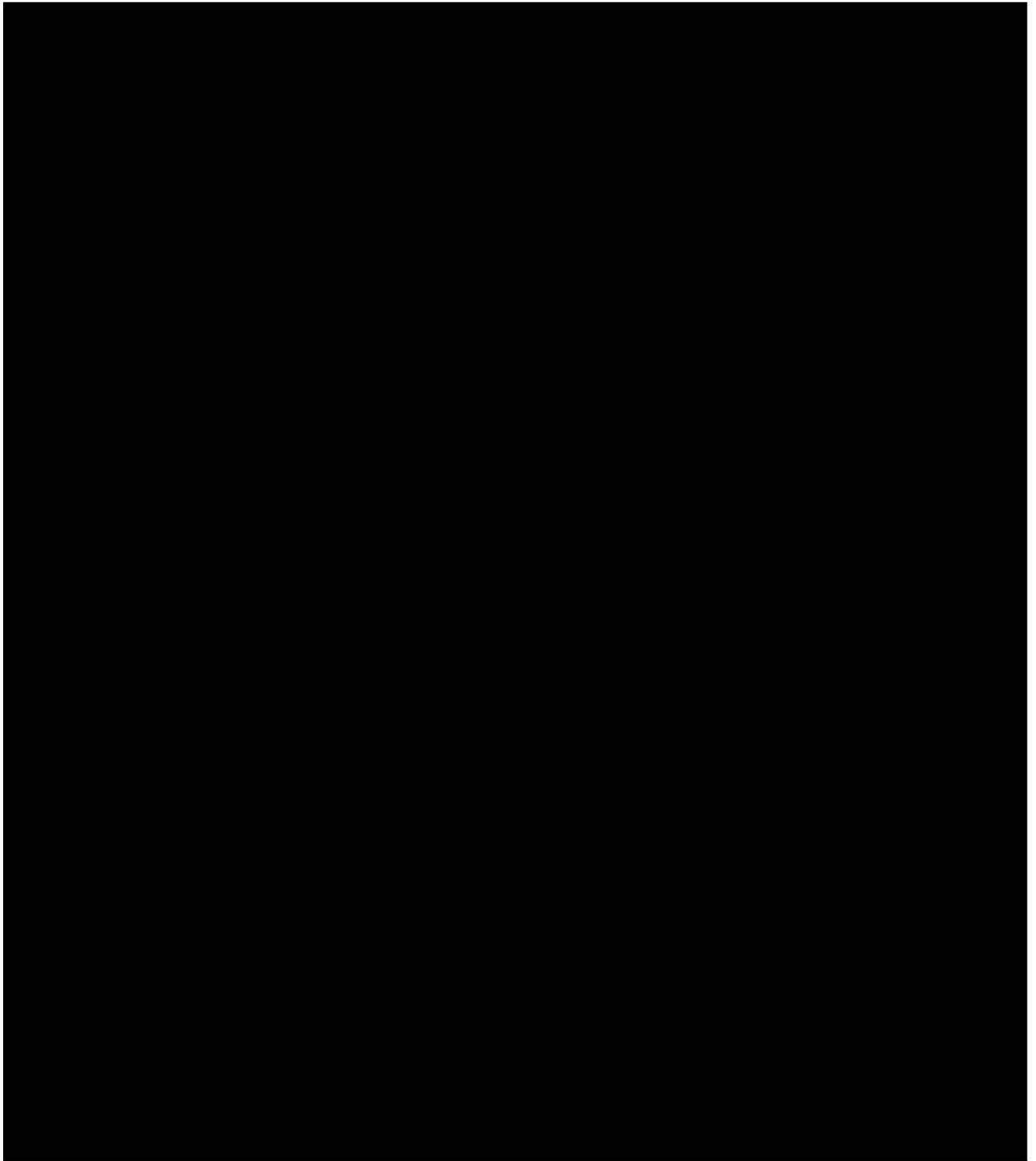




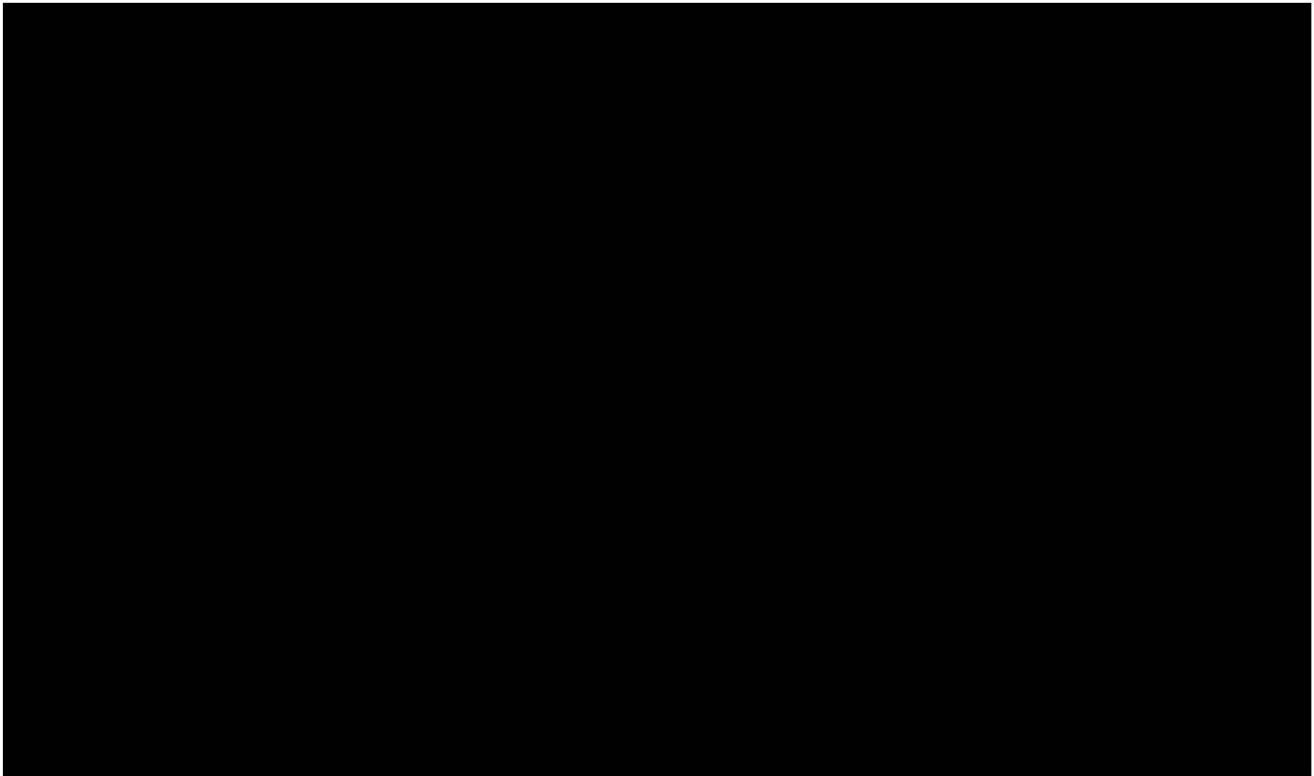




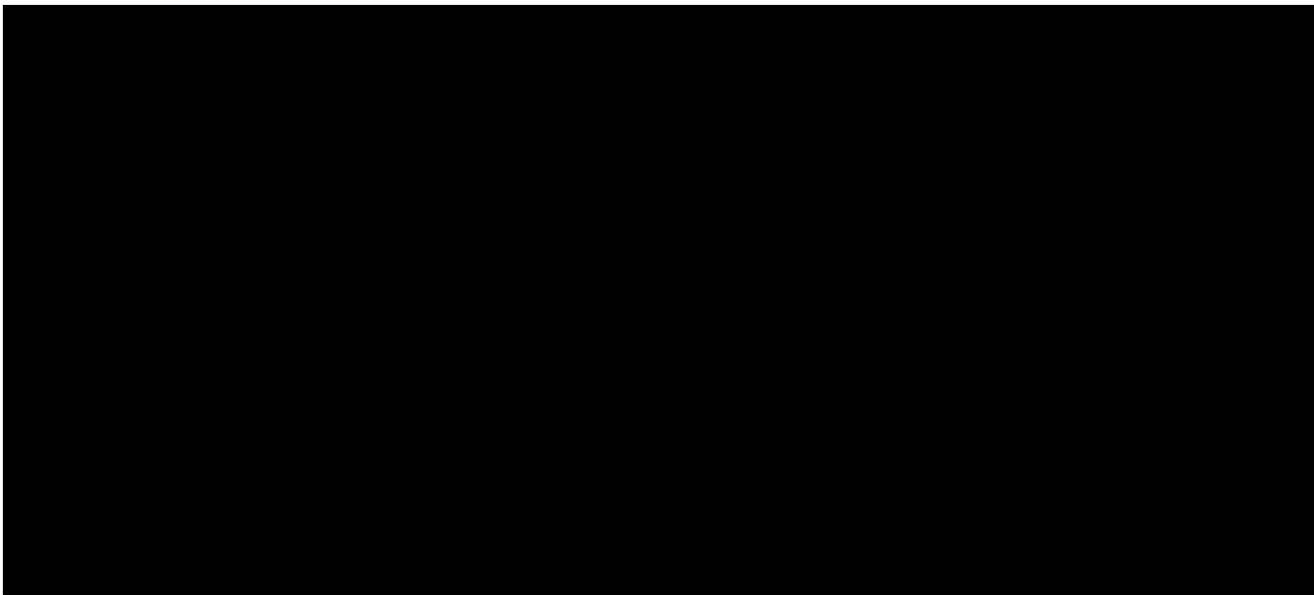




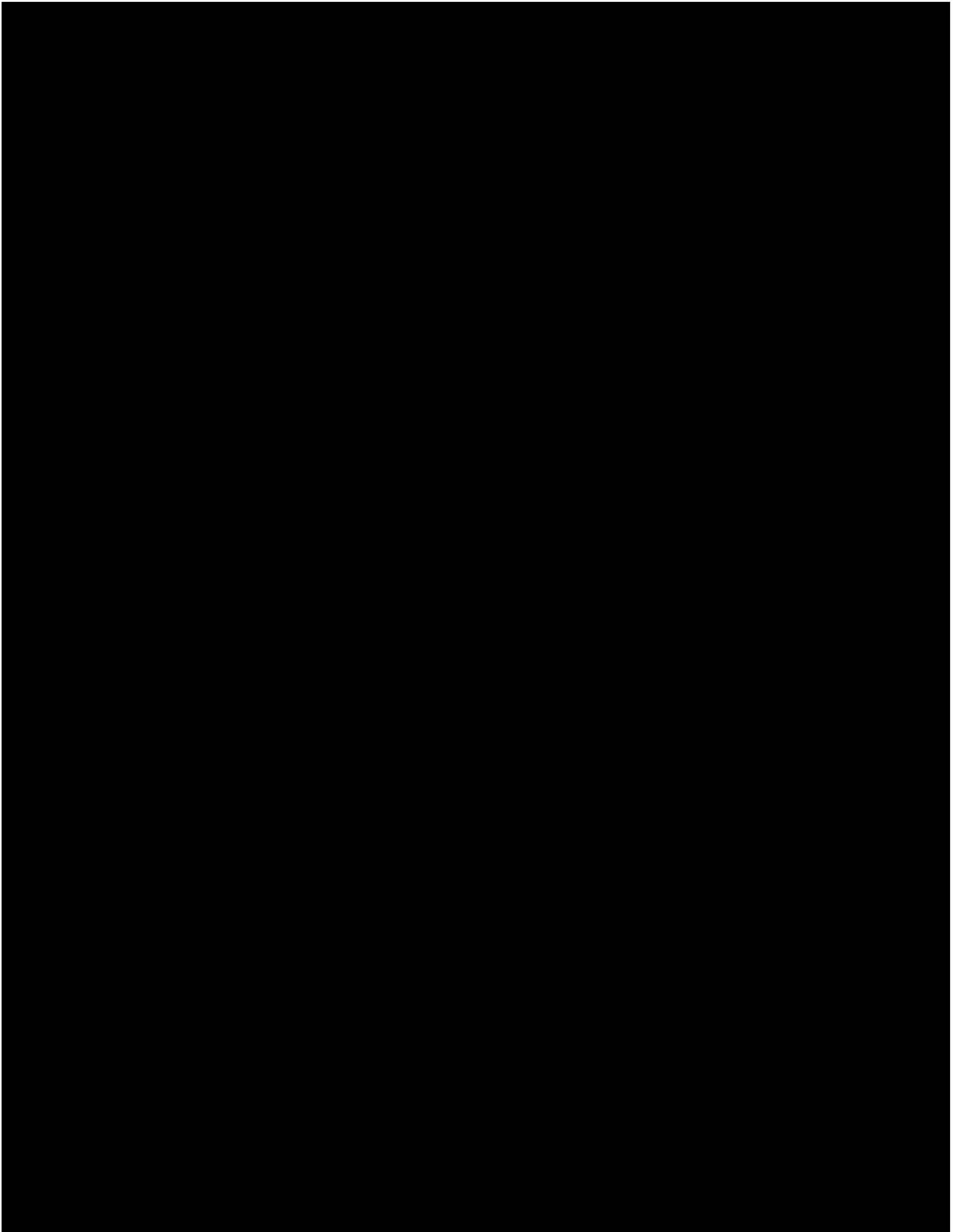




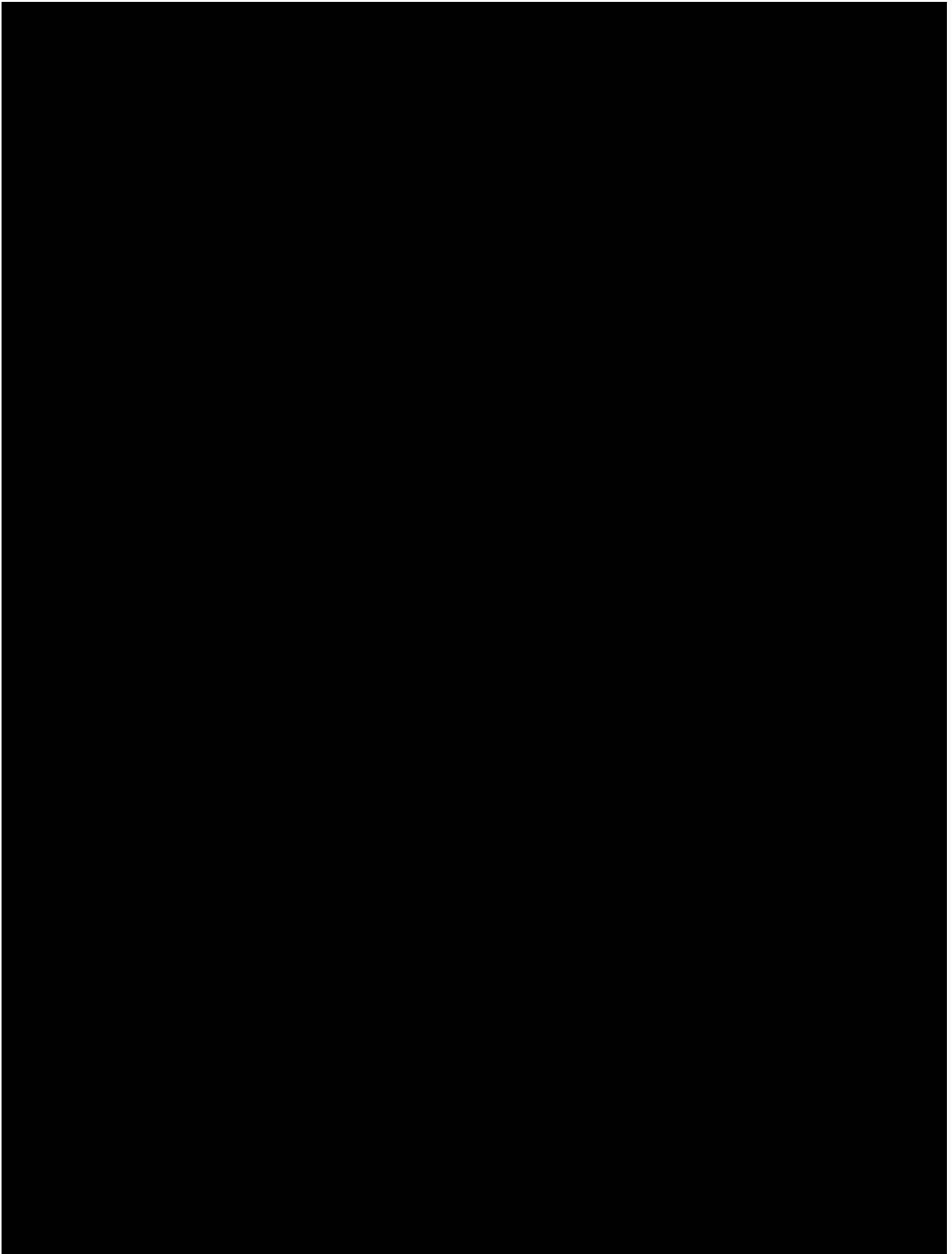
#### **D.2.8.2 INNOVATION AND TECHNOLOGY FOR SELF-SERVICE AND CUSTOMER COMMUNICATIONS**





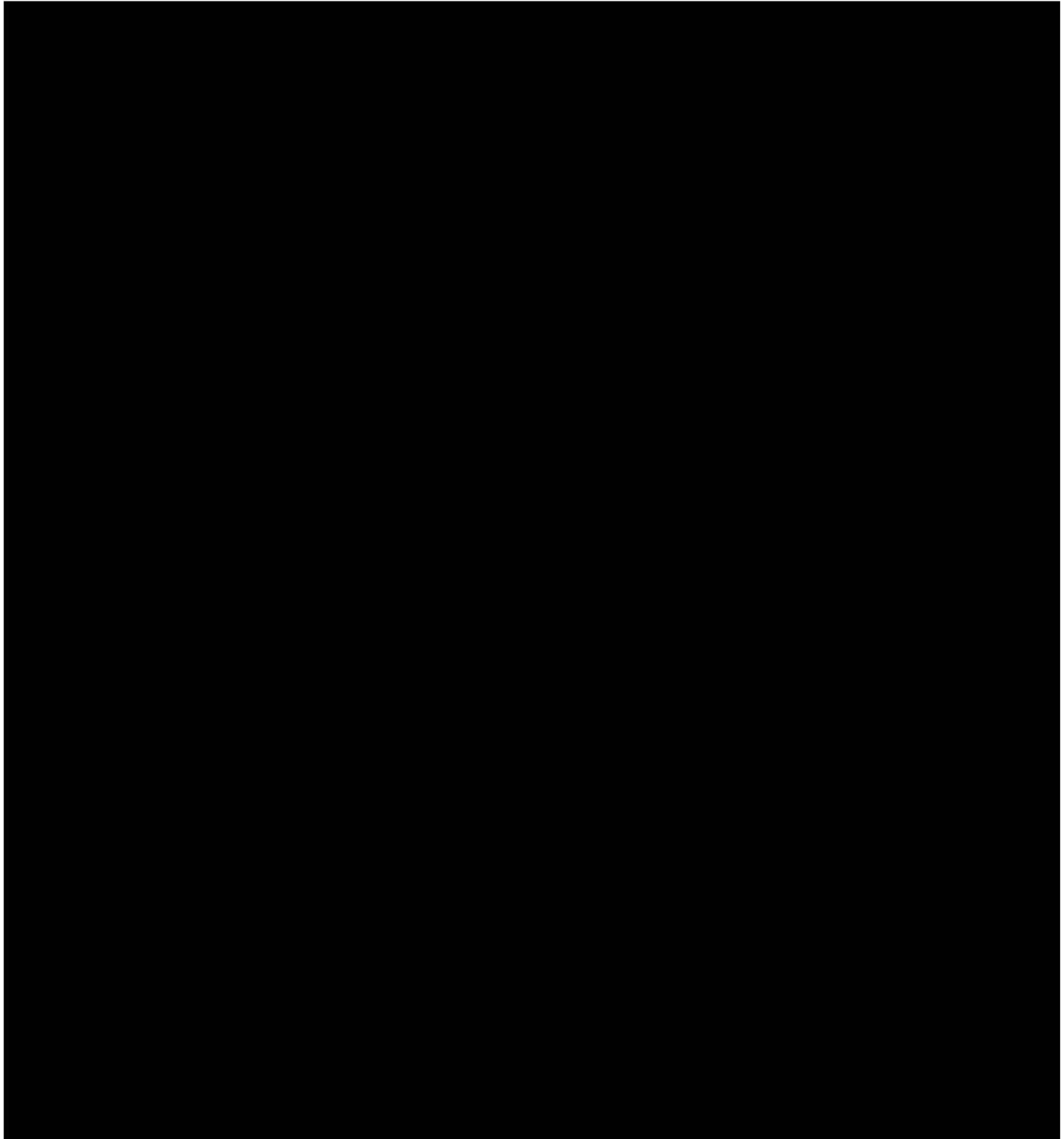




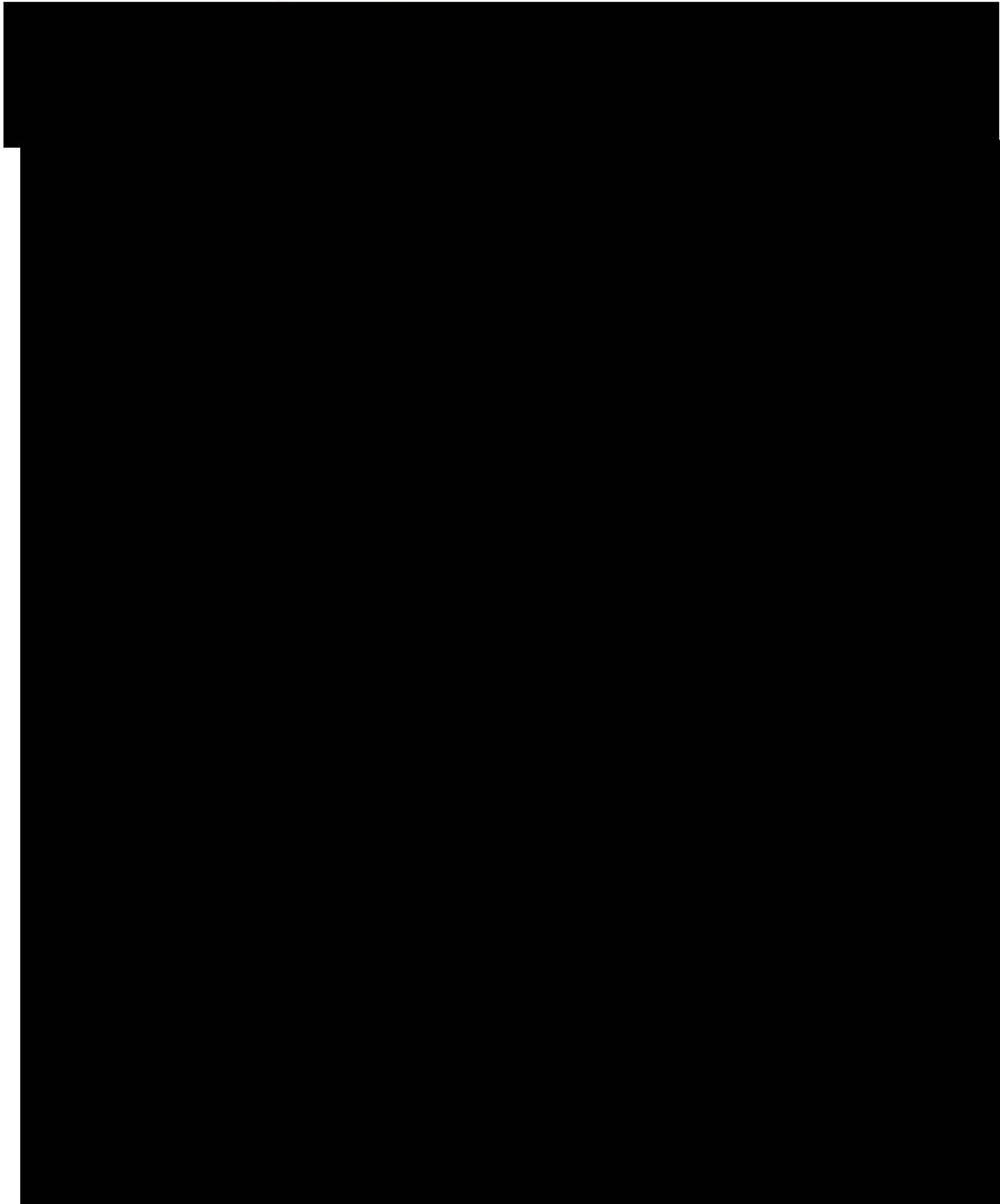




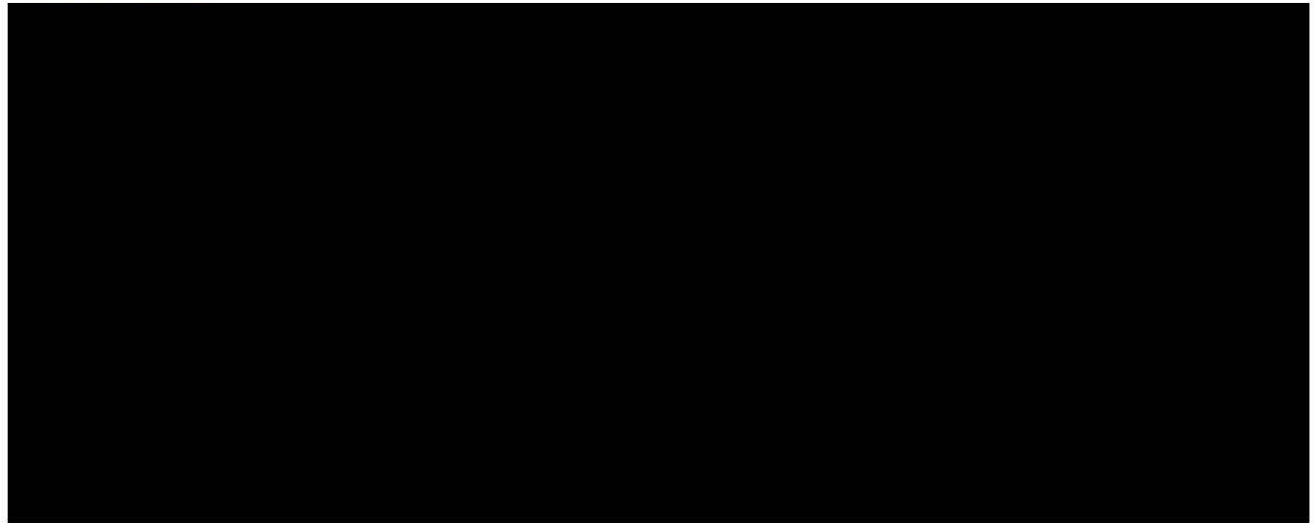
### D.2.8.3 INTEGRATING THIRD-PARTY SOLUTIONS



## D.3 VALUE ADDS (FORM Q)

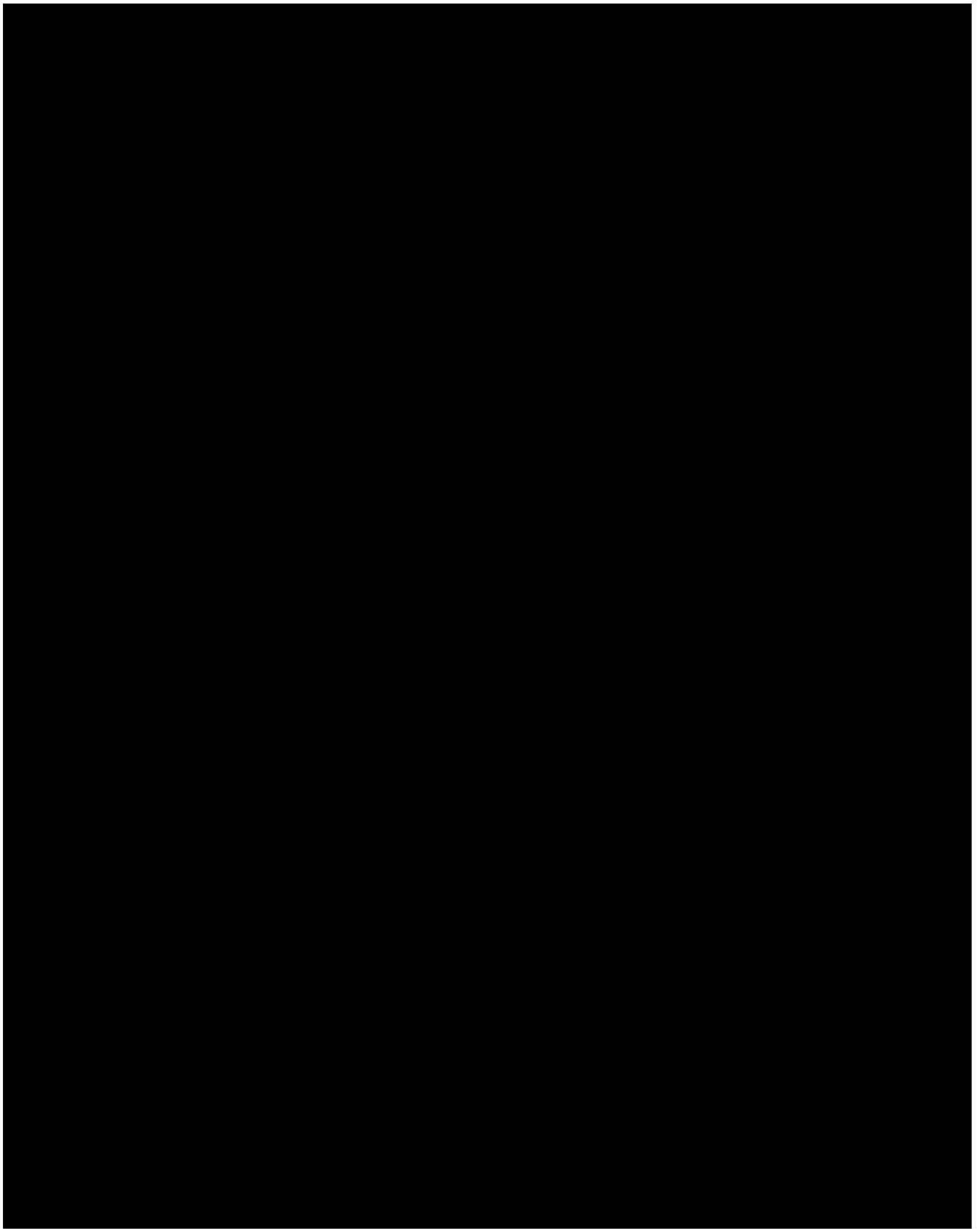




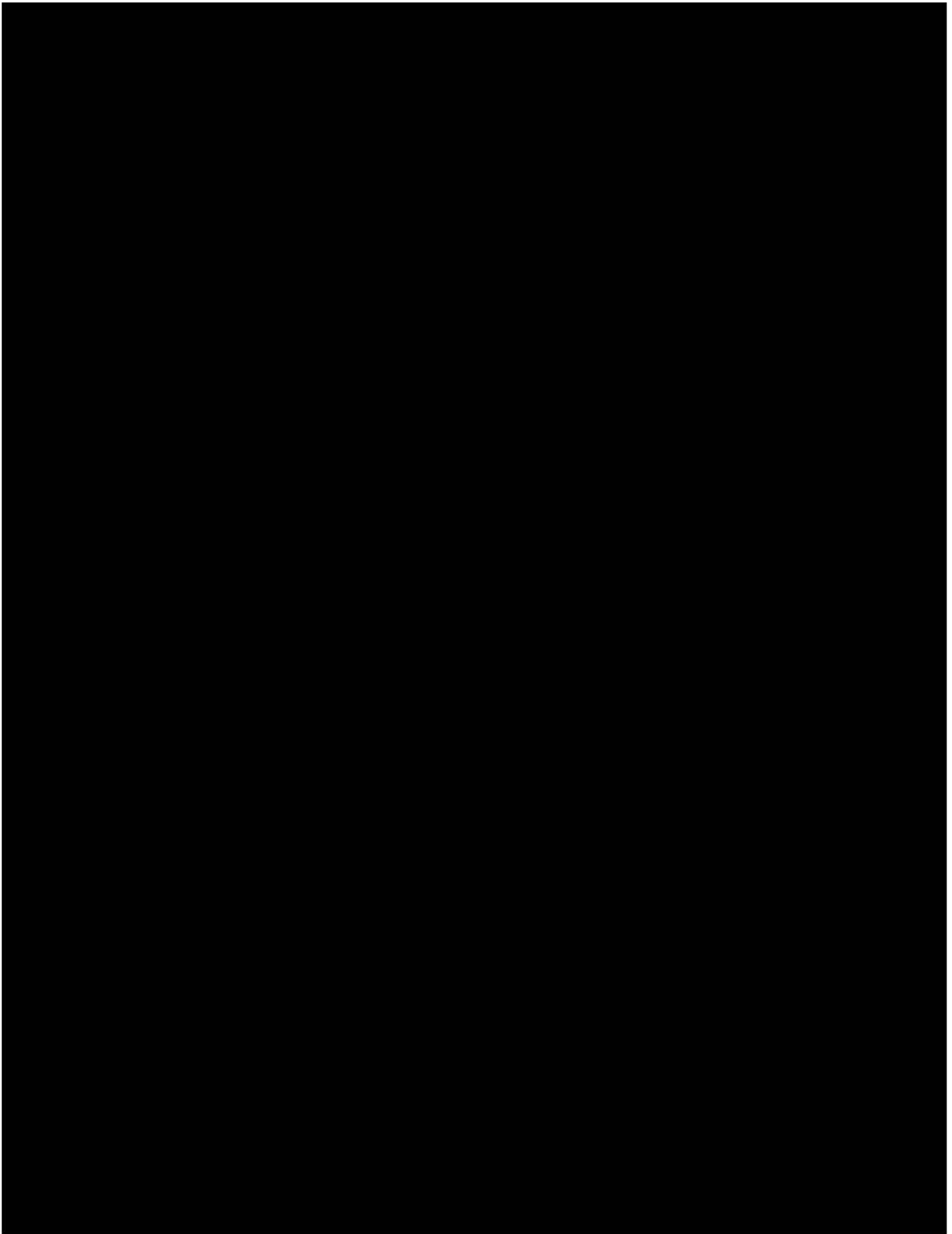


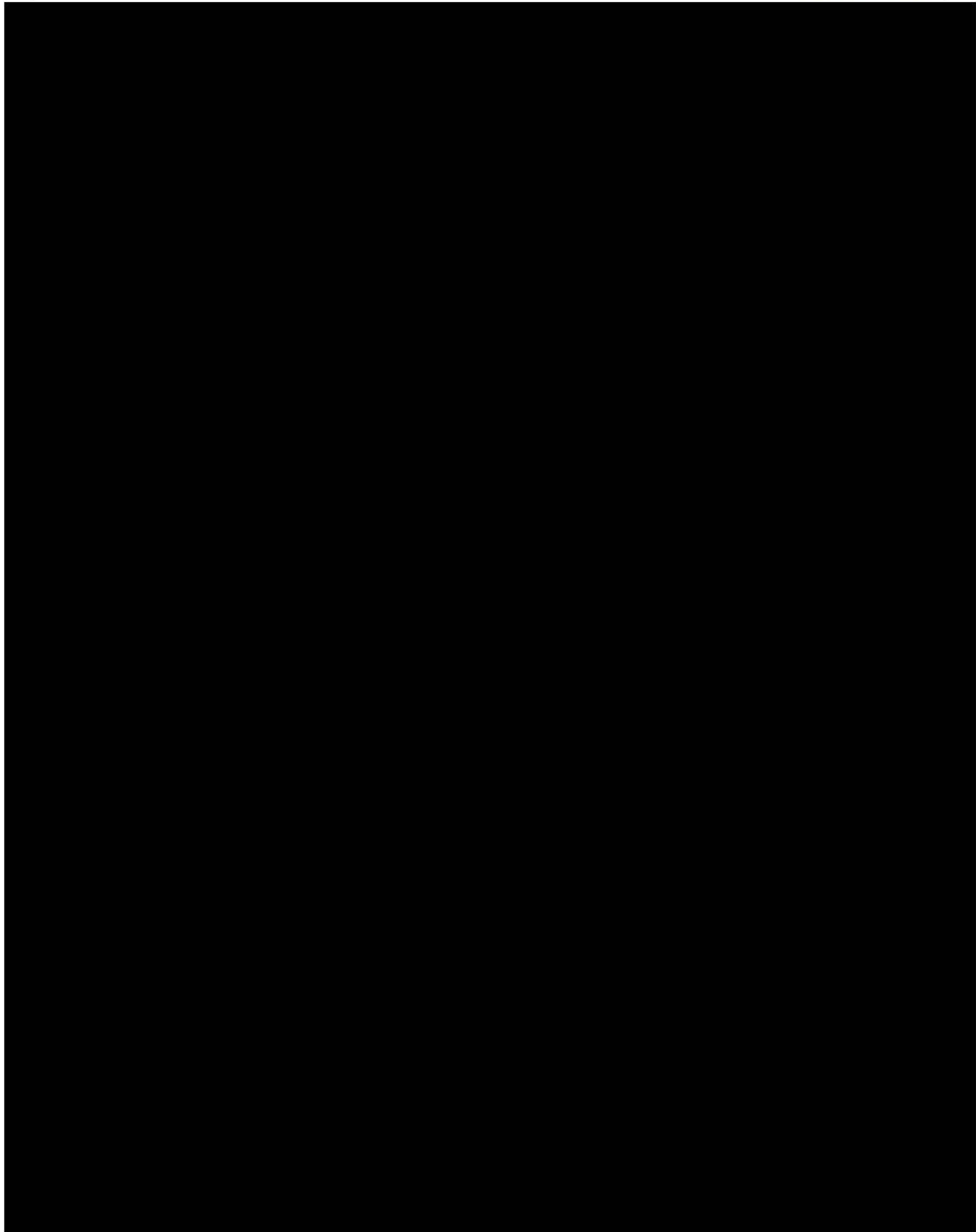
## **E PRELIMINARY PROJECT SCHEDULE**

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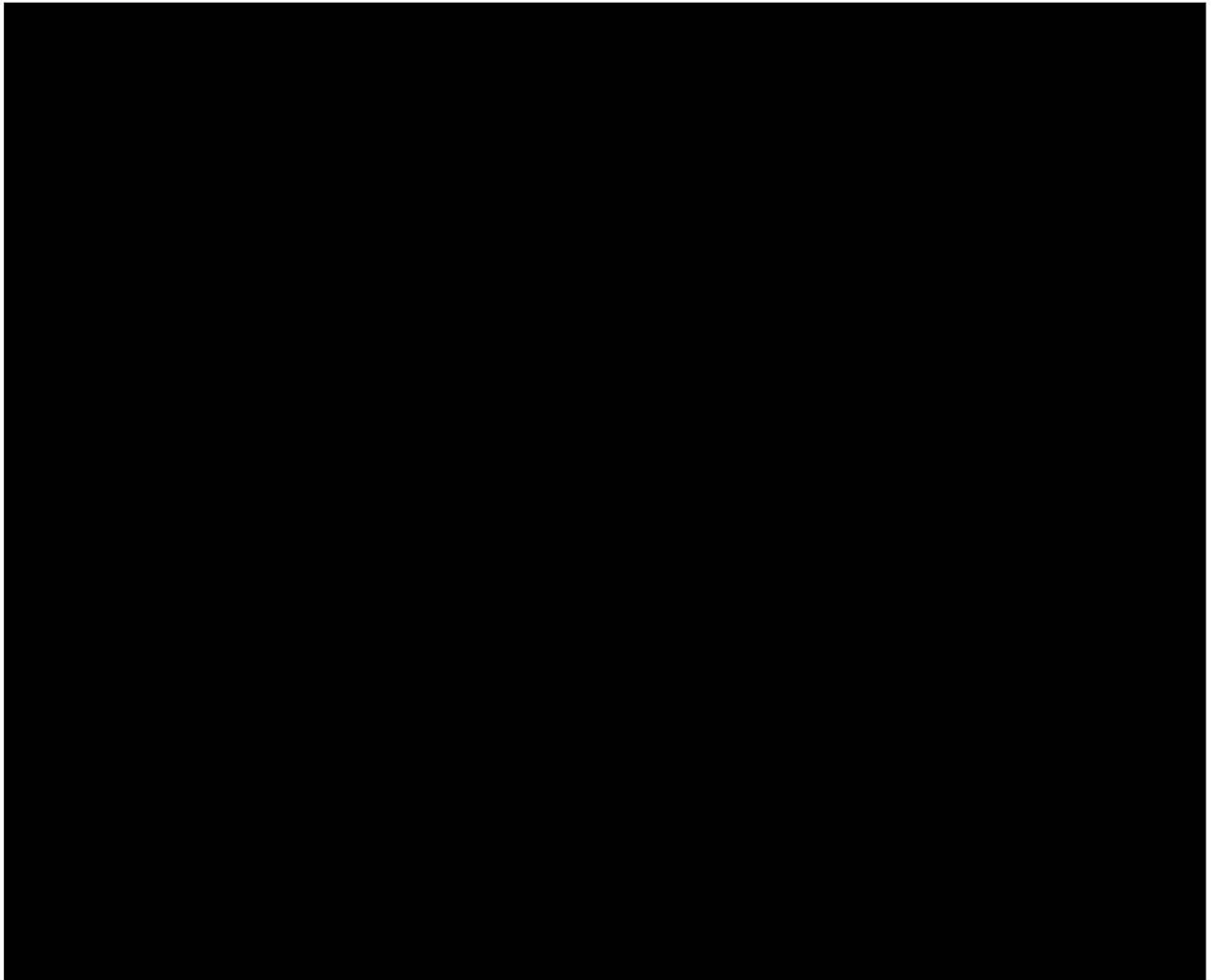












## E.2 PROPOSED PRELIMINARY PROJECT SCHEDULE

Attached herein is the Preliminary Project Schedule.

The native Microsoft Project file has been included on the USB disks as instructed by the RFP.



















## F PROJECT TEAM

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The required forms and attachments for the Project Team section are provided within the following subsections. Organizational documentation (evidence of signature authority) referenced in the instructions for Form B (1-3) have been included in Part I, as instructed by Section B, page 46 of the RFP.



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## F.1 PROPOSER, MAJOR PARTICIPANTS, OTHER CONTRACTOR INFORMATION

### F.1.1 IDENTIFICATION OF PROPOSER AND EQUITY MEMBERS, FORM B-1

The completed Form B-1, Identification of Proposer and Equity Members, is attached herein.

### F.1.2 INFORMATION ABOUT PROPOSER ORGANIZATION, FORM B-2

The completed Form B-2, Information About Proposer Organization, is attached herein.

### F.1.3 INFORMATION ABOUT MAJOR PARTICIPANTS AND IDENTIFIED CONTRACTORS, FORM B-3

The completed Form, B-3, Information About Major Participants and Identified Contractors, is attached herein.

The Proposer is not a consortium, partnership, or any other form of joint venture; therefore no agreements or related documentation have been provided.



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**FORM B-1**

**IDENTIFICATION OF PROPOSER AND EQUITY MEMBERS**

<b>NAME OF ENTITY AND CONTACT INFORMATION (address, representative, phone, fax, e-mail)</b>	<b>ROLE OF ENTITY IN PROPOSER ORGANIZATION</b>	<b>Indiana and Kentucky Contractor Licenses (if applicable)</b>	<b>Description of Work/Services To Be Performed By Entity (if applicable)</b>
Electronic Transaction Consultants, LLC 1600 N. Collins Boulevard, Ste 4000 Richardson, TX 75080 Kevin Holbert Exec. Vice President, Business Dev. 281.300.7970; kholbert@etcc.com	TSP2, Prime Proposer	<i>To be submitted following notification of preferred proposer. (RFP 4.3.1)</i>	Provide Back Office System and Customer Service Center services

The above information is true, correct and accurate.

Executed December 3, 2020.



(Signature)

Kevin Holbert

(Name Printed)

Executive Vice President, Business Development

(Title)

Electronic Transaction Consultant

(Proposer)



## FORM B-2

### INFORMATION ABOUT PROPOSER ORGANIZATION

- 1.0 Name of Proposer: Electronic Transaction Consultants, LLC  
Name of team member (Prime Proposer, N/A)
- 2.0 Type of entity: Proposer: Limited Liability Corporation  
Team member: (N/A)
- 3.0 Proposer's address: 1600 N. Collins Boulevard  
Suite 4000  
Richardson, TX 75080  
281-300-7970 Telephone Facsimile
- 4.0 How many years (measured from the date of issuance of the RFP) has Proposer and each Equity Member been in its current line of business and how many years (measured from the date of issuance of the RFP) has each entity been in business under its present name? For a limited partnership, Equity Member means the general partners only.

Name	No. of years in business	No. of years under present name
Electronic Transaction Consultants, LLC	21 Years	Less than 1 year

5.0 Under what other or former names have Proposer and each Equity Member operated?

Proposer: \_\_\_\_\_

Electronic Transaction Consultants Corporation

(No Equity Members to declare)

6.0 List all Indiana licenses and Certificates of Qualification held by Proposer and any Equity Member. For a limited partnership, Equity Member means the general partners only. Attach copies of all Indiana and Kentucky licenses. Attach a separate sheet if necessary.

Licenses and certifications are not required at this time, per Q&A Form M #107, 11/04/2020

7.0 The Proposal shall include the following information regarding the Surety/Bonding companies or banking institutions committing to provide the Payment and Performance Bonds in accordance with Section 8 of the Contract:

- (a) Name and address of bonding company(ies) that will provide the surety bonds required by the Contract (must be an Eligible Surety)
- (b) Whether or not the listed bonding company has defaulted on any obligation within the past ten years (measured from the date of issuance of the RFP), and, if so, a description and details of the circumstances and the outcome of such default.
- (c) If the performance security is in the form of a letter of credit, the name of the bank or financial institution issuing the letter of credit (must be an Eligible Financial Institution).

(a), (b), (c): Provided in Section F of the proposal, as per RFP Exhibit C. Part 2 instructions.



I declare under penalty of perjury under the laws of the State of Indiana that the foregoing declaration is true, correct and accurate.

Executed December 3, 2020



(Signature)

Kevin Holbert

(Name Printed)

Executive Vice President, Business Development

(Title)

Electronic Transaction Consultants, LLC

(Proposer)

**FORM B-3**

**INFORMATION ABOUT MAJOR PARTICIPANTS AND IDENTIFIED CONTRACTORS**

[This form will be used to provide information about any Major Participants (excluding Equity Members that do not fall into categories (a) through (e) of the definition of Major Participants) and any other Contractors that have been identified as of the Proposal Due Date.]

Proposer Name Electronic Transaction Consultants, LLC

<b>Name of Entity and Contact Information (address, representative, phone, fax, e-mail)</b>	<b>Address of Head Office</b>	<b>IN or KY Contractor License (if applicable)</b>	<b>Description of Work/Services to Be Performed by Entity (if applicable)</b>	<b>Major Participant (Y/N)</b>
Electronic Transaction Consultants, LLC 1600 N. Collins Blvd, Ste. 4000 Richardson, TX 75080 Kevin Holbert EVP, Business Development 281-300-7970 kholbert@etcc.com	same	not required for submission	Provide Back Office System and Customer Service Center services	Y
WSP USA Services Inc. 13530 Dulles Technology Drive Suite 300 Herndon, VA 20171 Patrick F. McGowan Senior Vice President 703-258-5409 Patrick.McGowan@wsp.com	same	not required for submission	CSC Operations, staffing	Y
TTEC Government Solutions, LLC 9197 South Peoria Street Englewood, CO 80112 James Ziaja Vice President Business Development 512-567-8700 James.ziaja@ttec.com	same	not required for submission	CSC Operations, telephony services and support, staffing	Y



If any Major Participant or Contactor identified above is a single purpose entity formed for the Project, complete the following matrix for each such single purpose entity:

Name of Subcontractor	Form of Entity (partnership, joint venture, LLC, corporation, etc.)	Entities with Ownership Interest	Percentage of Ownership Interest
Ex: Contractor AB, JV	Joint venture	Contractor A	60%
		Contractor B	40%
N/A			

Add additional sheet(s) as necessary.

The undersigned Proposer hereby certifies that it has not entered into any substantive negotiations resulting in an agreement to enter into any Subcontracts with respect to the Project, except for those listed above. Proposer agrees that it will follow applicable Contract Documents requirements with respect to Subcontractors.

I declare under penalty of perjury under the laws of the State of Indiana that the foregoing declaration is true, correct and accurate.

Executed December 3, 2020.

  
\_\_\_\_\_  
(Signature)

Kevin Holbert  
\_\_\_\_\_

(Name Printed)

Executive Vice President, Business Development  
\_\_\_\_\_

(Title)

Electronic Transaction Consultants, LLC  
\_\_\_\_\_

(Proposer)

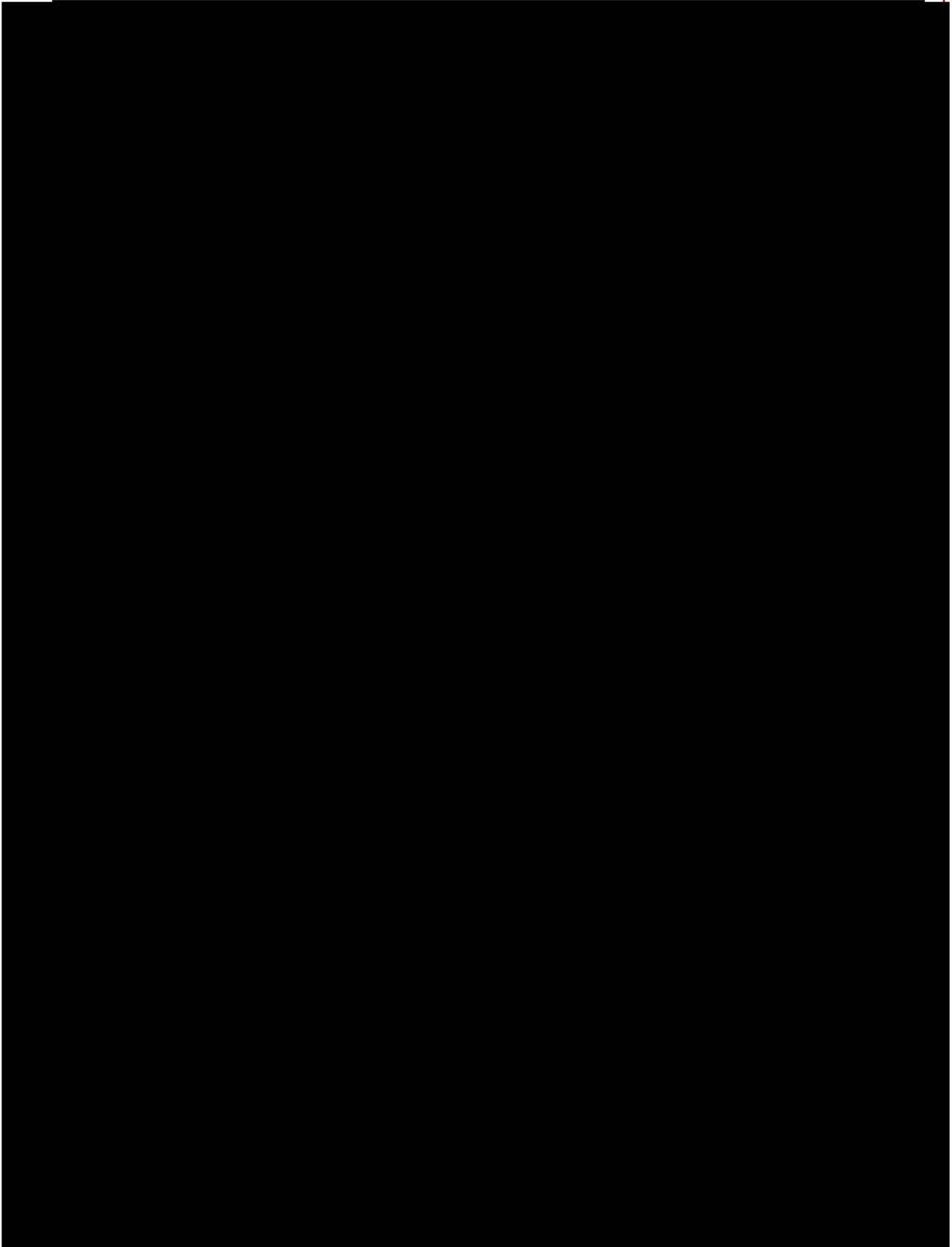
## F.2 QUALIFICATIONS INFORMATION

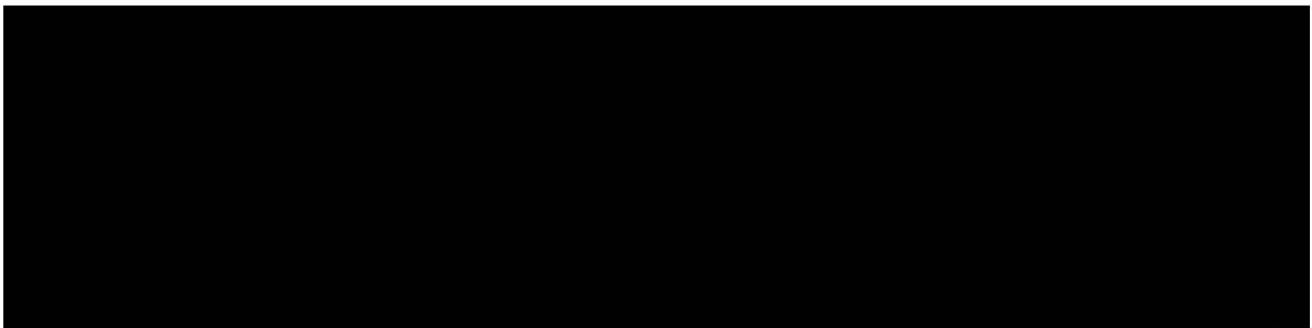
*Since 1999, ETC has provided successful implementation, operations, and maintenance of both BOS and customer service operations programs.*

[REDACTED]

[REDACTED]







Drawing on over 130 years of technical excellence, **WSP USA Services Inc.** offers a holistic approach to the transport and infrastructure planning, design, management, and operation. We bring the latest technologies and a culture of innovation to our work to meet community needs for mobility, connectivity, sustainability, and resiliency. In 2017, more than 18,900 employees worked in Transport and Infrastructure, that's 45% of WSP's workforce across the world.

WSP has been a pioneer in toll roads, transportation, and traffic management for over 35 years. Our experience base has expanded to include the operations of customer service centers (CSC), project command centers, traffic management centers, and travelers' information centers, supporting the bold visions of our clients and helping them succeed in planning, financing, implementing and operating toll facilities of the future.

Our operations are client and customer-experience focused and rooted in a transportation mobility legacy. We place a great deal of importance on working in partnership with our clients to maintain open, regular communication that optimizes performance and customer satisfaction. This business philosophy and our commitment to customer satisfaction and first-contact resolution has earned us the privilege of supporting several of our highway transportation clients for decades. Over the years, we have honed our approach to customer service delivery. It is an approach that has helped us:

- ▶ Exceed client performance standards
- ▶ Achieve impressive staff retention rates
- ▶ Generate millions in savings through operational efficiencies
- ▶ Improve flexibility and efficiency in staffing to meet the demands of system changes and workflows by cross-training staff.

We provide a full range of services to help tolling agencies meet the financial, technical, and contextual challenges that address the economic, social and environmental needs of the communities they serve. We partner with our clients to plan and operate toll facilities and priced managed lanes across the United States, including the advisory work that forms legislative and policy improvements to foster new programs for state and local governments.







**TTEC Government Solutions, LLC** is a leading global customer experience technology and services provider focused on the design, implementation, and delivery of transformative solutions for many of the world's most iconic and disruptive brands. TTEC delivers outcome-based customer engagement solutions through TTEC Digital, its digital consultancy that designs, builds, and delivers tech-enabled, insights-based and outcome-driven customer experience solutions through their professional services and suite of technology offerings and TTEC Engage, its delivery center of excellence, that operates customer care, acquisition, and fraud detection and prevention services. Each day, our ~54,000 brand ambassadors worldwide are fueling digital transformation on behalf of clients by defining, designing, empowering, and delivering omnichannel customer experiences. Founded in 1982, TTEC operates on six continents across the globe and our employees live by a set of customer-focused values that guide relationships with clients, their customers, and each other.

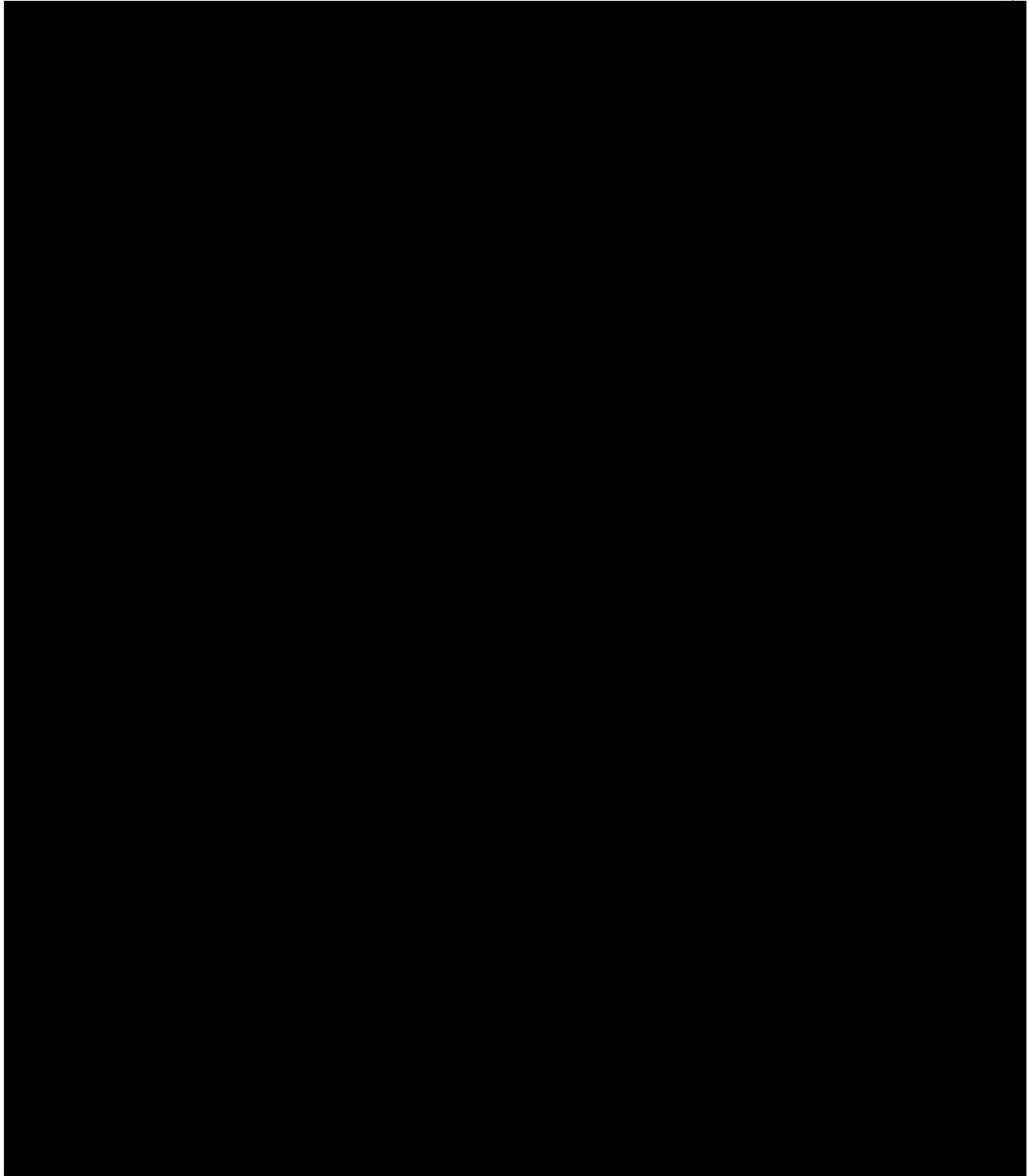
We have selected our subcontractors and vendors with relevant experience, efficiency, and coverage in mind. The use of highly specialized subcontractors, local where possible, eliminates learning curves, resulting in faster mobilization of services. Our team combines reputable and time-tested locally based marketing and public relations providers and the largest prepaid products distributor in the U.S., for an optimal mix of expertise, coverage and contribution to the local employment market and small business participation, where possible.

The selected subcontractors, described in detail in [Table 10](#), will enable ETC to successfully meet every project goal set forth by the Joint Board by providing reliable professionalism in every aspect of project support.

## F.2.1 PROJECT REFERENCES: BACK OFFICE SYSTEMS

ETC offers the following project summaries to demonstrate our experience and proven track record of meeting or exceeding delivery expectations, specifically relevant to the RiverLink Project.

### F.2.1.1 WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BACK OFFICE UPGRADE PROGRAM





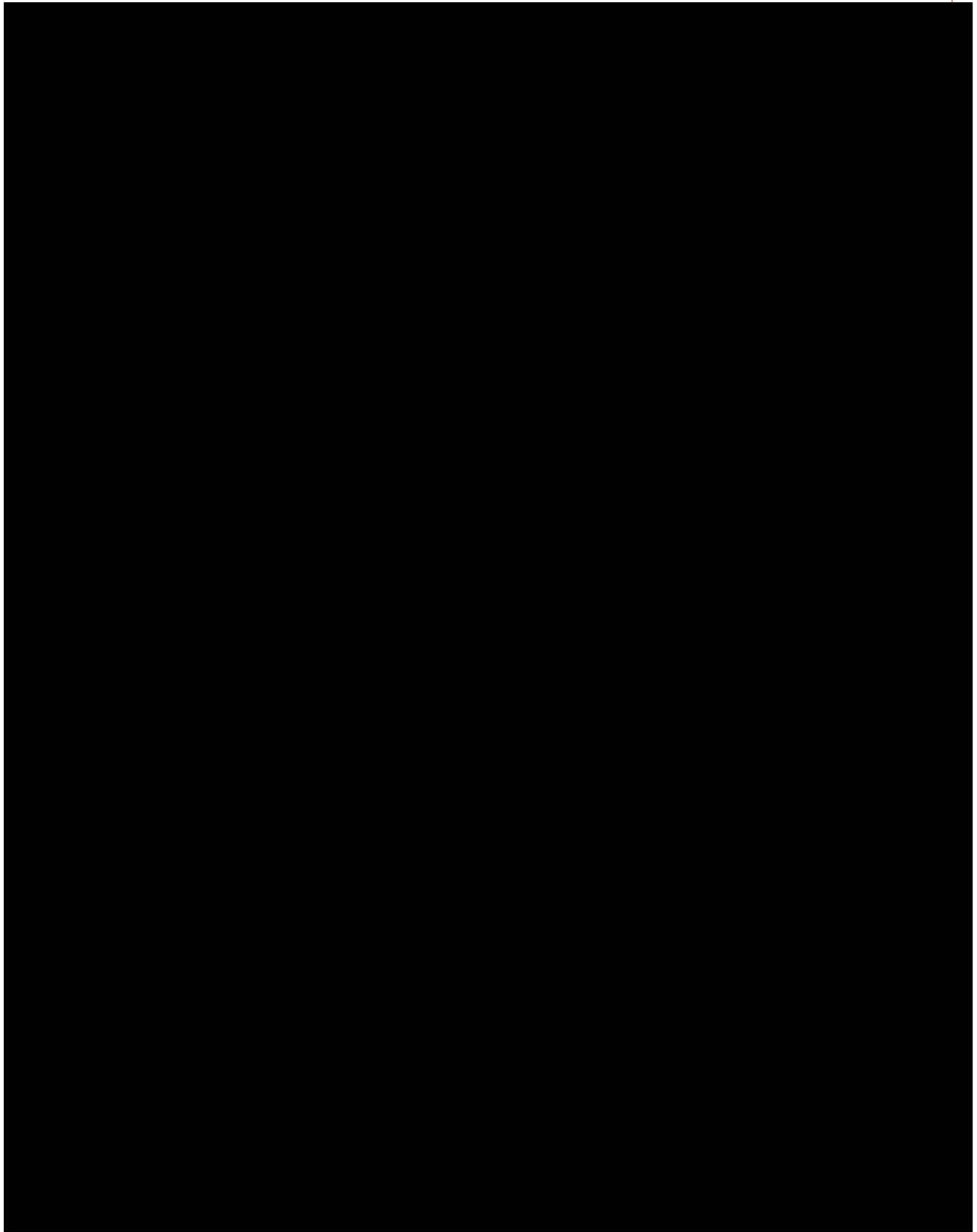
**F.2.1.2 NORTH TEXAS TOLLWAY AUTHORITY (NTTA) REGIONAL INTEGRATED  
TOLL ENHANCEMENT (RITE®) FOR TOLL COLLECTION SYSTEMS**



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**F.2.1.3 HARRIS COUNTY TOLL ROAD AUTHORITY (HCTRA) BACK-OFFICE  
SYSTEM (BOS) UPGRADE PROGRAM**

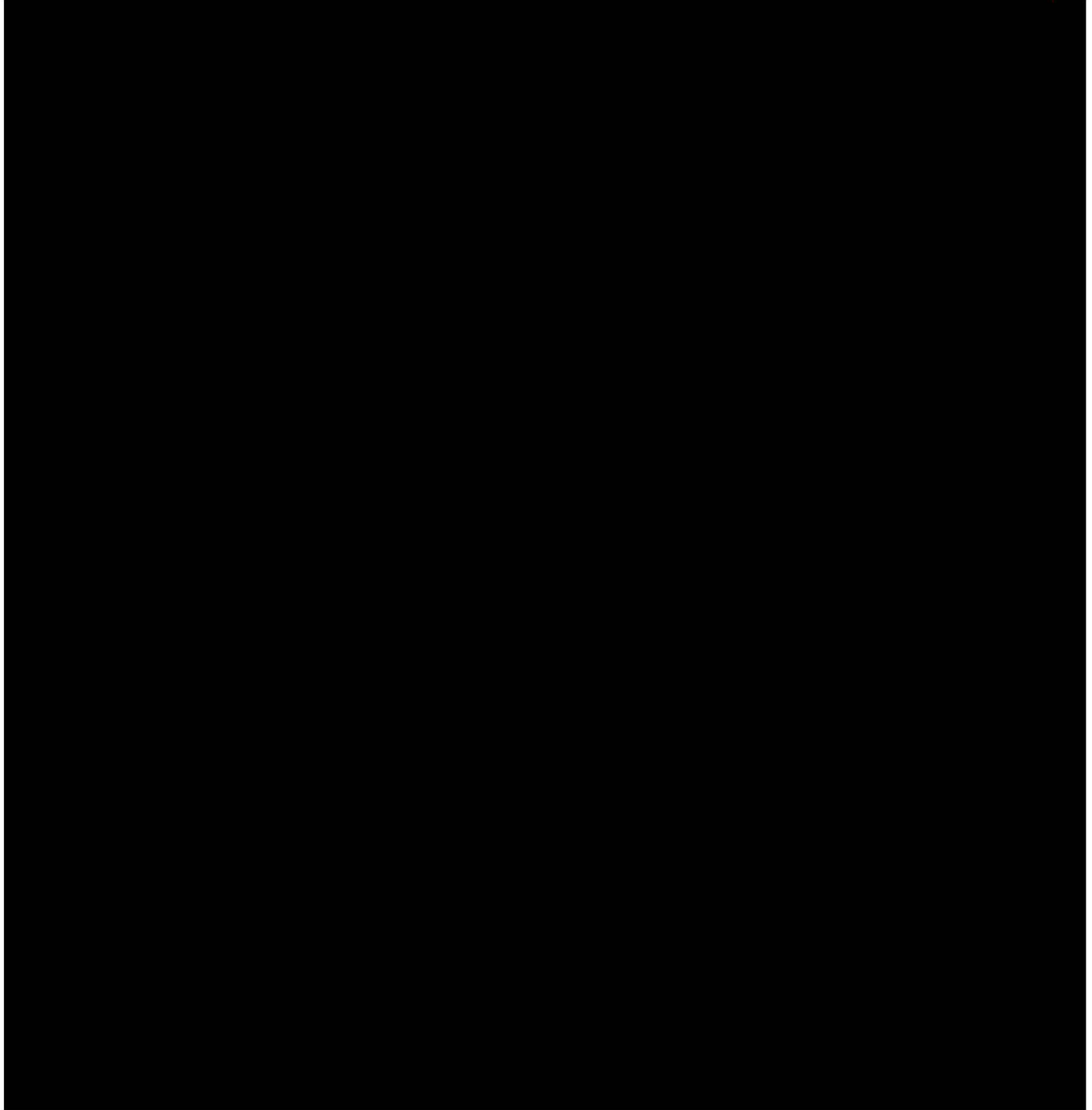




## F.2.2 PROJECT REFERENCES: CUSTOMER SERVICE CENTER OPERATIONS



### F.2.2.1 BANK OF AMERICA



**F.2.2.2 E-470 CUSTOMER SERVICE CENTER AND OPERATIONS,**

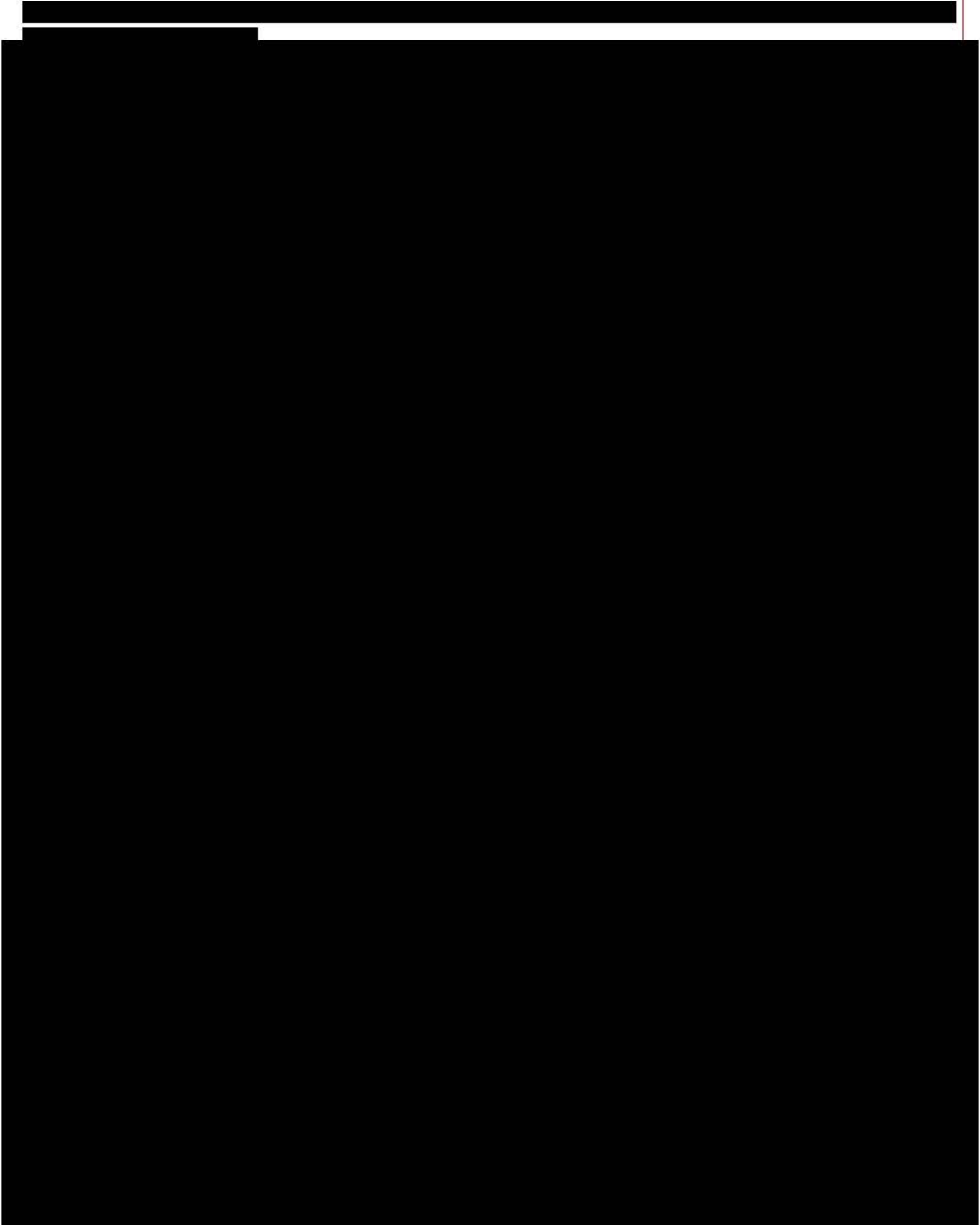


[REDACTED]

[REDACTED]



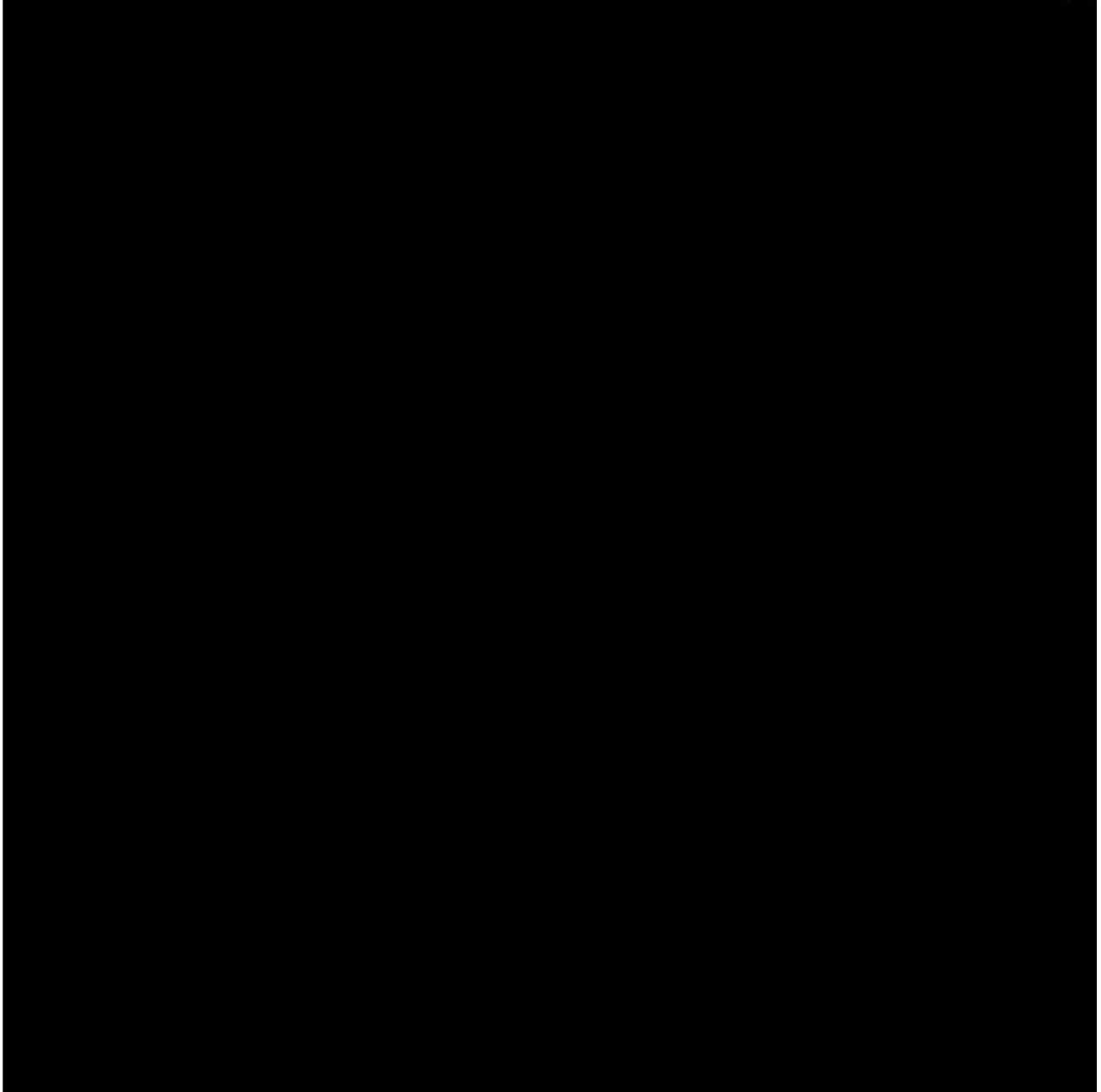
**F.2.2.3 P NORTHWEST PARKWAY CUSTOMER SERVICE CENTER, BROOMFIELD,  
COLORADO**



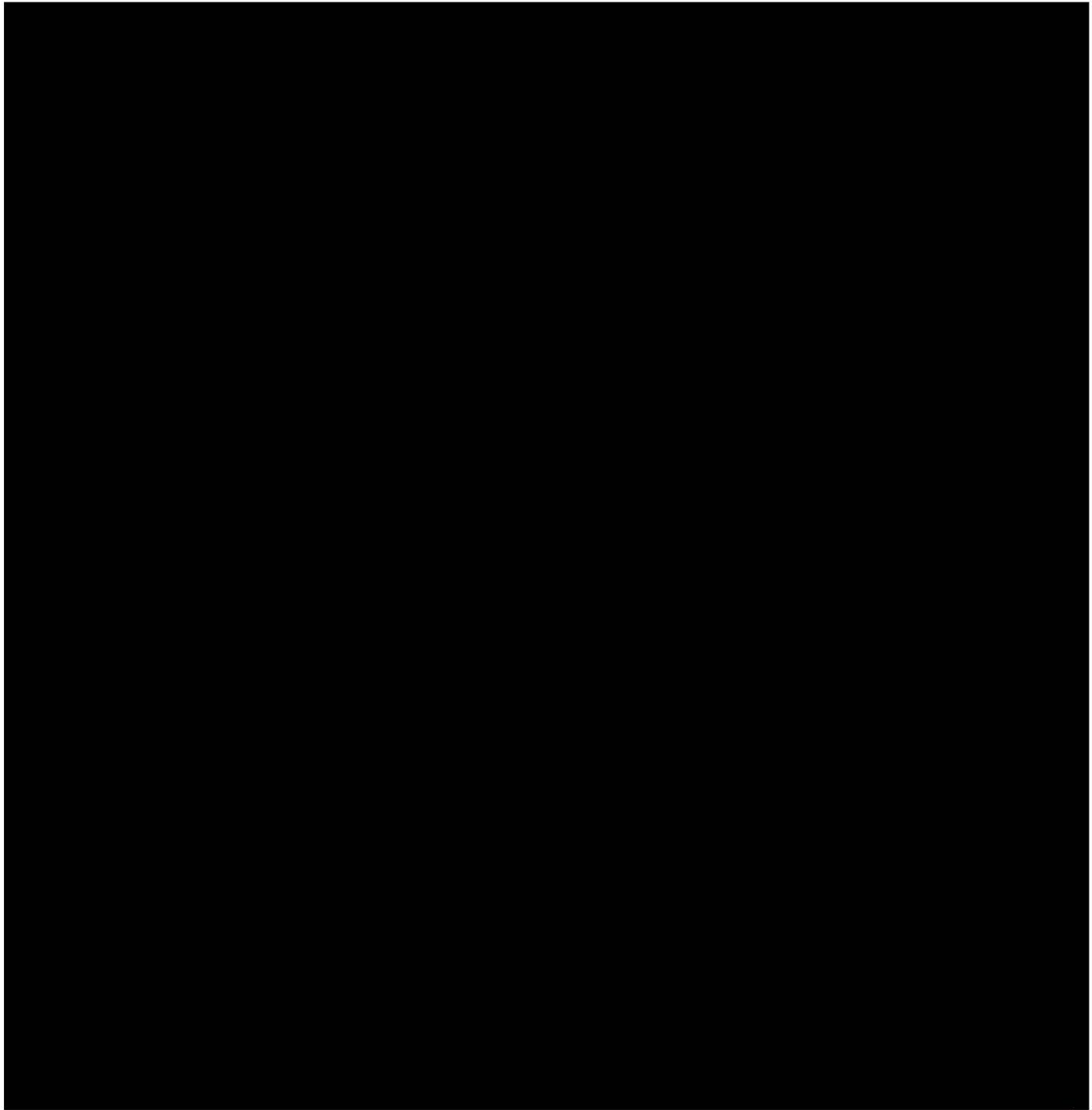
## F.3 KEY PERSONNEL RESUMES AND REFERENCES

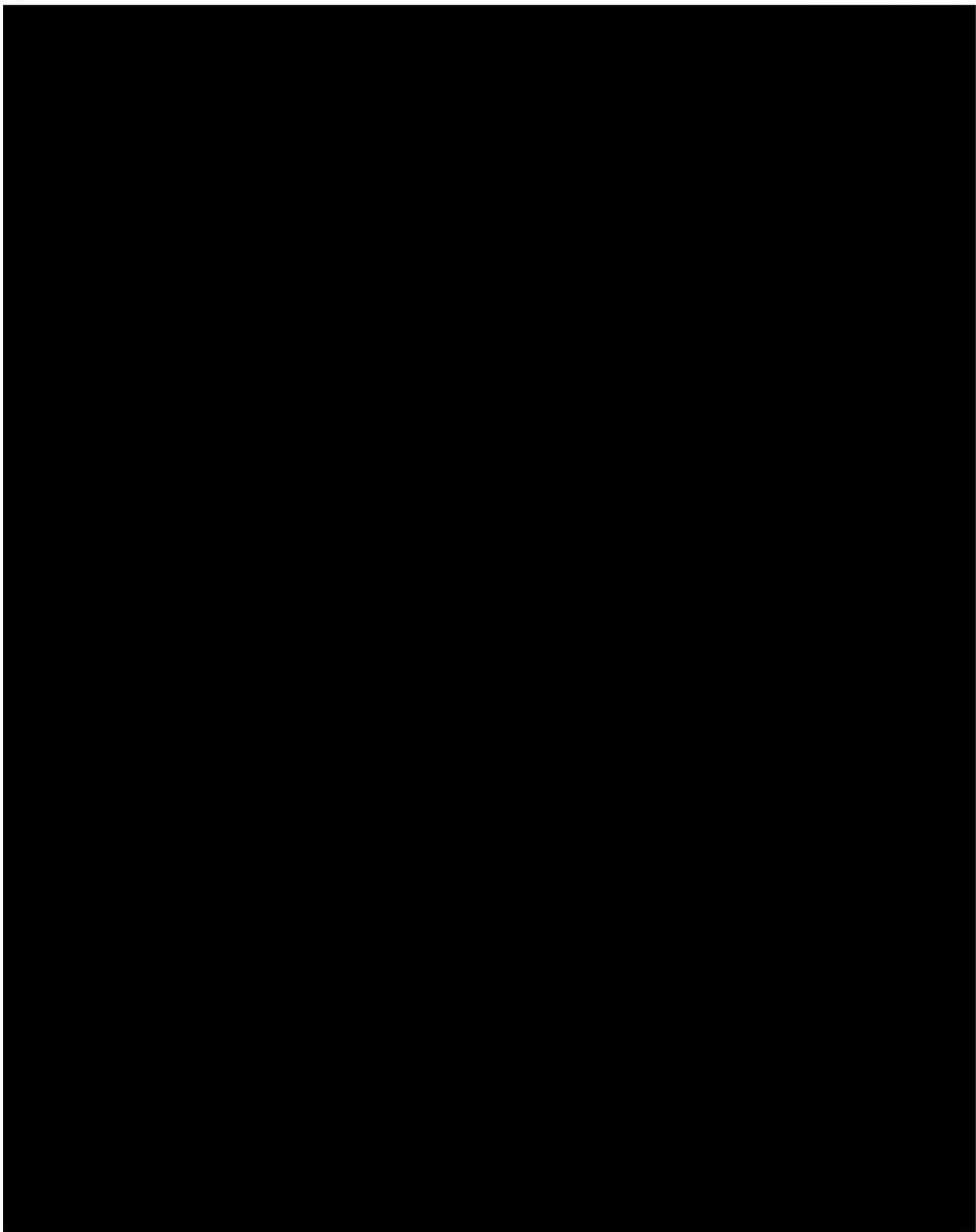


### F.3.1 KEY PERSONNEL REFERENCES

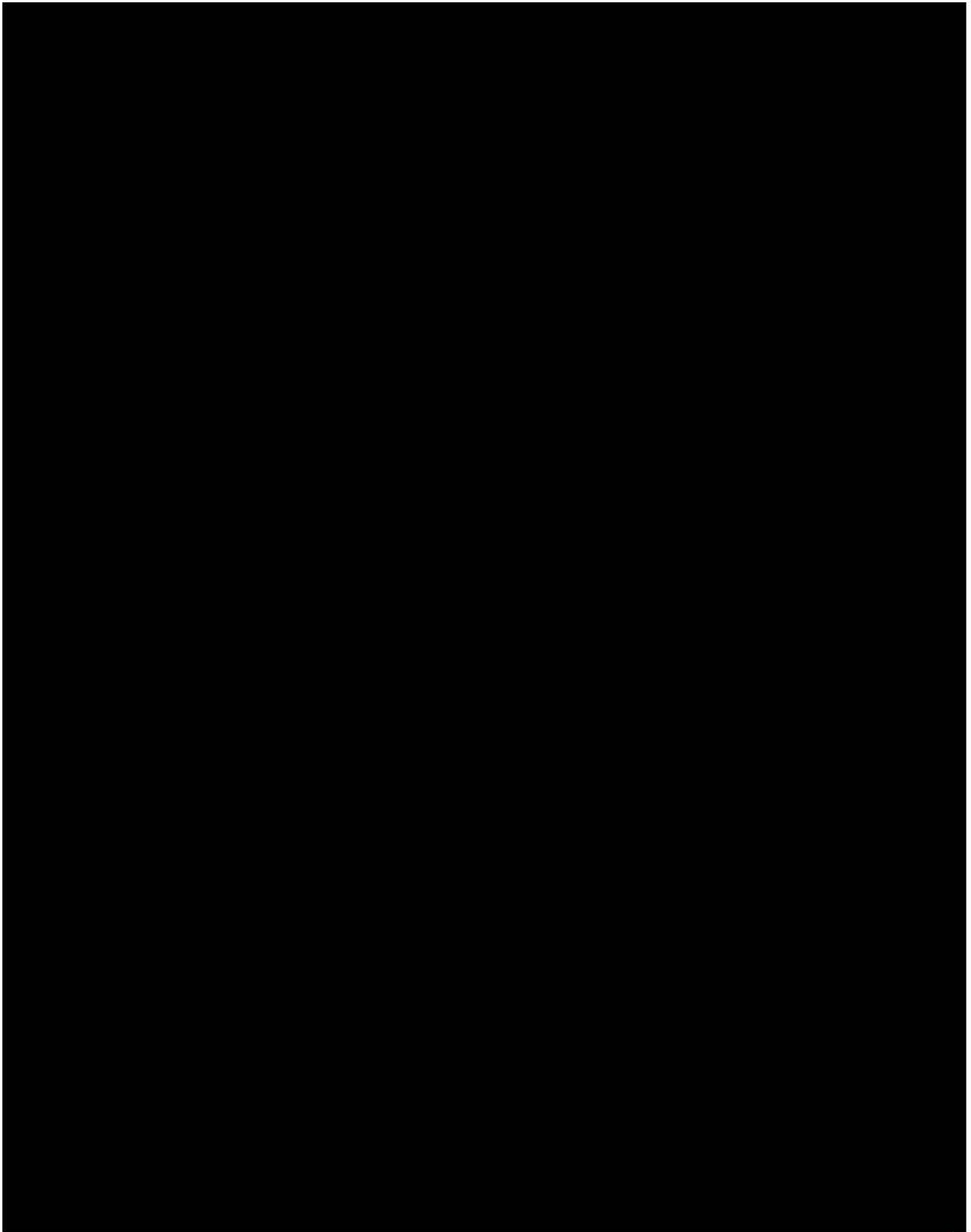


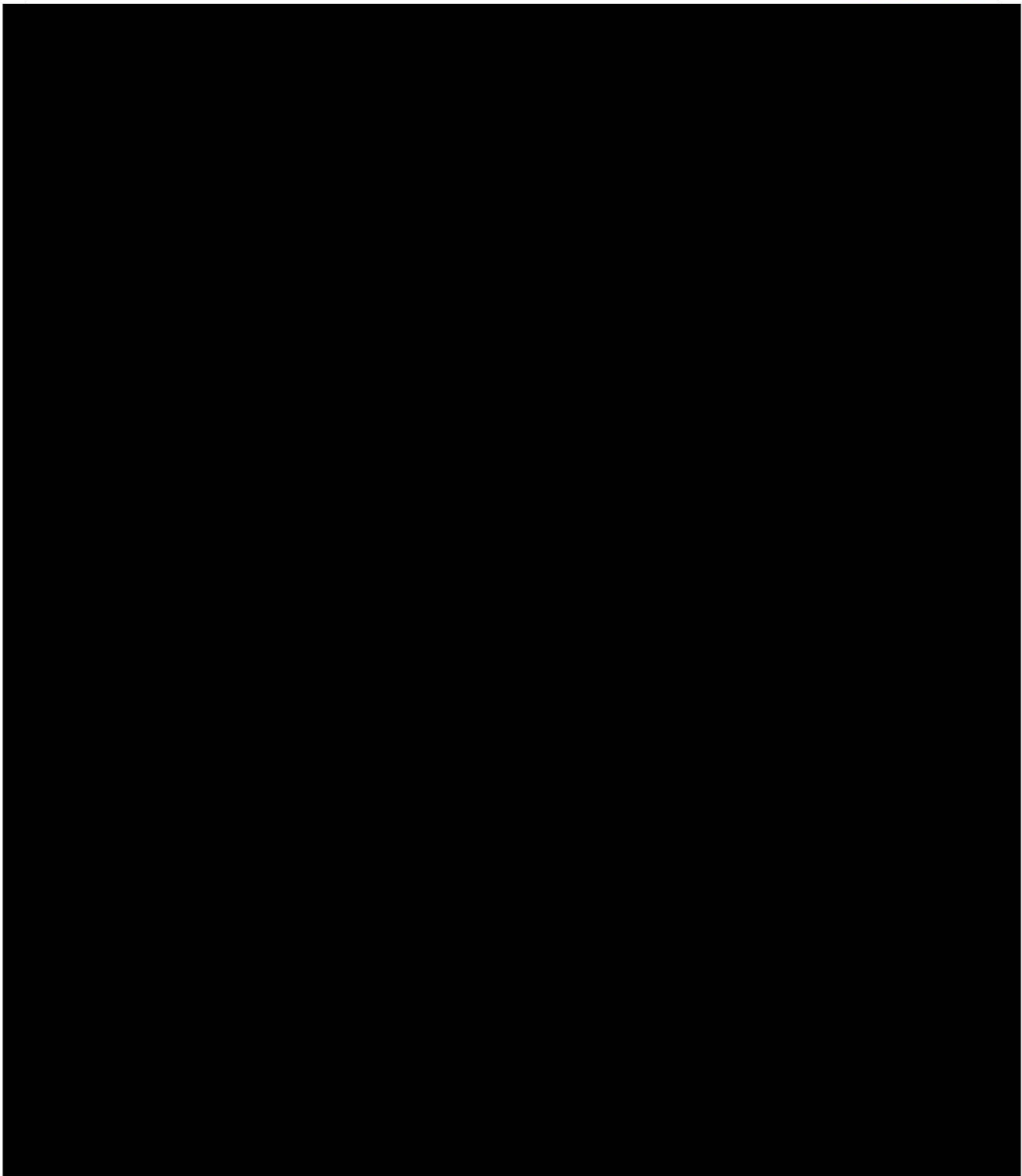




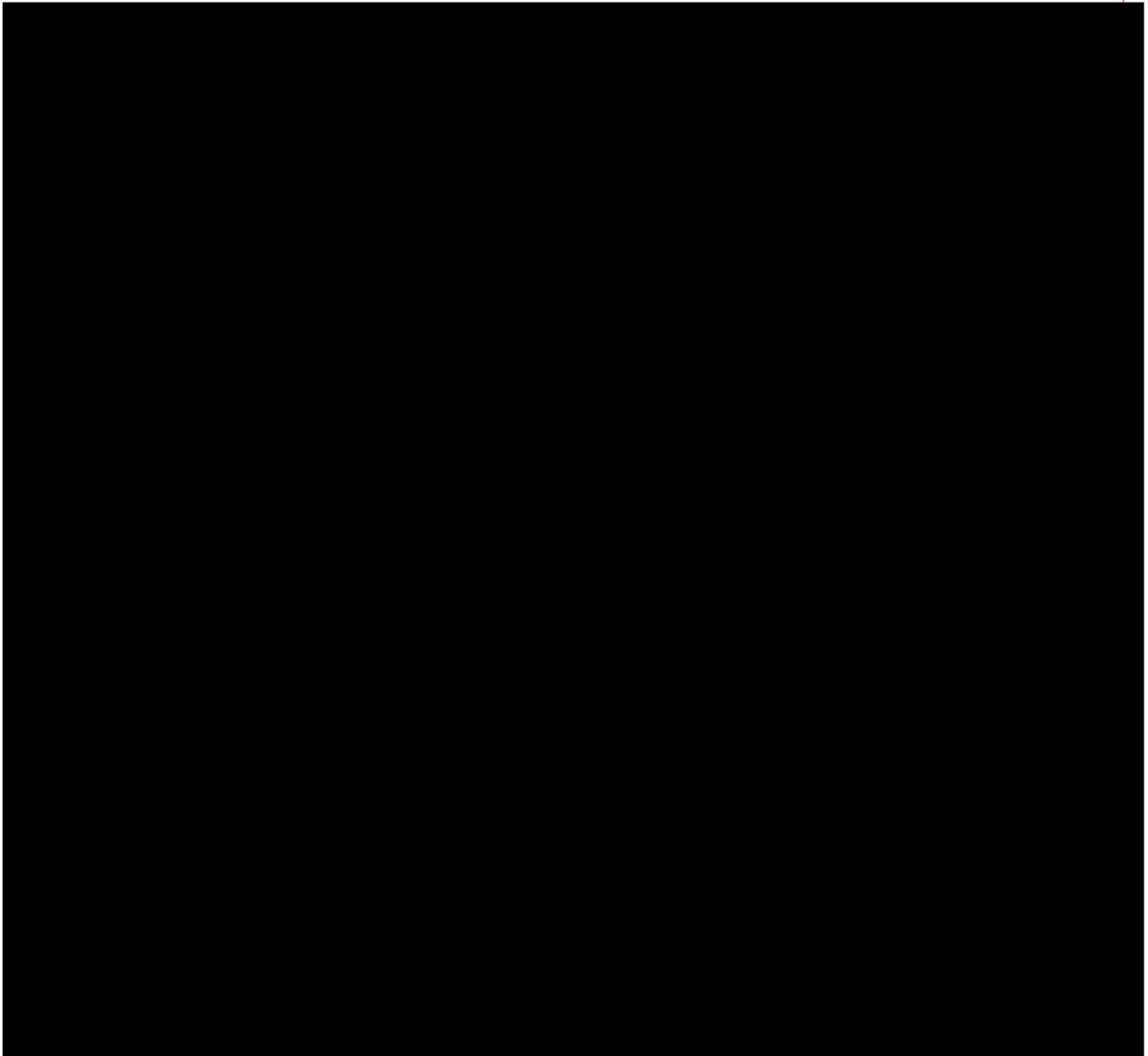












### F.3.2 KEY PERSONNEL RESUMES

Key Personnel resumes are attached herein. Please note that these resumes are proprietary and confidential in their entirety.















































































## F.4 FORM E. PERSONNEL WORK ASSIGNMENT FORM AND COMMITMENT OF AVAILABILITY (FORM E)

The completed Form E, Personnel Work Assignment Form and Commitment of Availability, have been attached herein for all designated key personnel, excluding the Deputy Project Manager which was not indicated on the Form. However, all supporting documentation for the DPM has been provided.



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**FORM E**

**PERSONNEL WORK ASSIGNMENT FORM AND COMMITMENT OF AVAILABILITY**

Name of Proposer: Electronic Transaction Consultants, LLC

Key Personnel Assignment	Name of Individual Assigned and Employer
Project director	
Project manager (dedicated)	
Customer Service Center manager (dedicated)	
Workforce manager (dedicated)	
Training manager (dedicated)	
Finance and operational reporting manager (dedicated)	
Back Office and development manager	
Data migration manager	
Maintenance manager	
Technical/solution architect	
Quality assurance/testing manager	

Proposer's Name: Electronic Transaction Consultants, LLC (the "Proposer")

Employer's Name: Electronic Transaction Consultants, LLC (the "Employer") *[Note: duplicate as necessary to ensure all employers execute]*



### COMMITMENT OF AVAILABILITY

Understanding IFA's concern that the personnel resources specifically represented and listed in this Proposal actually be assigned to the Project, Proposer and Employer commit that if Proposer is awarded the Contract, the Employer's named Key Personnel and other individuals of Employer named in the Proposal will be committed, available and active for the periods necessary to fulfill their responsibilities, as more fully set forth in the Contract Documents.

Proposer's Name: Electronic Transaction Consultants, LLC

Signed: 

Printed Name: Kevin Holbert

Title: Executive Vice President, Business Development

Date: December 3, 2020

Employer's Name: Electronic Transaction Consultants, LLC

Signed: 

Printed Name: Kevin Holbert

Title: Executive Vice President, Business Development

Date: December 3, 2020

### **COMMITMENT OF AVAILABILITY**

Understanding IFA's concern that the personnel resources specifically represented and listed in this Proposal actually be assigned to the Project, Proposer and Employer commit that if Proposer is awarded the Contract, the Employer's named Key Personnel and other individuals of Employer named in the Proposal will be committed, available and active for the periods necessary to fulfill their responsibilities, as more fully set forth in the Contract Documents.

Proposer's Name: Electronic Transaction Consultants, LLC

Signed:  4B7C84C044AE4CF...

Printed Name: Kevin Holbert

Title: Executive Vice President-Business Development

Date: 12/9/2020

Please note: Form E, signed by "Darryl Prater of "TTEC Government Solutions, LLC", has been docusigned and may not be altered to ensure its authenticity. This additional signature page is submitted on behalf of the proposer, Electronic Transaction Consultants, LLC.