Right of Way Database: REC/HEP
Software Requirements Specification
Change Control

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1. INTRODUCTION

The Statewide Design and Engineering Services of the Department of Transportation and Public Facilities of the State of Alaska issues permits to other governmental agencies, business, utilities, non-profit organizations and members of the public to close or restrict traffic on the State maintained right of ways for construction and special events. The Division has initiated a project to review and improve the way permitting for right of ways is conducted. They have engaged Professional Growth Systems (PGS), a process consulting firm to document existing processes and spur improvement within the teams, which are used in the right of way permitting process. They have engaged Wostmann & Associates, Inc. and their subcontractor, 7X Group, Inc. to perform systems analysis and document requirements for software to support the new processes.

1.1 Purpose

This document is the first of a series of requirements specifications for software to facilitate the acquisition, management, and use of right of ways. It is intended to capture the requirements which must be embodied in the system to be constructed, and will be used by the Division, end users, the Department’s IT group, and contract systems developers to validate that requirements for the system are clear and well understood. To provide a foundation for that clarity this document is formatted according to the ANSI/IEEE STD-830-1998\textsuperscript{1} standard tailored to the needs of the Department of Transportation.

1.2 Scope

The permitting system for Road Encroachment or Closures and Highway Event Permits has three objectives. First, it is intended to allow permit applicants to submit and check the status of applications online via the Internet. This will improve the level of service provided to the public by making the application process more streamlined, by providing system support to reduce errors, and by making the application and status determination process more convenient.

The second objective of the system is to provide automated support for the review process. This will increase the efficiency and consistency of handling permit applications and will provide the permit processing and review staff with tools to facilitate the review, processing, and approval or rejection of applications.

The third objective of the system is to provide support for other Right of Way systems to automatically generate Road Encroachment or Closure permit applications.

In some cases, Highway Events span regions. The system will not provide any capability to assign multiple permit officers or reviewers from different regions to such applications simultaneously. They will be handled procedurally, with the permit officer in the region where the event ends taking primary responsibility.

1.3 Definitions, Acronyms, and Abbreviations

1.4 References
1.5 Overview

The following sections of this document describe the requirements for the system both from the external perspective of end users and interfacing systems, and from the internal perspective of functional requirements and behaviors needed to support the external interfaces.

The application development process is organized into the following stages: 1) Joint Modeling Sessions (JMS) between end users and developers which facilitate the discovery of information pertaining to business operations in a real world and how those would be facilitated in a theoretical world (redesigned process flow). The process flow document produced by PGS is being used to generate the initial document set in the Modeling sessions. This set is then refined by the Subject Matter Experts in the group to determine whether rules are being captured successfully. 2) Analysts then take the JMS information and prepare the functional requirements of the SRS by identifying all aspects of the application with Application Flow by extrapolating the JMS information into a real-world set of requirements. 3) Clients review the draft SRS, allowing for comment and changes to take place so that the document is refined and correct requirements are captured. Since a significant number of SRS documents will be produced for various related right of way systems these documents should be viewed, as progressive and information identified during later analysis may be added into documents from areas worked earlier.

The accomplishments of each stage will be reviewed at intervals during the project to determine whether other areas of the operations need to be refined or redefined. This “continuous” improvement is being used to ensure that we are consistent in the identification of requirements.

We are engaging in this effort to ensure that a methodical and repeatable approach to the software development cycle at the DOT is maintainable and consistent from project to project. The SRS structure allows us to give due-diligence to analyze needs and requirements and gives us a solid framework within which to develop long-term, scalable applications that will grow with the organization. This allows the application to be built with solid constructs to facilitate future development efforts. It is also an attempt to solidify the development process in a grounded structure that has demonstrably performed in other efforts and allows for a reusability of concepts and methods with future projects.
2. GENERAL SYSTEMS DESCRIPTION

2.1 Product Perspective

The right of way Roadway Encroachments or Closures and Highway Event Permit system is a business system for receiving and tracking applications for temporarily closing or restricting traffic on DOT controlled right of ways. The application process will be initiated by members of the general public and businesses who submit applications for Road Encroachment or Closures and Highway Event Permits either electronically, on paper or contacting the department directly. The system will be accessible by DOT employees in the permitting group in order to enter monitor, track, and change the status of permit applications.

The system will be connected to the DOT LAN. It will be able to interface with the systems of other agencies and departments via the State WAN. The State WAN provides a gateway to the Internet, which will allow connectivity to end applicants.

2.1.1 System Interfaces

2.1.1.1 Credit Card Charge Processing System

The system will accept payment of the permit application fee by credit card. The system will interface with the State’s credit card service provider to validate the credit card and to issue the charge. This interface shall be through a credit card processing subsystem of the Department of Transportation. The subsystem provides for commonality of processing for various Department of Transportation business systems, both right of way systems and others. It also reduces the potential for system disruption and intensive maintenance should the State change credit card service providers.

2.1.1.2 Automated Application Entry

Other Right of Way systems may require Road Encroachment or Closures. This system will provide an interface for other systems to generate an application for a Road Encroachment or Closure permit.
2.1.1.3 User Authentication System

The DOT IT group maintains an LDAP server with entries for all DOT employees. The permitting system will use the LDAP server to authenticate internal DOT users, and to retrieve user information such as email address and group membership. The group membership will be used to determine the user's role, for example permitting agent or reviewer.

2.1.2 User Interfaces

The Road Encroachment or Closure permitting system will have user interfaces for different groups of users. While the appearance of the user interface may be similar, the functionality of each user interface will be distinct.

2.1.2.1 Permit Applicant User Interface

The Permit Applicant user interface will allow end user applicants to apply online, over the Internet or at end user kiosks at DOT offices. The user interface will limit functions to those which end users can perform against their own applications. The applicant user interface will require a user login to prevent users other than the actual applicant from modifying an application's data.

2.1.2.1.1 Applicant Information Add

Before an applicant can apply for a permit online, they will need a user id and password. The Applicant Information Add interface will allow them to establish one. It will capture data specific to the applicant, not the application. It will email the user's password to them to confirm the account is established. This interface will also allow the applicant to enter information for contacts. Multiple contacts may be associated with an applicant.

The Applicant-Contact relationship works as follows. An application has one and only one associated applicant. An applicant may be either an organization or an individual. An application will have one or more associated contacts that may serve as representatives of the applicant. For the case when an individual is the applicant, there will probably be only one contact and that contact will probably be the same as the applicant. For the case when an organization is the applicant the application may have multiple contacts associated.

2.1.2.1.1.1 Applicant

- Applicant Name (required)
- Applicant Type (required)
- Physical Address (required)
- Mailing Address (required)
- Billing Address
- Applicant Access Password (required)
- Repeat Applicant Access Password (required)

2.1.2.1.1.2 Contact(s)

- First Name (required)
- Last Name (required)
- Email Address (required)
- Phone Number (required)
- Fax Number
2.1.2.1.2  Applicant/Permittee Login
All end user interface functions except the Applicant Information Add will require that the applicant identify themselves to the system with their user id and password. The Applicant/Permittee Login user interface will allow them to do so. It will allow them to request that the system send them their password by email if they have forgotten it. It will also display references to any applications they have in progress so that they can display them. The login is for the applicant, where the applicant is an organization a contact may be using the login. The contact that is logged in will have access to all applicant-related functions.

Client Access ID (required)
Client Access Password (required)
Email Address (required)

2.1.2.1.3  Applicant Password Recovery
If an applicant forgets their password they can request that the system send them an email reminding them of it.

Client Access ID (required)
Email Address (required)

2.1.2.1.4  Applicant Information Update
An applicant can change their contact information. It will also allow them to change their password. Control of the applicant login password is the responsibility of the applicant. Any contact may modify the Applicant information.

2.1.2.1.4.1  Applicant
Applicant Name (required)
Applicant Type (required)
Physical Address
Mailing Address (required)
Billing Address (required)
Applicant Access Password
Repeat Applicant Access Password

2.1.2.1.4.2  Contact(s)
First Name (required)
Last Name (required)
Email Address (required)
Phone Number (required)
Fax Number

2.1.2.1.5  Apply For Permit
The Apply For Permit user interface will allow an applicant to enter all data for a new application. It will allow them to associate a list of contacts for the application. It will also accept the specific information about the REC or HEP.

2.1.2.1.5.1  Applicant
Applicant Name (Required)
Applicant Type (Required)
Physical Address
Mailing Address (Required)
Billing Address

2.1.2.1.5.2  Contact(s)
First Name (Required)
Last Name (Required)
Email Address
Phone Number (Required)
Fax Number
2.1.2.1.5.3 Application Data
Type (Required)
Location (Required)

2.1.2.1.5.4 Schedule
Start Date (Required)
End Date (Required)
Schedule Description (Required)

2.1.2.1.5.5 Event
Event Description (Required)
Number of Participants (Required)

2.1.2.1.6 Display Permit Application
The Display Permit Application user interface will allow an applicant to view all the data they entered for an application, plus the status of the application and provisions added by the Permit Officer and Reviewer. For applications in the proper status, this user interface will provide references to get to the online payment collection user interface.
It will show a list of ALL applications for the applicant in the system to select for display.

2.1.2.1.6.1 Application Data
Status
Creation Date
Permitting Agent
Application Number
Region
Site Address
Status Change Date
Last Update Date
Expiration Date
Provisions
Signature
Proof of Insurance
Originating Permit
Dependent Permit
Reviewer Comments
Type
Location

2.1.2.1.6.2 Fee
Amount
Waiver Indicator

2.1.2.1.6.3 Payment
Amount
Form of Payment

2.1.2.1.6.4 Applicant
Applicant Name
Applicant Type
Physical Address
Mailing Address
Billing Address

2.1.2.1.6.5 Contact(s)
First Name
Last Name
Email Address
Phone Number
Fax Number

2.1.2.1.6.6 Schedule
Start Date
End Date
Schedule Description

2.1.2.1.6.7 Event
Event Description
Number of Participants

2.1.2.1.7 Modify Permit Application
The Modify Permit Application user interface will allow the applicant to change data they entered up to the point when the Permit Officer has flagged the application as complete and has requested payment. After that time the applicant will not be able to use this user interface to modify data.

2.1.2.1.7.1 Data which can be modified
2.1.2.1.7.1.1 Applicant
Applicant Name (Required)
Applicant Type (Required)
Physical Address
Mailing Address (Required)
Billing Address
2.1.2.1.7.1.2 Contact(s)
First Name (Required)
Last Name (Required)
Email Address
Phone Number (Required)
Fax Number
2.1.2.1.7.1.3 Schedule
Start Date (Required)
End Date (Required)
Schedule Description (Required)
2.1.2.1.7.1.4 Event
Event Description (Required)
Number of Participants (Required)

2.1.2.1.7.2 Data which can’t be modified
Status
Creation date
Permitting Agent
Application Number
Region
Status Change Date
Last Update Date (automatically modified)
Expiration Date
Provisions
Signature
Type
Reviewer Comments
Originating Permit
2.1.2.1.7.2.1 Fee
Amount
Waiver Indicator
2.1.2.1.7.2.2 Payment
Amount
Form of Payment

2.1.2.1.8 Pay Fees Online
The Pay Fees and Deposits Online user interface will allow the applicant to pay their associated fees using a credit card. The user interface will validate the credit card and will initiate the charge. This user interface will be reached from the application display, and will only be available when the application status indicates that a specific charge is pending.
Applicants will receive an email confirmation.
Application Number (Display Only)
Location (Display Only)
Schedule (Display Only)
Charge amount – (Display Only)
Credit Card Type (Required)
Credit Card Number (Required)
Expiration Date (Required)
Card Holder Name (Required)
Transaction ID

2.1.2.2 Application Management User Interface

The top level user interface for permit officer and reviewers will provide features for finding specific applications and for managing the assignments of applications to designated permit officers and reviewers.

2.1.2.2.1 Application Search and Select
The application search and select user interface will allow a particular application to be located. It will be select applications based on the user’s criteria.

2.1.2.2.1.1 Search Fields
Permit Officer
Reviewer
Region
Status
[TEAMS PLEASE ADVISE: Any additional search fields?]

2.1.2.2.1.2 Reviewer Notification
The search and select for a particular reviewer will have the capability of notifying that reviewer when an application they have not seen before is assigned to them.

2.1.2.2.2 Notification of Supervisor
When an application sits in the queue for a given length of time the system will automatically notify the supervisor.

2.1.2.2.3 Assign/Reassign Permit Officer
The system will provide the capability to assign applications to a particular permit officer. Applications will also be able to be reassigned to a different permit officer.
2.1.2.3.1 Reviewer Notification
The search and select for a particular reviewer will have the capability of notifying that reviewer when an application they have not seen before is assigned to them.

2.1.2.2.4 Assign/Reassign Reviewer
Allows engineering supervisor to assign applications to specific engineers for review. Also allows application to be reassigned.

2.1.2.3 Entry, Review, and Approval User Interface

This is the DOT user’s interface for processing applications.

2.1.2.3.1 Applicant Information Maintenance
The application information maintenance interface will allow the permit officer to enter and update applicant data.

2.1.2.3.1.1 Applicant
Applicant Name (required)
Applicant Type (required)
Physical Address (required)
Mailing Address (required)
Billing Address (required)
Applicant Access Password (required)
Repeat Applicant Access Password (required)

2.1.2.3.1.2 Contact(s)
First Name (required)
Last Name (required)
Email Address (required)
Phone Number (required)
Fax Number

2.1.2.3.2 Application Maintenance
The application maintenance user interface will allow the permit officer and reviewer to enter and update application data. It will also allow the permit officer to move the application along in its workflow.

2.1.2.3.2.1 Request Additional Information
The user interface will allow the permit officer to request additional information from the user. Along with the text input by the permit officer the request will contain the application information already entered by the applicant. If the applicant has provided an email address the request will be made by email, otherwise the system will generate correspondence.

2.1.2.3.2.2 Request Payment
The user interface will allow the permit officer to request payment from the applicant for the application fee and for the permit fee. If the applicant has provided an email address, the request will be made by email, if not the system will generate correspondence.

2.1.2.3.2.3 Accept Online Payment
This interface allows the Permit Officer to enter the Applicants credit card information in cases where the Applicant pays via the telephone.

2.1.2.3.2.4 Record Offline Payment
In cases where the applicant pays the application or permit fee by physical remittance to the Department rather than by the online credit card payment capability the system will allow the permit officer to record the receipt of payment.
2.1.2.3.2.5 Add/Remove Provisions – general and special
The system will allow the permit officer or reviewer to add or remove provisions to an application. A set of general provisions will automatically be added to every application. A set of standard special provisions will be available which can be added to an application.

2.1.2.3.2.6 Add/Remove special conditions
The system will allow the reviewer to add or remove special conditions to an application. Special conditions will be similar to provisions except that they will be specific to the particular application they are created for. The reviewer will input the text of the special condition instead of selecting from a pre-input list.

2.1.2.3.2.7 Review Disposition application
The system will allow the reviewer to provide a disposition of the application, either approved or rejected, and associated comments.
The reviewer will not be able to make changes to the application other than the disposition and the associated comments.
The system will generate correspondence including a copy of the permit that can be signed and mailed to the applicant.

2.1.2.3.2.8 Issue permit
The system will allow the permit officer to issue a permit based on an approved application.

2.1.2.3.3 Maintain Provisions
The permit officers and reviewers will be able to maintain the text of general and special provisions separately from applications. The data will be:
Provision Name
Type
Effective Date
Text

2.1.2.4 Scheduling Interface
The system will allow the M&O User to display schedules associated with HEP/REC applications and permits. It will allow them to enter maintenance schedules that they have planned to be considered by HEP/REC.

2.1.2.4 Public Interface

2.1.2.4.1 Display Permits and Applications
This interface allows the public to view a list of applications in progress and permits.

2.1.2.4.2 Display Permit
This interface displays public information on an application in a permit format.

2.1.2.4.3 Display Schedule
This interface displays the schedule of REC/HEP permits for a given date range.

2.1.3 Hardware Interfaces

No hardware devices will be used for this system.

2.1.4 Software Interfaces

The system will provide and use the following software interfaces.
2.1.4.1 Credit Card Processing

The DOT credit card subsystem is expected to require a minimum amount of data, but will be able to track additional data as required by the calling system. The permitting system will send basic credit card transaction data. The interface will be near real time, returning an indication of whether the transaction was accepted, was rejected, or could not be processed.

2.1.4.2 Mail System

The system can send electronic mail to applicants who have email addresses. The system will interface with the DOT mail system to send email.

2.1.4.3 Automated Application Input

The system will provide an interface that allows other permitting systems to input the data for a Roadway Encroachment and Closure permit application when another type of permit requires one. The interface will generate a permit application for the same applicant, and can indicate whether the application fee should be waived.

2.1.4.4 DOT LDAP Server

The system will use the DOT LDAP server to authenticate and authorize internal users.

2.1.5 Communications Interfaces

The system will use standard TCP/IP network communications protocols. No special communications interfaces will be required.

SMTP mail

2.1.6 Modes of Operation

No special modes of operation will be required.

2.2 Product Functions
2.2.1 Enter Applicant

The intake functions of the system will allow information about applicants to be entered into the system. Standard correspondence will be generated. The initial application for a permit is also an intake function.

The entry of applicant information will set the applicant up on the system. An applicant need only be setup once; subsequent applications can be made using the same applicant setup information.

When an applicant is setup an initial welcoming letter can be generated, explaining the system and the application process.

If the applicant setup information includes an email address the welcoming letter and a brochure will be emailed to the applicant. The welcoming letter will contain a password that the applicant can use to enter application data online.

2.2.2 Apply for Permit

The system will allow end users to apply for permits directly, will allow permit officers to enter applications for permits on behalf of end users, and will allow systems, including itself, to automatically create applications for permits.

2.2.3 Display/Update Existing Application

The system will allow end users and permit officers and reviewers to display existing applications and to update data on those applications. The end users will be limited in the data they can update.

2.2.4 Request Additional Information

The system will allow the permit officer to request more information from the applicant, either by generating email or written correspondence.

2.2.5 Generate Invalid Application Notice

The system will allow the permit officer to notify the applicant that the application will not be approved. The notification capability will be supported by generating email or written correspondence.
2.2.6 Generate Request for Payment

The system will allow the permit officer to request the applicant pay the application fee so the application can go forward in the review and approval process. The system will also allow the permit officer to request the applicant pay the permit fee.

2.2.7 Accept Online Payment

The system will accept payment of the application fee online via credit card.

2.2.8 Record Offline Payment

The system will allow the permit officer to record the receipt of payments, for cases where the applicant does not use the online payment capability.

2.2.9 Timeout Application

The system will maintain a watch on applications in the application process. In cases where the application sits without activity for a specified time period the system will close the application.

2.2.10 Assign Permit Application to Reviewer

The system will allow applications to be assigned to specific reviewers for review.

2.2.11 Add/Update/Delete General Provisions

The system will automatically add general provisions to the application, and will allow those provisions to be edited and deleted.

2.2.12 Add/Update/Delete Special Provisions

The system will allow the permit officer to add pre-defined special provisions to the application, and will allow those provisions to be edited and deleted.

2.2.13 Add/Update/Delete Special Conditions

The system will allow the reviewer to add special conditions to the application.
2.2.14 Disposition Application

The system will allow the reviewer to approve or deny the application, and to record comments pertaining to the disposition.

2.2.15 Generate Road Encroachment or Closure Application

For Highway Event Permit applications, the system will have the capability to automatically generate the appropriate Road Encroachment or Closure permit application.

2.2.16 Issue Permit

The system will allow the permit agent to issue the permit based on an approved application.

2.2.17 Update Approved Application

The system will allow updates to approved applications to allow information about the actual events or lane closures to be captured and associated with the permit applications.

2.3 User Characteristics

2.3.1 Applicants

Applicants are residents of the State of Alaska, businesses, or organizations who wish to conduct special events on DOT right of ways, or to temporarily close lanes. Applicants will have a wide variety of computer skills, but will require limited access to the system to accomplish their purposes: applying for a permit, checking the status of a permit application, and entering credit card payment for an application fee. Their terminals will be outside the State WAN, the type of computer, operating system, and the particular web browser are unpredictable.

2.3.2 Permit Officers

Permit officers are employees who process applications. They are the users who are typically familiar with the application process. They need access to all the application data. These users will become very familiar with the system. There
will be one Permit Officer per region within the state, with possibly support personnel.

2.3.3 Reviewers

Reviewers are Traffic engineers who make decisions on whether to issue Road Encroachment or Closures and Highway Event Permit permits, and who decide what special conditions are attached to those permits.

2.3.4 Finance

Finance staff; [either in the permits group or in the finance group] need reports correlating credit card charges made against applications whose fees are paid by credit card. These reports are critical to reconciling activity and identifying problems where applicants are incorrectly charged. These users will use the system intermittently, and may not be experts in the permitting system.

2.3.5 Management

Management users typically need the same access as reviewers, but also summary reports of activity for specific individuals, sections, or groups.

2.3.6 System Support

System support personnel generally need unlimited access to the system to be able to diagnose and fix problems. They have a high level of computer skills and can tolerate more rudimentary interfaces as long as they have adequate capability.

2.3.7 General Public

General public users are members of the public at large. They will not have a login, any security, and display only interfaces.

2.3.8 M&O User

M&O users are DOT Maintenance and Operations employees who make scheduling decisions that must take into consideration potential schedule conflicts caused by HEP/REC permits.
2.4 General Constraints

DOT is developing three permitting systems to serve right of way permitting needs. In addition to the Roadway Encroachment and Closure/Highway Events system, new systems are being developed for sign permitting and driveway permitting. These systems will share some common features and will need to be integrated to minimize duplicate data maintenance. In particular, the input and tracking of applicant data should be done by a common subsystem, to minimize data entry burden on the end applicant, to reduce data maintenance effort for the Department, and to reduce system development effort. The applicant data and interface requirements for the three systems will need to be aligned to accomplish this goal.

2.5 Assumptions and Dependencies

DOT IT group will implement a credit card charge subsystem. It will perform payment authorizations against credit cards. It has not been determined whether it will perform settlements or will generate daily or weekly settlement reports. If not, appropriate business reports will be needed to reconcile permit application activity with Payment Tech credit card charge reports.

Applications for permits that cross regional boundaries will be entered for only one region, typically the region where the event will end. DOT staff will coordinate with their counterparts in the other region procedurally.

Although currently the Department of Transportation allows the Municipality of Anchorage to issue Road Encroachment or Closures and Highway Event Permit permits in the Anchorage area, with the new system applications for DOT controlled will be made to DOT.

No regulations currently exist which cover Road Encroachment or Closures and Highway Event Permit.
3. SPECIFIC REQUIREMENTS

3.1 External Interfaces

3.1.1 Credit Card Charge Interface

The credit card charge interface will provide the following functions

3.1.1.1 Input

The following data will be required to process credit card charges

Credit Card Type - either Visa or MasterCard

Credit Card Number

Expiration Date

Name on the Card

Amount

Application system identifier - an identifier indicated the transaction is being made from the Roadway Encroachment and Closure/Highway Event system

Account code - the AKSAS account code which should receive the payment

3.1.1.2 Processing

The credit card charge subsystem will request the charge to be made to the credit card through the State’s credit card service contractor.

3.1.1.3 Output

Transaction Confirmation Number
Error/exception code - an indication of the problem if the transaction could not be processed. Values could include the charge was rejected, the transaction timed out, or the processing system had an error.

3.1.2 Email Interface

The email interface will provide the capability to send email from the system

3.1.2.1 Input

Recipient Email Address
Subject Line
Sender Email Address
Text of message

3.1.2.2 Process

The email subsystem will send the email message to the recipient.

3.1.2.3 Output

Error/exception code - an indication of the problem if the email could not be sent. If the mail is successfully sent, but cannot be delivered the mail system will notify the sender using the standard mechanisms; the permitting system will not be notified.

3.1.3 Automatic Application Input Interface

The system will provide an interface that other permitting systems or even itself can use to create a Roadway Encroachment and Closure permit application.
3.1.3.1 Input

Applicant Identifier
Location
Event Description
Number of Participants
Start Date
End Date
Schedule Description
Waive Fee Indicator
Originating Permit Identifier

3.1.3.2 Process

The system will create an application record with the data provided.

3.1.3.3 Output

Error/Exception code - an indication of the problem if the application could not be added.

3.1.4 LDAP User Authentication Interface

3.1.4.1 Input

The following data will be required to authenticate a user.

User Id
Password
3.1.4.2 Process

The LDAP user authentication subsystem will communicate with the DOT LDAP server to process the authentication request.

3.1.4.3 Output

The LDAP server will provide:

An error code and message if not successful
User Name
Email Address
User Group

3.1.4.4 Output

Error/Exception code - an indication of the problem if the application could not be added.

3.2 Functional Requirements

3.2.1 Class Model

3.2.1.1 Application

An application records the information for a given permit.
3.2.1.1.1 Attributes

3.2.1.1.1.1 Status
This is an enumeration of states the application can be in:

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>State the application exists in prior to being picked up by a permit officer</td>
</tr>
<tr>
<td>Screening</td>
<td>The application is being screened by the permit officer for appropriateness and missing data.</td>
</tr>
<tr>
<td>Payment Requested</td>
<td>State the application is in after payment has been requested.</td>
</tr>
<tr>
<td>Application Complete</td>
<td>All information and fees for the application have been received, but the application has not been picked up by a reviewer.</td>
</tr>
<tr>
<td>In Review</td>
<td>The application is being reviewed by a reviewer.</td>
</tr>
<tr>
<td>Approved</td>
<td>The application has been approved and is awaiting a signature.</td>
</tr>
<tr>
<td>Issued</td>
<td>The application has been signed into a permit and issued.</td>
</tr>
<tr>
<td>Closed</td>
<td>The application has been closed.</td>
</tr>
</tbody>
</table>

3.2.1.1.1.2 Creation Date
The date the application was created.

3.2.1.1.1.3 Permitting Officer
An instance of a person that represents the DOT employee assigned to intake and process the permit application.

3.2.1.1.1.4 Application Number
A unique number generated by the system that identifies the application/permit.

3.2.1.1.1.5 Region
This is how the state is divided. The values are Northern, Central and Southeast.

3.2.1.1.1.6 Location
This is a description of the area affected by the closure or special event.

3.2.1.1.1.7 Status Change Date
This is the date the application entered its current status.

3.2.1.1.1.8 Fee
This is an instance of a fee that contains the amount charged for processing the application.

3.2.1.1.1.9 Payment
This is an instance of a payment that records the receipt of the fee.

3.2.1.1.1.10 Applicant
This is an instance of an applicant that contains the information about the person or organization/company applying for the permit.

3.2.1.1.1.11 Contacts
This is the list of contact persons for the application. One of which will be designated as the primary contact.

3.2.1.1.1.12 Last Update Date
This is the date of the last update to the application.
3.2.1.1.13  Expiration Date
This is the date the application will be closed, unless approved.

3.2.1.1.14  Provisions
These are a set of instances of general provisions, special provisions and special conditions.

3.2.1.1.15  Signature(s)
An indicator of whether all signatures have been received.

3.2.1.1.16  Reviewer Comments
This is the comments, suggestions, specific conditions required by the reviewer for the REC/HEP.

3.2.1.1.17  Event
This is an instance of a event that contains the data about the event.

3.2.1.1.18  Originating Permit
This is an instance of an associated application that required this dependant application to be generated.

3.2.1.1.19  Dependent Permit
This is an instance of an associated application that must be approved before this originating application can be approved.

3.2.1.1.20  Proof of Insurance
This is an indicator of whether the proof of insurance was delivered. Values are True and False.

3.2.1.1.21  Schedule
This is an instance of a schedule that contains dates and times for the closure or event.

3.2.1.1.22  Type
This is the type of application. Values are HEP or REC.

3.2.1.1.2  Actions

3.2.1.1.2.1  Create an Application
The required information to create an application is Applicant, Event Description, Schedule, Location, and Type. The Number of Participants is also required for a HEP application.

3.2.1.1.2.2  Close Application
Closes the application.

3.2.1.1.2.3  Expire Application
Closes an application if an expiration date is passed.

3.2.1.1.2.4  Update
This action provides the capability to update the application.

3.2.1.1.2.5  Request Payment
Generates a document to request a payment.

3.2.1.1.2.6  Assign to Permit Officer
The required information is a Permit Officer. This action assigns the application to a permit officer.

3.2.1.1.2.7  Change Permit Officer
This action provides for the capability to change the permit officer.

3.2.1.1.2.8  Set Fee
Required information is a Fee. Sets the fee for the application.
3.2.1.1.2.9  **Assign to Reviewer**
This action assigns the application to a reviewer.

3.2.1.1.2.10  **Change Reviewer**
This action provides for the capability to change the reviewing agent.

3.2.1.1.2.11  **Validate**
This action checks the application for valid entries and completion.

3.2.1.1.2.12  **Assign General Provisions**
This action provides the ability to assign a general provision to the application.

3.2.1.1.2.13  **Assign Special Provisions**
This action provides the ability to assign a special provision to the application.

3.2.1.1.2.14  **Assign Special Conditions**
This action provides the ability to assign special conditions to the application.

### 3.2.1.2  Applicant

An applicant is the organization/company or individual applying for the permit.

#### 3.2.1.2.1  **Attributes**

3.2.1.2.1.1  **Applicant Name**
Name of the applying business, government agency, non-profit organization/company, or individual.

3.2.1.2.1.2  **Applicant Type**
An enumeration of the type of applicant: Acceptable values are Organization/Company or Individual.

3.2.1.2.1.3  **Applicant Access Identifier**
This is the identification the applicant uses to identify themselves to the system. Length is eight, comprised of digits and characters.

3.2.1.2.1.4  **Applicant Access Password**
This is the text the applicants use to authenticate themselves to the system. The length is eight characters.

3.2.1.2.1.5  **Mailing Address**
An instance of address used for correspondence.

3.2.1.2.1.6  **Physical Address**
An instance of address used for giving the physical location of the applicant.

3.2.1.2.1.7  **Billing Address**
This is the billing address for the customer.

3.2.1.2.1.8  **Contacts**
An ordered list of Contacts; the first contact being the primary contact.

3.2.1.2.1.9  **Permit Date**
The date the permit is issued.

#### 3.2.1.2.2  **Action**

3.2.1.2.2.1  **Change Password**
This action gives the ability to change the users password.
3.2.1.2.2  Get Password  
This action allows a DOT employee to generate a password for a user.

3.2.1.2.2.3  Create Applicant  
This action creates an entry for an applicant.

3.2.1.2.2.4  Update Applicant  
This action provides the ability to update an applicant.

3.2.1.2.2.5  Delete Applicant  
This action provides the ability to delete an applicant from the system.

3.2.1.3  Contact  

  The contact person to which all communication regarding the application is to be addressed.

3.2.1.3.1  Attributes  

3.2.1.3.1.1  First Name  
The first name of the contact person.

3.2.1.3.1.2  Last Name  
The last name of the contact person.

3.2.1.3.1.3  Email Address  
This is the email address used to send electronic mail to the contact person.

3.2.1.3.1.4  Phone Number  
This is the phone number. This is all numeric and the length is 10 digits.

3.2.1.3.1.5  Fax Number  
This is a fax phone number. This is all numeric and the length is 10 digits.

3.2.1.3.2  Actions  

3.2.1.3.2.1  Send email  
Required information is the message content.

3.2.1.4  Address  

  The collection of data elements concerning the location of a business, individual or agency.

3.2.1.4.1  Attributes  

3.2.1.4.1.1  Street Address  
This is the first line of the address.
3.2.1.4.1.2 Apartment/Suite/Space
This is the second line of the address. May not be used of the first line is blank.

3.2.1.4.1.3 City
This is the city name.

3.2.1.4.1.4 State
This is the state two character abbreviation.

3.2.1.4.1.5 Country
This is the country three character abbreviation, it will default to USA.

3.2.1.4.1.6 Postal
This is the zip code. The length is nine digits all numeric.

3.2.1.4.2 Actions
3.2.1.4.2.1 Create Address
This action provides the ability to create an address entry.

3.2.1.4.2.2 Update Address
This action provides the ability to update an address entry.

3.2.1.4.2.3 Delete Address
This action provides the ability to delete an address entry from the system.

3.2.1.4.2.4 Output Address
This action provides the ability to output the address in a given format the format is as an address label.

3.2.1.5 Fee
This class represents a fee associated with a permitting process.

3.2.1.5.1 Attributes
3.2.1.5.1.1 Amount
This is the amount charged for processing the application in dollars and cents.

3.2.1.5.1.2 Waiver Indicator
An indicator showing that the fee has been waived. [or might be on Payment]

3.2.1.6 Payment
This class represents a payment for a fee.

3.2.1.6.1 Attributes
3.2.1.6.1.1 Amount
This is the amount paid for the application in dollars and cents.
3.2.1.6.1.2 Form of Payment
This is an enumeration with the following values: Check, Credit Card, Draft and Money Order.

3.2.1.7 Fee Schedule

This class determines the amount of the fee for the permit based on a schedule.

3.2.1.7.1 Attributes

3.2.1.7.1.1 Identifier
This attribute uniquely identifies a fee with an associated type of permit application.

3.2.1.7.1.2 Associated Fee
This is a fee for a given permit application.

3.2.1.7.2 Actions

3.2.1.7.2.1 Get Fee amount for application
This action provides the ability to retrieve a fee associated with a permit application.

3.2.1.8 Schedule

This class contains the dates and times for events or closures. The times and dates may be non-contiguous.

3.2.1.8.1 Attributes

3.2.1.8.1.1 Start Date
The date the event is scheduled to start.

3.2.1.8.1.2 End Date
The date the event is scheduled to end.

3.2.1.8.1.3 Schedule Description
This is the time and other descriptive characteristics of the event schedule.

3.2.1.8.2 Actions

3.2.1.8.2.1 Create Schedule
This action provides the ability to create a schedule for an event.

3.2.1.8.2.2 Update Schedule
This action provides the ability to update a schedule.

3.2.1.8.2.3 Delete Schedule
This action provides the ability to delete a schedule.
3.2.1.8.2.4 Check Schedule for Conflicts
This action provides the ability to check for conflicting schedules.

3.2.1.8.2.5 Display Schedule Events for a given Date/Date Range
This action provides the ability to display events already scheduled for a given date or date range.

3.2.1.9 Event

This class contains the dates about the event for which the permit is being applied.

3.2.1.9.1 Attributes

3.2.1.9.1.1 Event Description
The description of the event.

3.2.1.9.1.2 Number of Participants
The number of participants expected for the event.

3.2.1.9.2 Actions

3.2.1.9.2.1 Create Event
This action provides the ability to create a schedule for an event.

3.2.1.9.2.2 Update Event
This action provides the ability to update a schedule.

3.2.1.9.2.3 Delete Event
This action provides the ability to delete a schedule.

3.2.1.10 Permit Officer

This class represents a permit officer within the system.

3.2.1.10.1 Attributes

3.2.1.10.1.1 First Name
This is the first name of the Permit Officer.

3.2.1.10.1.2 Last Name
This is the last name of the Permit Officer.

3.2.1.10.1.3 Region
This is the region the Permit Officer is assigned to. This is an enumerated value of Northern, Central and Southeastern.

3.2.1.10.2 Actions

3.2.1.10.2.1 Create Permit Officer
This action provides the ability to create a permit officer in the system.
3.2.1.10.2.2 Update Permit Officer
This action provides the ability to update the data of a permit officer.

3.2.1.10.2.3 Delete Permit Officer
This action provides the ability to delete a permit officer from the system.

3.2.11 Reviewer

This class represents a review agent within the system.

3.2.11.1 Attributes

3.2.11.1.1 First Name
This is the first name of the Reviewer.

3.2.11.1.2 Last Name
This is the last name of the Reviewer.

3.2.11.1.3 Region
This is the region the Reviewer is assigned to. This is an enumerated value of Northern, Central and Southeastern.

3.2.11.1.4 Station
This is an enumerated list of possible satellite stations for DOT.

3.2.11.1.5 Supervisor
This is the reviewers supervisor.

3.2.11.2 Actions

3.2.11.2.1 Create Reviewer
This action provides the ability to create a reviewer in the system.

3.2.11.2.2 Update Reviewer
This action provides the ability to update the data of a reviewer.

3.2.11.2.3 Delete Reviewer
This action provides the ability to delete a reviewer from the system.

3.2.12 Review Request

This class represents a request for a review of the application.

3.2.12.1 Attributes

3.2.12.1.1 Reviewer
The person responsible for the review.
3.2.1.12.1.2 Disposition
This is an enumeration of possible dispositions for the review. Possible values are Not Dispositioned, Approved, and Denied.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Dispositioned</td>
<td>The review has not been completed.</td>
</tr>
<tr>
<td>Approved</td>
<td>The reviewer approves the application.</td>
</tr>
<tr>
<td>Denied</td>
<td>The reviewer rejects the application as unacceptable.</td>
</tr>
</tbody>
</table>

3.2.1.12.1.3 Comments
The reviewers comments regarding the reviewed application.

3.2.1.12.2 Actions

3.2.1.12.2.1 Get Comment
Returns the reviewers comments.

3.2.1.12.2.2 Change Comment
Required information the new comment text.

3.2.1.12.2.3 Set Reviewer
Required information is a Reviewer.

3.2.1.12.2.4 Set Disposition
Required information is a valid disposition enum.

3.2.1.13 General Provision
This class contains provisions about events and lane closures that apply to all permits.

3.2.1.13.1 Attributes

3.2.1.13.1.1 Provision Description
This is a detailed description of the provision of the permit.

3.2.1.13.1.2 Name
This is a short name to identify the provision.

3.2.1.13.2 Actions

3.2.1.13.2.1 Create Provision
This action provides the ability to create a general provision in the system.

3.2.1.13.2.2 Update Provision
This action provides the ability to update a general provision.

3.2.1.13.2.3 Delete Provision
This action provides the ability to delete a general provision.

3.2.1.13.2.4 Retrieve Provision
This action provides the ability to retrieve a general provision.
3.2.1.14 Special Provision

This class contains provisions about events and lane closures that a reviewer can attach to a permit.

3.2.1.14.1 Attributes

3.2.1.14.1.1 Provision Description
This is a detailed description of the special provision of the permit.

3.2.1.14.1.2 Name
This is a short name to identify the provision.

3.2.1.14.2 Actions

3.2.1.14.2.1 Create Provision
This action provides the ability to create a special provision in the system.

3.2.1.14.2.2 Update Provision
This action provides the ability to update a special provision.

3.2.1.14.2.3 Delete Provision
This action provides the ability to delete a special provision.

3.2.1.14.2.4 Retrieve Provision
This action provides the ability to retrieve a special provision.

3.2.1.15 Special Condition

This class contains the special conditions that the reviewer attaches to the permit for approval.

3.2.1.15.1 Attributes

3.2.1.15.1.1 Condition Description
This is a detailed description of the condition of the permit.

3.2.1.15.1.2 Reviewer
This is the reviewer that wrote the special condition

3.2.1.15.1.3 Notes
Additional reviewer notes about the condition, for example that the condition has been satisfied.

3.2.1.15.2 Actions

3.2.1.15.2.1 Create Provision
This action provides the ability to create a special condition in the system.

3.2.1.15.2.2 Update Provision
This action provides the ability to update a special condition.
3.2.1.15.2.3 Delete Provision
This action provides the ability to delete a special condition.

3.2.1.15.2.4 Retrieve Provision
This action provides the ability to retrieve a special condition.

3.2.1.15.2.5 Assign Reviewer
This action provides the ability to assign the reviewer that authored the special condition.

3.2.2 Business Rules

3.2.2.1 Dual Permit Rule

For a Highway Event permit application, if a traffic control plan is required and the police will perform traffic control, then an additional Roadway Encroachment and Closure permit application will be generated using the automatic interface.

3.2.2.2 DOT Inter-Divisional Permitting

HEP/REC does NOT require a REC if work is being performed by M&O or another DOT agency. A REC is required if the DOT agency is using a contractor to perform the work. For all other (non-DOT) agencies a REC is required.

3.2.2.3 Review Assignment

Reviews are assigned to a regions group review queue. Applications for review are selected from the review queue by individuals from the group.

3.2.2.4 Review Escallation

When a reviewer has an application in for review longer than the allotted time, the reviewers supervisor is notified by the system.
3.3 Performance Requirements

3.4 Logical Database Requirements

3.4.1 Conversion Requirements

Current permits will need to be loaded to the system in order to process renewals. In addition, existing permits can affect eligibility determinations for new applications. Current system is manual, so data will have to be keyed into the system by hand and some database fields may need to be patched.

3.5 Design Constraints

3.5.1 Database

The standard database for DOT/PF systems is Oracle running on Unix servers. Oracle provides a robust and scalable relational database management system capability. The application system specified by this SRS shall be implemented using Oracle as its database.

3.5.2 Application Architecture

The Department has defined a systems architecture for web based systems utilizing Oracle as the database, an application server where most of the business logic resides, CORBA middleware providing an interface to the application server, and web servers to provide the presentation of the application to users via web browsers. Communications from the web server to the applications server are to be accomplished through the CORBA interface in order to provide consistent access control, monitoring, and problem notification. The application system specified by this SRS shall be implemented using the DOT/PF CORBA systems architecture.
3.5.3 Development Language

The Department’s preferred development language is Java. While other language can be used with a CORBA application architecture the Java language is in fairly common use, a significant number of programmers have experience with it, it has object oriented features which contribute to building reliable software, a large number of third party vendors provide tools which interface with Java, and it runs on both the Department’s Unix servers and on Windows workstations.

3.5.4 Web Server

The Department’s preferred web server for implementing secure, encrypted systems is Netscape Enterprise server.

3.5.5 LDAP User Authentication

The Department uses an LDAP server to provide user id and password authentication for application systems. The right of way HEP/REC system application shall use the LDAP server to authenticate user ids if authentication is needed.

In addition the LDAP server associates users with groups and privilege. The granting of permit officer and reviewer authorizations should be done through the LDAP mechanism. Email addresses for permit officers should also be retrieved from this service, rather than storing them separately in an application database.

3.6 Software System Attributes

3.6.1 Reliability Requirements

3.6.2 Availability Requirements
3.6.3 Security Requirements

3.6.3.1 Browser Interface Security

Since the permitting system will allow end users outside the Department of Transportation to enter sensitive data such as passwords and credit card numbers, the data streams should be encrypted.

3.6.3.2 Credit Card Numbers

The permitting system will accept credit card numbers in order to process electronic payments. Credit card numbers are sensitive data, if they are stored in the database they should be stored in an encrypted form.

3.6.4 Maintainability Attributes