

# Multi-city License and Tax Portal Technical Environment



November 1, 2012

# Multi-city License and Tax Portal Technical Environment



## TABLE OF CONTENTS

INTRODUCTION .....	4
Technical Environment Assumptions .....	5
TECHNICAL STANDARDS .....	6
ENTERPRISE APPLICATION SERVICE & IMPLEMENTATION .....	6
SOLUTION ARCHITECTURE – SERVICE ORGANIZATION & CHARACTERICS .....	7
Business Processes .....	7
Business Rules .....	7
General Content .....	7
Knowledge .....	8
Workflow .....	9
Alerts .....	9
Payment Processing .....	10
Portal Accounts .....	10
Authorization .....	10
Authentication .....	11
Usernames & Passwords .....	11
Account Relationships .....	12
USER ENVIRONMENT .....	13
ACCESSIBILITY .....	14
DEVELOPMENT .....	15
COMPUTING INFRASTRUCTURE .....	15
Environments .....	15
Servers .....	15
Virtualization .....	16
Availability .....	16
Application and Infrastructure Monitoring .....	17
Error Handling .....	17
Logging .....	18
Disaster Recovery .....	18
SECURITY .....	20
Digital Signatures .....	20
Malicious Software Detection .....	20
NETWORK INFRASTRUCTURE .....	21
Network Security .....	21
Encryption .....	21

## TABLE OF CONTENTS continued

WEB SERVICES .....	22
WEB FACING SERVICE (PORTAL) .....	23
Help .....	23
Input Validation .....	23
E-mail .....	23
FAX .....	24
Telephone .....	24
Collaboration .....	24
Subject Matter Experts .....	25
Click-to-Call .....	25
Web Chat .....	25
Co-Browsing .....	25
Peer-to-Peer Community Support .....	26
Social Network .....	26
APPLICATION SERVICES .....	27
Transactions .....	27
Data View .....	28
Scalability .....	28
INFORMATION STORAGE .....	29
REPORTING .....	30
INTERFACE & INTEGRATIONS .....	31
MIGRATE INFORMATION .....	32
DEPLOYMENT CONSIDERATIONS .....	33
SCHEDULED MAINTENANCE .....	34
CONCLUSION .....	35
OTHER APPLICABLE STANDARDS OR REFERENCES .....	35
NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) .....	35
STATE OF WASHINGTON MODEL CITY ORDINANCE (B&O) .....	35
Appendix A – 2011 Transaction Volumes .....	36
Appendix B – City-specific System Information .....	37
Appendix C – City of Tacoma Web Standards .....	38
Appendix D – Data Classification Standards .....	39

BELLINGHAM

EVERETT

SEATTLE

BELLEVUE

TACOMA

## Introduction

Customer self-service is now the channel of choice for today's customers.

They expect a customer self-service experience that provides a convenient way to post service issues, place new orders, or view their order histories. A customer portal lets you stay open for business 24/7 around the world and deliver a high-quality, high-touch experience for customers while reducing the cost of customer care.

The five cities working to create a business license and tax portal want to deliver a secure, flexible, personalized web self-service gateway through which their customers can provide and retrieve information using a standard web browser. This online capability delivers the information they want, the way they want to see it, and when they want to see it. City customers can view the top FAQs, manage their own accounts, review status, and review their communications with each city; all within a secure, personalized environment.

Providing secure communications and personalized information allows customers to quickly get the information they need, process their transactions, and to develop the sense that they are participating in an active user community.

There are a number of technical capabilities that provide this environment:

- Support multiple platforms for transactions
  - Desktop
  - Laptop
  - Tablet
  - Smartphone
- “Know-me”
  - A co-managed profile that retains account and business relationships
- Collaboration
  - Enable access to subject matter experts – through chat or e-mail
- Consistent treatment
  - Use of same information through help, system logic, or agent support
- Support multiple search methods
  - Keyword and intent-based search
  - Natural language search
  - Topic tree browsing
  - Content federation
    - Federated search across web site, contact center, community, and social content
- Provide Guided Help for all transactions

## Technical Environment Assumptions

As with any significant project dependent upon technology, some assumptions need to be made in order to have cohesive conversation and to scope the project to determine cost and schedule.

The Technical Environment Assumptions made regarding the Multi-city License and Tax Portal are:

- Designed to be affordable and scalable
- Provide business process modeling and rule servers to lower maintenance and support costs
- Support a Self-service focus
- Be “Turbo-tax”-like to simplify tax calculations
- Provide proactive status updates to keep customer informed and lessen contacts to city staff
- Leverage Informational feeds – both push and pull
- Consolidating content from disparate sources
- Provide Links to other resources
- Include mobile platforms for customer support
- Include web conferencing, collaboration, and co-browsing to improve customer understanding
- Leverage Customer Relationship Management (CRM)-like software to assist in managing customer service and support functions in a uniform and organized method
  - Social CRM tools, such as peer-to-peer community support applications to lower the cost of customer support
- Include content management (including video) to maintain currency of information
- Leverage knowledge management to improve, simplify, and unify understanding
- Provide analytics and workflows to enable city processes and decision making
- Include a Data “mart” to collect key audit-related information
- Include robust payment processing options such as e-Check, physical checks, or credit cards
- Work towards a data sharing arrangement with the State of Washington Department of Revenue (DOR) to create a seamless interface where businesses can enter business license or tax information once and have it shared across government entities.

## Technical Standards

### This section describes, at a high-level, a set of standards and services for the Multi-city License and Tax Portal.

The cities participating in the Multi-city License and Tax Portal Requirements Definition described, edited, and agreed that they represent the most efficient use of their resources, platforms, networks, and commercially available applications.

#### ENTERPRISE APPLICATION SERVICE & IMPLEMENTATION

Using a commercially available, “off-the-shelf” application, the Portal will enable the following technical capabilities:

- Ability to customize the Portal without having to write application code, for example; use a Model Driven Architecture approach or equivalent
  - For reference: Object Management Group, <http://www.omg.org/mda/>
- Ability for a non-developer to change city business rules, data definitions, and transactions
- Ability to add a new city, license, or tax to the Portal without having to write code or recompile
- Ability to add, delete, modify, or republish the following common or city-specific items without having to write application code:
  - Authorization definitions
  - Business Processes
  - Business Rules
  - Data definitions
  - General Content
  - Integration Mappings and Transformation rules
  - Knowledge Articles
  - Transactions
  - Workflow
- Ability to support version control
- Ability to enable or restrict changes by authorized role

#### SOLUTION ARCHITECTURE – SERVICE ORGANIZATION & CHARACTERICS

This section describes the services that the Multi-city License and Tax Portal will use to provide business license, tax payment, and general information functions. For detail regarding the business functions supported, please refer to the Functional Requirements Summary Report. They include the following:

**Business Processes**—The Portal will incorporate each city’s business license or tax processes or functions. This will include the ability for city personnel to accomplish the following:

- Write city-specific business processes for:
  - General Business Licenses
  - Regulatory Licenses
  - Business and Occupancy Taxes
  - Miscellaneous Taxes such as:
    - Utility
    - Admission
    - Franchise
    - Gambling
    - Solicitor
    - Monitor processes across the Portal

**Business Rules**—The Portal will incorporate each city’s specific business processes to facilitate automated processing. This will include the ability for city personnel to accomplish the following:

- Write city-specific business rules from their business processes
- Define or edit:
  - Automated tasks
  - Action triggers based on:
    - Key words
    - Context
  - Data fields
  - Decision criteria
  - Effective dates
- Add notes or documentation to a business record

**General Content**—The Portal will facilitate the creation and storage of informational material for later presentation to general audiences or to support city-specific business processes or functions. This will include the ability for city personnel to accomplish the following:

- Write structured content including:
  - Disclaimers
  - Guided Help
  - Mandates
  - Notices
  - Policies
  - Regulations
- Review content
- Complete an approval workflow for new or revised content
- Apply Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011) to general content
  - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)

Knowledge—The Portal will lead Users, including the public, business Users, and city personnel, through the process to find the information they need to answer their questions by guiding them through the search process and suggesting alternative search terms and solutions. This will include the following functions:

- Ability for city personnel to define knowledge repositories including:
  - General content
  - Internet-based content
    - City-specific
    - State of Washington
    - Other sources
- Ability for the Portal to perform to the following knowledge gathering activities:
  - Find
  - Filter
  - Map
- Ability for the Portal to enable the following searches:
  - Keyword
  - User intent-base
  - Natural language
  - Topic tree
  - Guided Help
  - Content federated
- Ability for the Portal to suggest:
  - Additional questions
  - Recommended resolutions

Workflow—The Portal will enable the routing of business-defined and city-specific workflows to support Portal functions and maintain the ability of city staff to process their work as they do today. This will include the following abilities:

- City personnel can define their city-specific workflows
- System Administrators can define system workflows
- Workflows can be initiated based on any of the following:
  - Customer-entered content
  - Key words
  - Trigger words
  - Multiple criteria
- Workflows can:
  - Interact with one or more Portal users
  - Interact with one or more users outside of the portal system
  - Initiate a transaction
  - Generate an e-mail
- Workflows will provide a visible status to the user that indicates the next steps of the workflow
- A transaction can initiate a workflow

Alerts—The Portal will generate alerts to city personnel or system administrators for their action based on the following:

- Customer-entered content
- Key words
- Trigger words
- Multiple criteria

This will include the following abilities:

- City personnel able to define the following:
  - City-specific alert criteria
  - Alert recipients
- City personnel able to review all alerts relevant for their city
- A Publish and Subscribe mechanism for city personnel to sign up for alerts
  - City personnel to receive those alerts via e-mail

## Technical Standards CONTINUED

Payment Processing—The Portal will use a common external payment processor to enable online payments from Users. This will include the following abilities:

- Process the following for payment:
  - Credit cards
  - Debit cards
  - E-Checks
  - Automated Clearing House (ACH)
- Take a single payment and have it:
  - Split across multiple payment transactions for an individual city
    - For example, a business license fee and tax payment
  - Split across multiple Cities for apportionment purposes
    - For example, the City of Seattle and the City of Tacoma
  - Provide one or multiple payment records
    - For example, one payment record for all transactions or one payment record per city per transaction
- Enable filings without a payment
- Be in compliance with Payment Card Industry Data Security Standard (PCI DSS)

Portal Accounts—The Portal will require an authorized and authenticated user account to access business license and tax functions. The user ID will have an association with one or more businesses, either a business owner who owns one or multiple businesses or a third-party preparer who supports multiple business and businesses owners.

Authorization—The Portal will use Role-Based Authorization for all Users and will support the following Roles:

- Business owner
- Business administrator
- Third-party preparer
  - Ability for an owner to add or remove third-party preparers (or requires approvals of being associated)
- City personnel
- System administrator

Based on the Role, Unified Business Identifier (UBI), or Data Classification , the Portal will enable or restrict a user's access to any of the following:

- Functions
- Transactions
- Information

- Data
- Pages

Also based on Role, the Portal will enable or restrict which actions a user may perform on any function such as:

- Create
- Read
- Update
- Delete

Authentication—In order to authenticate users, the Portal will use a standard recognized secure method, for example, Forms Authentication. The Portal will enable the following capabilities:

- Use a standard recognized protocol to secure the communication channel
  - For example, Secure Socket Layer (SSL)
- Enable each user to have their own unique system identification that incorporates the following:
  - Username
  - Password
    - Not to be stored on the user's machine
    - Retyped whenever the user logs-in
- If using Authentication Cookies, ability to encrypt cookies

Usernames & Passwords—The Portal will facilitate the creation of usernames and passwords and support the following capabilities:

- Require, at sign-up, an e-mail address verification for usernames
- Retrieve forgotten usernames through a secure reminder mechanism
- Enable the following password resets:
  - By the user
    - Verify user identity before performing a password reset
  - By a system administrator
- Enable a user to change their password
  - The user will need to re-enter their current password
- Require a minimum standard for “strong” passwords
- Enforce periodic password changes
  - Cannot use a password that is the same as any of the last defined number of passwords
- Encrypt usernames and passwords during storage or transit

## Technical Standards CONTINUED

- Lock or disable a user account after a defined number of incorrect login attempts
  - Generate a log entry
  - Lock the user account for a minimum defined period or until reset by an administrator
- Shut down or force a reauthorization of inactive Portal sessions after a defined period of inactivity

Account Relationships—The following table lists the Portal Roles by user and their available actions within the Portal:

	Business Licenses			Pay Taxes	Adjust Taxes	Business Rules	Workflows	Knowledge Articles	Admin
	Create	Modify	Close						
Business owner – Owns the licensed business	✓	✓	✓	✓	✓				
Business administrator – An employee who administers the licensed business	✓	✓	✓	✓	✓				
Third-party preparer (CPA, Accountant, etc.)— Creates tax returns and may create the business license and pay the taxes	✓	✓	✓	✓	✓				
City personnel	✓	✓	✓	✓ Exception basis	✓ Exception basis	City specific	City specific	City specific	
System administrator	✓	✓	✓	✓ Exception basis	✓ Exception basis	✓	✓	✓	✓

## User Environment

The user will view information and complete transactions using commonly available Web Browsers such as:

- Chrome
- Firefox
- Internet Explorer
- Opera
- Safari

In addition, the Portal will deliver information to and enable transactions from common mobile devices such as:

- Android-based
- iOS-based
- Windows Mobile-based

The Portal will support the following browser capabilities:

- Fit within the standard browser window of 1024 x 768 pixels without horizontal scrolling
- Minimized vertical scrolling
- Use a liquid layout that stretches well for any resolution
  - Minimum:
    - 320x240 for mobile devices
    - 800x600 for desktop or laptop devices
  - Maximum:
    - 1280x1024
- Enable:
  - Java script
  - Cookies
  - HTML5
- Disable pop-up blockers
- Support for multiple languages at the general information level such as:
  - English
  - Korean
  - Mandarin
  - Russian
  - Spanish
  - Somali
  - Vietnamese

## User Environment CONTINUED

ACCESSIBILITY—Using a commercially available, “off-the-shelf” application, the Portal will demonstrate a best effort for the technology to support or comply with the following:

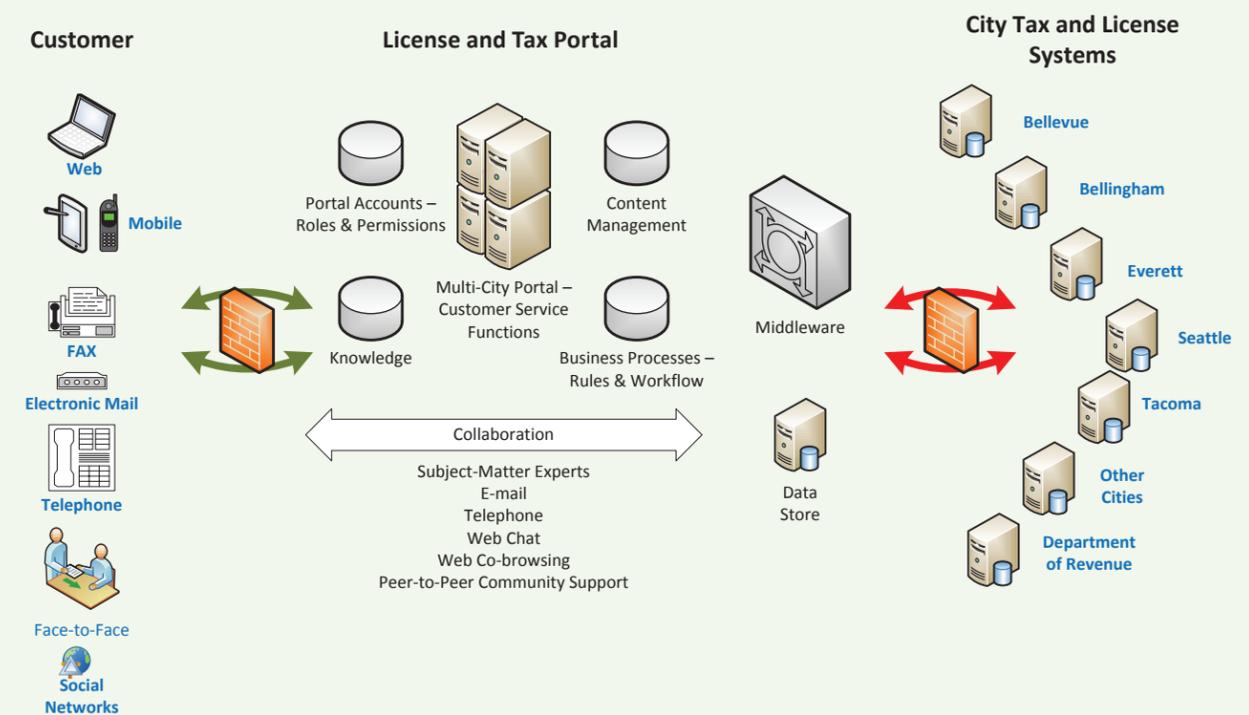
- Americans with Disabilities Act (ADA) and the Rehabilitation Act (Sections 504 and 508)
  - [http://www.hhs.gov/web/508/accenture\\_508/508\\_508.html](http://www.hhs.gov/web/508/accenture_508/508_508.html)
  - A compliant site must, at a minimum, test successfully on the following:
    - Text-only browser Lynx
    - JAWS Screen reader in Internet Explorer (Windows OS)
    - VoiceOver in Safari (Mac OS)
- Research or governmental standards:
  - Usability.gov
    - <http://usability.gov/guidelines/index.html>
  - World Wide Web Consortium (W3C) Web Accessibility Initiative’s (WAI) Web Content Accessibility Guidelines (WCAG) 2.0, Level AA
    - <http://www.w3.org/TR/2008/REC-WCAG20-20081211/>
  - State of Washington Office of the Chief Information Officer (OCIO) Guidelines
    - <http://ofm.wa.gov/ocio/policies/documents/1000g.pdf>
  - City of Seattle published Web Presentation Standards
    - <http://www.seattle.gov/pan/WebPresentationAccessibilityStandards.htm>
  - City of Tacoma published COT Web Standards
    - See Appendix – C “City of Tacoma Web Standards 4-12-12”

## Development

The Portal will use a two-tiered architecture whereby the public-facing Web server (front-end server) is isolated from the city application/database server(s) by means of a network firewall. The front-end is also isolated from the user through another network firewall. The front-end server used to collect data shall not cache or store any collected data or derived data there from at any time. All collected data shall be immediately passed to a separate database system residing on a back-end database server behind a firewall for storage and management.

## Computing Infrastructure

The following figure represents a conceptual view of the computing infrastructure for the Portal:



Environments—The Portal will maintain three independent infrastructure environments that include:

- Development
- Testing and Training
- Production

Servers—Using a commercially available, “off-the-shelf” application, the Portal will support Intel-based servers and the following:

- Microsoft Windows Server
- Microsoft SQL

## Computing Infrastructure CONTINUED

The Portal server infrastructure will provide:

- Application Services
- Web Services
- Database Services
- Integration Middleware Services that may include:
  - Enterprise Service Bus
  - Databroker
- Data Store Services

Sizing of the Portal server environment will depend on the selected commercially available, “off-the-shelf” application and its infrastructure requirements.

Virtualization—Using a commercially available, “off-the-shelf” application, the Portal will support a virtualized infrastructure with the following capabilities:

- Maintains comprehensive and specific knowledge about all its components
- Is self-configuring to suit varying and possibly unpredictable conditions
- Monitors itself for optimal functioning
- Is self-healing and find alternate ways to function when it encounters problems
  - Detects threats and protects itself from problems
- Adapts to environmental conditions
- Is based on open standards rather than proprietary technologies
- Anticipates demand for computing resources based on user demand

Availability—Using a commercially available, “off-the-shelf” application, the Portal will tolerate approximately 45 minutes of downtime per month as defined:

- 24 x 7 X 365 availability
- 99.9 % up-time outside a defined maintenance window

Application and Infrastructure Monitoring—The Portal will work with the selected hosting facility to establish performance service levels and provide performance availability monitoring for the following components:

- Application Services
- Web Services
- Database Services
- Integration Middleware Services
  - City-specific integrations
- Data Store Services
- Network

Error Handling—Using a commercially available, “off-the-shelf” application, the Portal will handle the following anticipated errors or failures:

- General Portal errors
- Payment failures
- Transaction processing errors
- City infrastructure errors
  - Provide notification when infrastructure is closed during a maintenance window
- Reference system errors
- Network infrastructure failures
- The Portal will provide the user with a visual and descriptive feedback for all errors that affect the user including the following validation errors:
  - Too many characters
  - Text errors
  - Number errors
  - Date errors
  - Value <> errors

In the event of failure, the Portal should not expose information to the client that could lead to information disclosure.

## Computing Infrastructure CONTINUED

Logging—Using a commercially available, “off-the-shelf” application, the Portal will create central change log that records changes made by Users to the following:

- Business processes
- Business rules
- General content
- Knowledge articles

In addition, the Portal will create a central audit log that records the following:

- Exceptions
- Security events
- Transaction failures including:
  - Which step in the transaction failed
  - Full value of transactional data
  - Relevant reference systems
- Unauthorized access attempts
- User activities

In addition, the Portal will protect change and audit logs from unauthorized access and tampering and apply the following:

- Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011) to change and audit logs
  - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)

Disaster Recovery—Using a commercially available, “off-the-shelf” application, the Portal will use an environment secure from Non-Human Threats that may include:

- Accidental Damage
- Natural Disasters such as lightning strikes
- System Failures such as electric current spikes

The Portal will back-up all stored data on a periodic basis including:

- Transactional History
- Authentication Credentials
- User Accounts
- Profiles
- Authorization (Roles and Permissions)
- List of Values

- Any city-specific data stored on the city’s behalf

The Portal will:

- Replicate back-ups to more than one physical device
- Store back-ups in a secure secondary location

The Portal infrastructure environment will fail-over to secondary servers and:

- Resume operations
- Continue transactions

## Security

Using a commercially available, “off-the-shelf” application, the Portal will provide a secure environment that can detect and block common security vulnerabilities such as those identified by the Open Web Application Security Project (OWASP).

The Portal’s web applications will adhere to the minimum standards for web-based application security as described in the OWASP Guide to Building Secure Web Applications:

- <http://www.owasp.org>

In addition, the Portal will:

- Encrypt Web-based management and other non-console administrative access using technologies such as:
  - Secure Shell (SSH)
  - Virtual Private Network (VPN)
  - Secure Sockets Layer (SSL)/Transport Layer Security (TLS)
- Support common requirements for maintaining system and network security, data integrity, and confidentiality as defined in the following:
  - Office of the Chief Information Officer (OCIO) Securing Information Technology Assets (Standard No. 141.10) dated April 10, 2012
    - <http://www.ofm.wa.gov/ocio/policies/documents/141.10.pdf>

Digital Signatures—Rather than using Digital Signatures, the Portal will use a combination of Authentication, Disclaimers, and Log Reports.

- Malicious Software Detection
- Using a commercially available, “off-the-shelf” application, the Portal will use an anti-malware application to protect against malicious software. This anti-malware application will have the following capability:
- Ability to integrate malicious software detection reporting with the Washington Computer Incident Response Center (WACIRC) incident reporting processes:
  - OCIO Securing Information Technology Assets (Standard No. 141.10) dated April 10, 2012
    - <http://www.ofm.wa.gov/ocio/policies/documents/141.10.pdf>

## Network Infrastructure

Network Security—Using a commercially available, “off-the-shelf” application, the Portal will secure the production environment through the implementation of logical boundaries to segment networks. The network security functions of the Portal include the following:

- Logical boundaries segmentation among:
  - Presentation
  - Application
  - Database
- Internal city networks secure from direct Internet access
- System-level resource access restrictions
- Network firewalls to configured to protect production systems and:
  - Allow system administration only through secure encrypted protocols
  - Prevent access by unauthorized source IP address or subnet
  - Block ingress of internal addresses from an external interface into the DMZ or internal interface
  - Block services, protocols, and ports not specifically allowed
  - Allow only necessary egress communications from the internal network to the DMZ, Internet, or wireless networks
  - Allow only necessary ingress communications to the internal network from the DMZ, Internet, or wireless networks
  - Maintain a comprehensive audit trail
  - Fail in a closed state if failure occurs
  - Operate boundary or perimeter firewalls on a platform specifically dedicated to firewalls

Encryption—The Portal will encrypt communications between the Portal, city networks and systems, and State of Washington networks and systems. The encryption features will include the following:

- A minimum encryption characteristic that includes:
  - 128-bit encryption
  - Secure generation and distribution of keys
  - Use of public key exchange algorithms

The Portal will also use secure connection methods that include:

- Public-key Infrastructure (PKI) digital certificate technology and Internet-based standards for secure network sessions, such as:
  - Secure Sockets Layer (SSL)
  - Hypertext Transfer Protocol Secure (HTTPS)
  - Virtual Private Network (VPN)
- Secure/Multipurpose Internal Mail Extensions (S/MIME)

## Network Infrastructure CONTINUED

The Portal will support Key Management Specification that defines protocols for the storage and safeguarding of encryption keys, such as:

- NIST Special Publication 800-57, Recommendation for Key Management - Part 1: General
  - <http://csrc.nist.gov/publications/PubsSPs.html>

## Web Services

Using a commercially available, “off-the-shelf” application, the Portal will separate public and transactional areas of the Portal and provide the following capabilities:

- Knowledge is available to any User
- Transactions are available only to authorized users

The Portal will not mix unsecured (http) content with secure (https) content on secure Web pages.

## Web Facing Service (Portal)

This section describes the services that the Portal will provide to users or to support the completion of inquiries or transactions.

Help—Using a commercially available, “off-the-shelf” application, the Portal will provide knowledge-driven, context sensitive help to Portal users from any:

- Page
- Data entry field
- Function

In addition, the Portal will enable city personnel to create, modify, and delete context sensitive help specific to their city.

Input Validation—Using a commercially available, “off-the-shelf” application, the Portal will validate user input at entry. This may include:

- Street addresses using a United States Postal Service (USPS) database
- Telephone number format
- E-mail address format
- UBI number

In addition, the Portal will use key words to initiate or trigger a workflow. This may include:

- Looking-up a North American Industry Classification System (NAICS) number
- The presentation of regulatory information

E-mail—Using a commercially available, “off-the-shelf” application, the Portal will use e-mail as its primary communication channel between Users, city personnel, and system administrators. This includes the ability for the Portal to generate the following rule-based e-mails that may use an e-mail template:

- Individual
- Batch

The e-mail capabilities of the Portal will include the following:

- Generate a secure e-mail using a standard recognized algorithm, such as Secure/Multipurpose Internal Mail Extensions (S/MIME)
- A transaction may create:
  - An e-mail to one or more Portal Users
  - An e-mail to one or more non-Portal persons
- Generate a monthly, quarterly, or annual e-mail to business owners to validate third-party preparer’s access
- Send e-mail confirmations and responses to constituents

## Web Facing Service (Portal) CONTINUED

- Log returned e-mails and:
  - Enable city-specific workflow for further processing
- Store e-mail correspondence between city personnel and a User using:
  - Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011) to change and audit logs
    - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)
- Ensure network security and data classification for any e-mail correspondence

FAX—Using a commercially available, “off-the-shelf” application, the Portal will receive inbound faxes using:

- Character recognition
- Bar coded information

The Portal’s FAX capabilities will include:

- Business rule driven processing and routing for:
  - Enquires
  - Transactions
- License
- Tax
- Archiving of inbound faxes using:
  - Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011)
    - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)

Telephone—The Portal will use a single inbound telephone number for support for all cities. This number will use an Interactive Voice Response (IVR) unit for the following capabilities:

- Route call to appropriate city personnel based on:
  - A caller’s menu selection
  - Information stored at the Portal
  - Information stored at one or more city systems
- Provide access to telephone self-service using:
  - Menu driven through customer entered digits
  - Speech recognition of menu selections

Collaboration—Using a commercially available, “off-the-shelf” application, the Portal will enable collaboration between Users, city personnel, and system administrators. The capabilities include the following methods of collaboration:

Subject matter experts—The Portal will enable identified city subject matter experts to collaborate on a topic or issue. This includes the following capabilities:

- City defined subject matter experts by key topic area
- Collaboration across subject matter experts:
  - Within a city
  - Across multiple cities
  - External parties

Click-to-call—The Portal will enable a user to collaborate with subject matter experts by using a click-to-call service and Voice over Internet Protocol (VOIP) from a Portal web page. The Portal will support routing the request to the proper defined subject-matter expert.

Web chat—The Portal will enable a user to collaborate with subject matter experts by using text-based web chat from a Portal web page. The Portal will enable the following:

- A Portal User to request a web chat session with a subject matter expert
- A city, based on business rules, to offer pro-active assistance
- An exchange of messages, files, web pages, and content from the Portal
- Support multiple languages
- Sending an e-mail with a transcript of the session to a web chat participant or other subject matter expert
- Retention of the session transcript and an association with the session participants
  - Apply Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011)
    - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)

Co-browsing—The Portal will enable a user to collaborate with subject matter experts by sharing a view of a Portal page, highlighting specific areas of a page, and enabling them to fill out forms together. The Portal Co-browsing capabilities will include the following:

- Business rules for specific Portal pages
- Co-browsing on specific sections of the Portal
- Ability to restrict city personnel from the following:
  - Completing data entry for a User
  - Viewing the following User data:
- Payment Card Industry Data Security Standard (PCI DSS)
- Personally Identifiable Information (PII)
- Sarbanes-Oxley information
- Data that carries a Data Classification of 3 or above

## Web Facing Service (Portal) CONTINUED

Peer-to-peer community support—In a to-be-determined future release, the Portal may provide support for peer-to-peer communities. The functions, yet to-be-determined, may include the following capabilities:

- A user to post questions
- A user to post answers
- City personnel to monitor the posts, edit content, or delete content

Social network—In a to-be-determined future release, the Portal may provide support for social networks. The functions, yet to-be-determined, may include the following capabilities:

- Create and manage online communities and forums
- Query and monitor posts on social networks such as Facebook, Twitter, forums and blogs to enable the following:
  - Key words search
  - Business rule routing to appropriate city personnel for response
  - Metric measurements about positive and negative trends

## Application Services

Transactions—Using a commercially available, “off-the-shelf” application, the Portal will enable transactions with the license and tax systems of the participating cities. In addition, the Cities will continue to work with DOR to share information and requests between State applications and the Multi-city License and Tax Portal. This provides a “seamless” interface among the participating Cities and the DOR so that a User only needs to enter information once. The transactional capabilities of the Portal will include the following:

- A transaction derived from a user function
- A real-time transaction triggered by a user activity
- A transaction derived from a reference system function
- A single transaction may orchestrate additional, multiple transactions
- Support for:
  - Rules-based transaction routing
  - Batch transactions
  - Transactions across one or more reference systems
- Ability for a transaction to:
  - Wait for service and try again later if a reference system is unavailable
  - Provide relevant feedback if part of the transaction failed
  - Provide feedback to the User, if necessary, in case of a transaction failure
  - Recoverable in the event of a server crash
  - Perform long-running transactions
  - Support compensating transactions
  - Communicate with a Web Service
    - Representational State Transfer (REST) over Hypertext Transfer Protocol (HTTP)
    - Remote Procedure Call (RPC) over Simple Object Transfer Protocol (SOAP)
  - Post a file to a secure FTP site:
    - Comma-Separated Value (CSV) file
    - Extensible Markup Language (XML)
  - Translate as part of a transaction to match the specific reference system object types
  - Transform data in the message as part of a transaction to match reference system-specific data schemas
- Transaction history storage including:
  - The original information that comprised the transaction
  - The transactional steps and results of the transaction

## Application Services CONTINUED

- A “clean-up” of transactional history that follows:
  - Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011) schedule
    - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)

See Appendix A – 2011 Transaction Volumes for the monthly, quarterly, and annual license and tax filings and number of filers. Sizing of the Portal transaction environment will depend on the selected commercially available, “off-the-shelf” application and its infrastructure requirements.

**Data View**—The Portal will generate a real-time query of a city, state, or other reference systems for data without having to store the information at the Portal. The real-time query will retrieve up-to-date license and tax information with the latest updates to that information to ensure data integrity. This will include the following capabilities:

- Pre-load or cache reference system data periodically to make available for queries
- Generate a single query to create a federated view of information from multiple city or reference systems
- Provide the User with a single view of multiple city or reference system data
- Continue to query multiple city or reference systems if one or more system access points fail

**Scalability**—The Portal infrastructure environment will scale in two specific dimensions:

- To accommodate an end-of-calendar year peak transaction period for license renewals and tax filings:
  - Approximately 75,000 filers
  - Approximately 165,000 filings
- To accommodate the addition of the following:
  - Users
  - Cities
  - Other governmental agencies
  - Licenses
  - Taxes

The components required to achieve this level of scalability will depend on the selected commercially available, “off-the-shelf” application and its infrastructure requirements.

## Information Storage

Using a commercially available, “off-the-shelf” application, the Portal will only store Portal-related information including the following elements:

- Account information
- Authorization definitions
- Business Processes
- Business Rules
- Data Definitions
- General Content
- Integration Mappings
- Knowledge Articles
- Transactions
- Transaction history
- Transformation rules
- Workflow

Sizing of the Portal information storage environment will depend on the selected commercially available, “off-the-shelf” application and its storage requirements.

In addition, the Portal will comply with the following data storage, transmission, and visibility requirements:

- The State of Washington’s:
  - OCIO Securing Information Technology Assets (Standard No. 141.10) dated April 10, 2012
- <http://www.ofm.wa.gov/ocio/policies/documents/141.10.pdf>
- Local Government Common Records Retention Schedule (CORE) Version 2.2 (December 2011)
  - [http://www.sos.wa.gov/\\_assets/archives/RecordsManagement/CORE%202.2.pdf](http://www.sos.wa.gov/_assets/archives/RecordsManagement/CORE%202.2.pdf)
- State of Washington RCW 42.56.100 - Protection of public records – public access
  - <http://apps.leg.wa.gov/rcw/default.aspx?cite=42.56.100>
- Payment Card Industry Data Security Standard (PCI DSS)
- Personally Identifiable Information (PII)
- Sarbanes-Oxley
- Individual cities data retention policies and IT standards

## Reporting

The Portal will store a de-normalized view of data for all participating cities. This reporting data store will not store any data with a data classification of 3 or above. The following is a list of the de-normalized data that the Portal will store:

- All new business licenses
- All business license and regulatory license renewals
- All B&O Taxes
- All other non-B&O taxes and fees such as:
  - Admissions
  - Commercial Parking
  - Gambling
  - Leasehold Excise
  - Lodging
  - Motor Vehicle Excise
  - Utility
- Usage Data
  - For example, what pages are being used in the Portal
- Economic Data
  - For example, how users are distributed across cities and city profile information (e.g. North American Industry Classification System (NAICS))
- Time-based
  - For example, time-of-day and day-of-week usage distributions

In addition, the Portal will enable or restrict city personnel access to the Portal data store through Authentication and Authorization. The Portal will enable city personnel to:

- Perform ad-hoc queries against the Data Store
- Export data from the data store into Comma-Separated Value (CSV) files
- Save queries performed against the data store for future use

The Portal data store will enable city personnel to query and extract information stored in the Portal data store as part of a public records request in compliance with RCW 42.56 – Public Records Act:

- <http://apps.leg.wa.gov/rcw/default.aspx?cite=42.56>

## Interface & Integrations

Using a commercially available, “off-the-shelf” application, the Portal will integrate with multiple city, state, or other reference systems using:

- Web Services
  - Using secure messaging between the Portal and city systems
- Authenticates with a city web service that conforms to WS-Security and WS Basic Profile 1.1 Standards:
  - <http://www.ws-i.org/profiles/basicsecurityprofile-1.1.html>
    - Using SAP Netweaver Enterprise Portal 7.01
- Posting a file to a secure file transfer protocol (sFTP) site
  - Using a comma-Separated Values (CSV) file
  - Using an Extensible Markup Language (XML) file
- Transaction emulation

The Portal will access city, state, or other reference systems using a trusted connection between the Portal and the referenced System. The following are additional requirements of this trusted connection:

- Authentication to a reference System should not be via a user’s credentials
- Any required connection string used to authenticate with a reference system must be protected and encrypted

The Portal will query the following URLs and consume the information within the Portal\*:

- State of Washington Secretary of State
  - <http://www.sos.wa.gov/corps/SearchAPI.aspx>
  - To query by:
- Unified Business Identifier
- Business Name
- State of Washington Department of Revenue (DOR)
  - <http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/default.aspx>
  - To query by:
    - Unified Business Identifier
    - Business Name

As part of a subsequent Detailed Design and Implementation Phase, the Portal will negotiate to incorporate the State of Washington DOR “Discovery” file that is currently in an XML format for currently participating cities. This is for cities currently participating in the discovery file data sharing.

## Interface & Integrations CONTINUED

The Portal will support the following User capabilities:

- Upload:
  - Process data from common accounting software such as QuickBooks
  - Spreadsheets
  - Attachments
- Download:
  - Process data from common accounting software such as QuickBooks
  - Spreadsheets
  - Attachments to an e-mail
- Print from Portal, for example:
  - Application
  - Receipts
  - Returns or schedules
  - License or registration
  - Communications

## Migrate Information

The Portal will migrate User and Customer Profiles that may exist in current city online systems to the new Portal Accounts application. The Portal will define a repeatable mechanism to migrate User and Customer Profiles from additional Cities that may join the Portal at a later date.

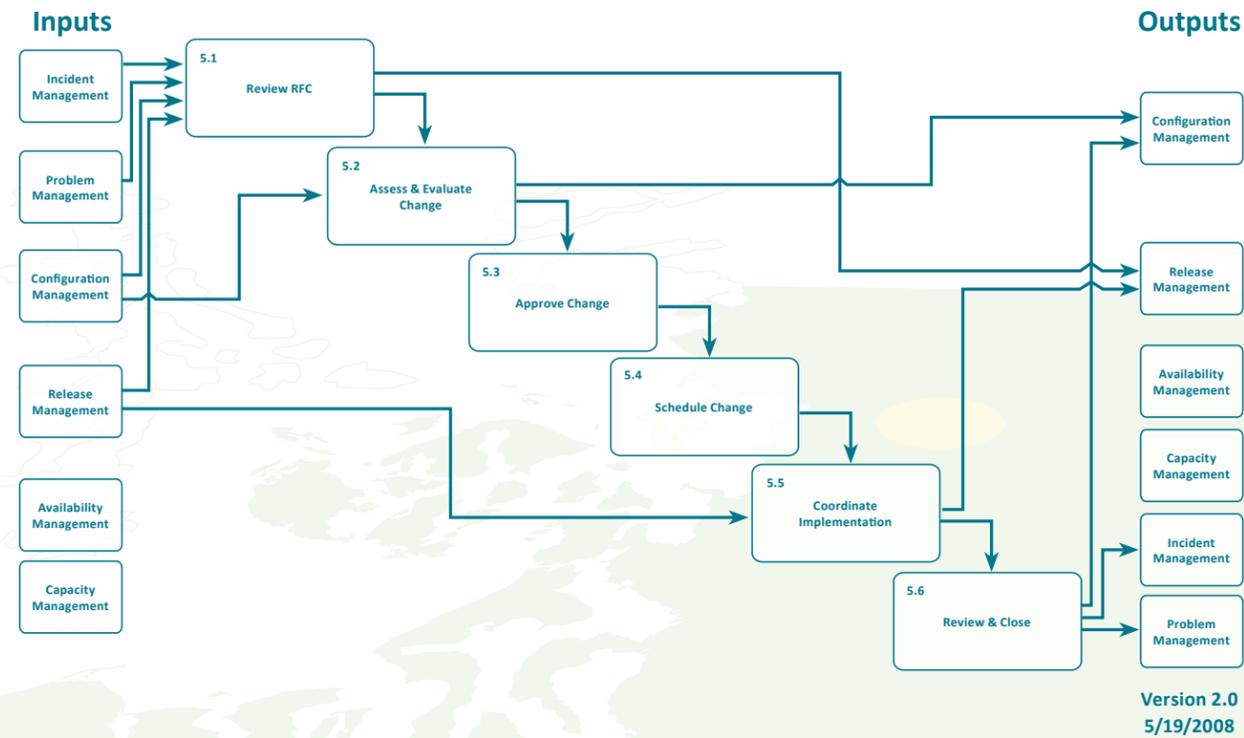
## Deployment Considerations

As part of the implementation project, the implementation team and the cities will make a determination as to an appropriate Deployment Plan. We recommend that the implementation team and the cities consider the following in creating the Deployment Plan:

- Deployment Management Support
  - Provide guidelines and support for the deployment of Releases
- Deployment Planning
  - Assign authorized Changes to Release Packages and to define the scope and content of Releases
  - Develop a schedule for building, testing, and deploying the Release
- Deployment Build
  - Issue all necessary Work Orders and Purchase Requests so that Release components are either bought from outside vendors or developed/ customized in-house
  - At the end of this process, all required Release components are ready to enter the testing phase
- Test Build
  - Deploy the Release components into the Test environment and Test
  - At the end of this process, all required Release components are ready to enter the production phase
- Deployment
  - Deploy the Release components into the live production environment
  - Complete training of end-users and operating staff
  - Publish information and documentation on the newly deployed Release or the services it supports
- Early Life Support
  - Resolve operational issues quickly during an initial period after deployment and to remove any remaining errors or deficiencies
- Release Closure
  - Formally close a Release after verifying if activity logs and documentation contents are up to date

## Deployment Considerations CONTINUED

The following diagram is a suggested flow illustrating where Deployment and Release management fit in the overall governance model:



## Conclusion

These Technical Requirements have been reviewed by the participating cities. As the project moves forward, any deviations from these Requirements will be documented and approval for the deviation will be requested of the participating cities. Further technical detail will be documented during a subsequent design phase that is an initial phase of a Portal construction.

The cities will continue to work with DOR and any other applicable Washington State Agencies to develop detailed requirements for data sharing between the Portal and state systems.

## Other Applicable Standards or References

### NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS)

- 2012 NAICS Structure
  - [http://www.census.gov/eos/www/naics/reference\\_files\\_tools/2012/2012\\_NAICS\\_Structure.xls](http://www.census.gov/eos/www/naics/reference_files_tools/2012/2012_NAICS_Structure.xls)

### STATE OF WASHINGTON MODEL CITY ORDINANCE (B&O)

- RCW 35.21 – Miscellaneous Provisions
  - <http://apps.leg.wa.gov/rcw/default.aspx?cite=35.21>

## Scheduled Maintenance

As part of ongoing Portal maintenance, the selected hosting vendor or site and the cities will establish a maintenance window for all supported servers and services. This maintenance window will be used when necessary for hardware/software upgrades, software patches, faulty hardware replacements, etc. The hosting vendor or site will notify the Cities in advance of any scheduled maintenance that will affect the users and will work closely with the Cities to determine the best times for scheduled hardware and software maintenance.

# Appendix A

## 2011 TRANSACTION VOLUMES

		Seattle	Everett	Tacoma	Bellevue	Bellingham		Seattle	Everett	Tacoma	Bellevue
Licenses	New Licenses	10,256	1,073	2,500	3,691	1,019					
	Renewals	74,888	-	22,500	-	-					
B&O taxes	Monthly filers	-	-	-	-	175	Monthly filings	-	-	-	-
	Quarterly filers	19,082	3,595	4,100	Not Available	2,831	Quarterly filings	76,330	14,380	16,400	Not Available
	Annual filers	54,312	5,127	9,000	Not Available	5,862	Annual filings	54,312	5,127	9,000	Not Available
	Total filers	73,394	8,722	13,100	6,300	8,868	Total filings	130,642	19,507	25,400	25,200
Other Taxes		Seattle	Everett	Tacoma	Bellevue	Bellingham		Seattle	Everett	Tacoma	Bellevue
Utility	Monthly filers	180	130	113	96	67	Monthly filings	2,164	1,560	1,356	1,152
	Quarterly filings	103	27	50	52	18	Quarterly filings	412	108	200	208
	Annual filings	11	6	-	81	3	Annual filings	11	6	-	81
	Total filers	294	163	163	229	88	Total filings	2,587	1,674	1,556	1,441
Admission	Monthly filers	169	-	-	5	-	Monthly filings	2,028	-	-	60
	Bi-Monthly filers	-	4	-	-	-	Bimonthly filings	-	24	-	-
	Quarterly filers	-	-	-	36	18	Quarterly filings	-	-	-	144
	Annual filers	-	-	-	51	16	Annual filings	-	-	-	51
	Total filers	169	4	-	92	34	Total filings	2,028	24	-	255
Gambling	Monthly filers	52	-	75	-	-	Monthly filings	624	-	900	-
	Quarterly filers	4	43	-	-	13	Quarterly filings	17	172	-	-
	Annual filers	48	-	-	-	-	Annual filings	48	-	-	-
	Total filers	104	43	75	-	13	Total filings	688	172	900	-
Commercial Parking	Monthly filers	120	-	-	-	-	Monthly filings	1,441	-	-	-
	Quarterly filers	35	-	-	-	-	Quarterly filings	139	-	-	-
	Annual filers	3	-	-	-	-	Annual filings	3	-	-	-
	Total filers	158	-	-	-	-	Total filings	1,583	-	-	-
Other	Monthly filers	-	-	-	5	-	Monthly filings	-	-	-	60
	Quarterly filers	-	-	-	13	-	Quarterly filings	-	-	-	52
	Annual filers	-	-	-	77	-	Annual filings	-	-	-	77
	Total filers	-	-	-	95	-	Total filings	-	-	-	189

# Appendix B

## CITY-SPECIFIC SYSTEM INFORMATION

	Bellingham	Bellevue	Everett	Seattle	Tacoma
Target System	HdL Prime	Praxis	B&O Tax/ Cashiering (in process of replacing)	Seattle Licensing Information Management	SAP Netweaver Enterprise Portal 7.01
Environment	Windows .NET (ASP.NET, C#, VB.NET) SQL Server 2012	Windows .NET (ASP.NET, C#, VB.NET) SQL Server 2008 (upgrading to 2012)	Windows Delphi Oracle database	Windows PowerBuilder 9 SQL Server	Migrating to UNIX ABAP Oracle database
Current Interfaces:					
Business License	Write: Batch CSV file download (BLS to HdL interface)	Write: Batch XML file download (BLS to Praxis interface)	Write: None identified	Write: Web Services (SELA to SLIM Interface)	Write: XML, Comma-Separated Values (CSV) or Tab Delimited (WinShuttle). Batch XML file for renewals (Lockbox interface)
	Read: Batch	Read: None identified	Read: None identified	Read: Batch	Read: None Identified
Business Changes	Batch CSV file download (BLS to HdL interface)	Batch XML file download (BLS to Praxis interface)	None Identified	Batch (SELF to SLIM Interface)	(Tacoma Services.org to SAP interface)
Taxes	Write: Batch (HdL Web to HdL Prime)	Write: Batch XML file download (Lockbox to Praxis interface)	Write: Batch XML file (Lockbox to B&O Tax interface)	Write: Batch (SELF to SLIM interface)	Write: Batch XML file (Lockbox interface)
	Read: Real-time	Read: None Identified	Read: None Identified	Read: Database dump (SLIM to SELF interface)	Read: None identified
Online Payment Processing	Link2Gov to Active Network	Manual load to JDE	None	Link2Gov Batch to STORM	None
Futures:					
	Build out Web Services to enable ad-hoc payments of outstanding balance	Build out Web Services (Custom) or Batch	Build out Web Services (Custom) or Batch	Build out Web Services (Custom) or Batch	Build out Web Services (SAP Web Dispatcher)

## Appendix C

### CITY OF TACOMA WEB STANDARDS

#### WEB ACCESSIBILITY CHECKLIST

- See document: City of Tacoma Web Accessibility Checklist for Level AA Compliance

#### WEB POLICY AND ACCESSIBILITY STATEMENT

- See document: City of Tacoma Web Policy and Accessibility Statement

#### WEB STANDARDS – APRIL 12, 20012

- See document: City of Tacoma Web Standards 4-12-12

## Appendix D

### DATA CLASSIFICATION STANDARDS

The Portal will classify electronic data into four (4) groups as follows:

1. Category 1 Data – Public Information
  - Data that is currently made available to the public by the participating Cities or the State of Washington without requiring release authorization
2. Category 2 Data – Sensitive Information
  - Data that the participating Cities or the State of Washington creates for internal use only without requiring release authorization for official city or state business
3. Category 3 Data – Confidential Information
  - Data that is specifically protected from release by law
4. Category 4 Data – Restricted Information
  - Data containing information that may endanger the health or safety of others or that has especially strict handling requirements by law, statute, or regulation

