1 XML Schema

[This document is an excerpt from a future NIST specification on a common data format for voter records interchange (VRI) this specification has the goal of furthering interoperability between voter registration databases and applications such as electronic pollbooks, online voting portals, and election management systems (EMS). The specification will additionally include support for exchanges between voter registration databases and ERIC (the Electronic Registration Information Center).]

This section contains documentation and discussion of the features included in the VRI XML schema.

In the sections below, an XML element or enumeration name is denoted using italics and angle brackets, e.g., *<ElectionReport>* or *<ReportingUnitType>*. Attributes, enumeration values, or other XML syntax are in italics, e.g., *label* or *geo-json*. An element is sometimes referred to as a "sub-element" when it is included in another element, e.g., *<Election>* is a sub-element of *<ElectionReport>*. "Includes" is used to denote that an element contains another element as a sub-element, e.g., *<ElectionReport>* includes *<Election>*.

1.1 Schema Stylistic Conventions

The XML schema was written observing the following stylistic conventions:

- Element, attribute, enumeration, and primitive names observe variations of "CamelCase" conventions[1], that is:
  - Element and enumeration names begin with a capital letter and the names that consist of multiple words are concatenated and each word begins with a capital letter, thus "CamelCase". For example, *<VoterRegistration>*.
  - Attribute names begin with a non-capital (lower-case) letter and the names that consist of multiple words are concatenated, with the first word beginning in a non-capital letter and subsequent words beginning in a capital letter, thus "camelCase". For example, *mimeType*.
- Enumeration value names are in non-capital letters, and names that consist of multiple words are separated by hyphens. For example, *1-of-n*.
- Element, attribute, and enumeration value ordering is generally alphabetical, with the following exceptions:
  - *<EndDate>* follows element names such as *<StartDate>*, or *<OtherType>* follows *<Type>*.
  - If there is an enumeration value of *other*, it comes last in the list of values.

[1] See https://en.wikipedia.org/wiki/CamelCase.

1.2 Imports

The schema (and instance files) imports two external schemas:

1. The W3C digital signature schema, used in the optional *<Signature>* sub-element of *<VoterRecordsRequest>* and *<VoterRecordsResponse>* to include a digital signature on XML instance files.
2. The Federal Geographic Data Committee (FGDC) address schema [10], which contains 11 types of addresses that are used to specify postal and registration addresses for voters, used in the *<VoterRegistration>* and other elements.

Schema Definition:

```
<!-- ========== Imports ========== -->
<xsd:import namespace=http://www.fgdc.gov/schemas/address/addr schemaLocation=
 "addr.xsd"/>
<xsd:import namespace=http://www.w3.org/2000/09/xmldsig# schemaLocation=
 "http://www.w3.org/2000/09/xmldsig#"/>
```

1.3 Roots

The schema contains two root elements:

1. *<VoterRecordsRequest>*, used as a root for registration request transactions.
2. *<VoterRecordsResponse>*, used as a root for registration response transactions.

Schema Definition:

```
<!-- ========== Roots ========== -->
<xsd:element name="VoterRecordsRequest" type="VoterRecordsRequest"/>
<xsd:element name="VoterRecordsResponse" type="VoterRecordsResponse"/>
```

1.4 Enumerations

The following sections deal with the enumerations (i.e., simple types) in the schema, which are generated from the enumerations in the UML models.

1.4.1 The AbsenteeBallotRequestSemantics Enumeration

Used in ***request*** transactions.

Enumeration for requests from a voter or a third party for an absentee ballot, used in the *<Semantics>* sub-element of *<AbsenteeBallotRequest>.* The request can be part of an FPCA form registration or be submitted independently.

Table 1.1 – Values for <AssertionValue>

Value	Value Description
request-ab-for-next-election	For a voter's request for an absentee ballot only for the next election.
request-ab-for-specified-elections	For only certain specified elections.
request-ab-for-all-elections-this-year	For all elections in this calendar year.
request-permanent-absentee-status	For a request for a permanent absentee status.
request-permanent-vote-by-mail-status	For a request for a permanent voter-by-mail status.
unknown	

Schema Definition:

```
<xsd:simpleType name="AbsenteeBallotRequestSemantics">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="request-ab-for-next-election"/>
    <xsd:enumeration value="request-ab-for-specified-elections"/>
    <xsd:enumeration value="request-ab-for-all-elections-this-year"/>
    <xsd:enumeration value="request-permanent-absentee-status"/>
    <xsd:enumeration value="request-permanent-vote-by-mail-status"/>
    <xsd:enumeration value="unknown"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.2 The AssertionValue Enumeration

Used in ***request*** transactions.

Enumeration for assertions from a voter or a third party as a department of motor vehicles (DMV) in response to questions on a registration form, used in the *<Assertion>* sub-element of *<VoterClassification>.*

Table 1.2 – Values for <AssertionValue>

Value	Value Description
no	For a voter's assertion of "no" or "false".
yes	For a voter's assertion of "yes" or "true".
unknown	For a voter's assertion of "unknown".

Schema Definition:

```
<xsd:simpleType name="AssertionValue">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="no"/>
    <xsd:enumeration value="yes"/>
    <xsd:enumeration value="unknown"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.3 The BallotReceiptMethod Enumeration

Used in ***request*** transactions.

Enumeration for methods for delivering a ballot to the voter, used in the *<BallotReceiptPreference>* sub-element of *<VoterRegistration>*.

Table 1.3 – Values for <BallotReceiptMethod>

Value	Value Description
Email-or-online	For electronic mail or downloadable.
fax	For use of a fax.
mail	For postal mail.

Schema Definition:

```
<xsd:simpleType name="BallotReceiptMethod">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="email-or-online"/>
    <xsd:enumeration value="mail"/>
    <xsd:enumeration value="fax"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.4 The ContactMethodType Enumeration

Used in ***request*** AND ***response*** transactions.

Enumeration for methods for contacting a voter, used in the *<Type>* sub-element of *<ContactMethod>*.

Table 1.4 – Values for <ContactMethodType>

Value	Value Description
email	For electronic mail.
phone	For use of a phone.
other	Used when the type of contact method is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="ContactMethodType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="email"/>
    <xsd:enumeration value="phone"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.5 The IdentifierType Enumeration

Used in ***request*** transactions.

Enumeration for election data-related codes in the *<ExternalIdentifiers>* element[2].

Table 1.5 – Values for <IdentifierType>

Value	Value Description
fips	For FIPS codes.
local-level	For a code that is specific to a county or other similar locality.
national-level	For a code that is used at the national level other than *ocd-id*.
ocd-id	For Open Civic Data identifiers.
state-level	For a code that is specific to a state.
other	Used when the type of code is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="IdentifierType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="fips"/>
    <xsd:enumeration value="local-level"/>
    <xsd:enumeration value="national-level"/>
    <xsd:enumeration value="ocd-id"/>
    <xsd:enumeration value="state-level"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

[2] A future version of this schema may incorporate a registry of election data-related codes.

1.4.6 The PhoneCapability Enumeration

Used in ***request*** AND ***response*** transactions.

Enumeration for telephone capabilities, used in the *<Capability>* sub-element of *<PhoneContactMethod>*.

Table 1.6 – Values for <PhoneCapability>

Value	Value Description
fax	For telephones that include facsimile capabilities.
mms	For telephones that contain Multimedia Messaging Service (MMS) capabilities.
sms	For telephones that contain Short Messaging Service (SMS) capabilities.
voice	For telephones that contain voice capabilities.

Schema Definition:

```
<xsd:simpleType name="PhoneCapability">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="fax"/>
    <xsd:enumeration value="mms"/>
    <xsd:enumeration value="sms"/>
    <xsd:enumeration value="voice"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.7 The RegistrationError Enumeration

Used in ***response*** transactions.

Enumeration for registration-related errors, used in the *<Error>* sub-element of *<RegistrationRejection>*.

Table 1.7 – Values for <RegistrationError>

Value	Value Description
identity-lookup-failed	A lookup on the voter's identity failed.
incomplete	The registration request is incomplete.
incomplete-address	An address is incomplete.
incomplete-name	The voter's name is incomplete.
ineligible	The voter is ineligible to be registered.
invalid-form	The registration form specified is invalid.
no-birth-date	The registration request does not contain a birthdate.
no-signature	The registration request does not contain a signature.
other	Used when the type of error is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="RegistrationError">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="identity-lookup-failed"/>
    <xsd:enumeration value="incomplete"/>
    <xsd:enumeration value="incomplete-address"/>
    <xsd:enumeration value="incomplete-name"/>
    <xsd:enumeration value="ineligible"/>
    <xsd:enumeration value="invalid-form"/>
    <xsd:enumeration value="no-birth-date"/>
    <xsd:enumeration value="no-signature"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
```

1.4.8 The RegistrationForm Enumeration

Used in ***request*** transactions.

Enumeration for types of registration forms, used in the *<RegistrationForm>* sub-element of *<VoterRecordsRequest>*.

Table 1.8 – Values for <RegistrationForm>

Value	Value Description
fpca	For the Federal Post Card Application form.
nvra	For the National Voter Registration Act form.
other	Used when the type of form is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="RegistrationForm">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="fpca"/>
    <xsd:enumeration value="nvra"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.9 The RegistrationHelperType Enumeration

Used in ***request*** transactions.

Enumeration for types of registration helpers, used in the *<Type>* sub-element of *<RegistrationHelper>*.

Table 1.9 – Values for <RegistrationForm>

Value	Value Description
assistant	For a registration assistant.
witness	For a witness, only.

Schema Definition:

```
<xsd:simpleType name="RegistrationHelperType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="assistant"/>
    <xsd:enumeration value="witness"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.10 The RegistrationMethod Enumeration

Used in ***request*** transactions.

Enumeration for the method used by the voter to register, used in the *<RegistrationMethod>* sub-element of *<VoterRegistration>*.

Table 1.10 – Values for <RegistrationMethod>

Value	Value Description
armed-forces-recruitment-office	The voter assisted by an armed forces recruitment office.
motor-vehicle-office	The voter via an MVA/DMV.
other-agency-designated-by-state	The voter assisted by an unspecified state-designated agency.
public-assistance-office	The voter assisted by a public assistance office.
registration-drive-from-advocacy-group-or-political-party	The voter via a registration drive.
state-funded-agency-serving-persons-with-disabilities	The voter assisted by a state-designated agency serving persons with disabilities.
voter-via-election-registrars-office	The voter via an election or registrar's office.
voter-via-email	The voter via email.
voter-via-fax	The voter via fax.
voter-via-internet	The voter via the Internet, e.g., a website.
voter-via-mail	The voter via postal mail.
unknown	
other	Used when the type of method is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="RequestSourceType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="armed-forces-recruitment-office"/>
    <xsd:enumeration value="motor-vehicle-office"/>
    <xsd:enumeration value="other-agency-designated-by-state"/>
    <xsd:enumeration value="public-assistance-office"/>
    <xsd:enumeration value="registration-drive-from-advocacy-group-or-political-party"/>
    <xsd:enumeration value="state-funded-agency-serving-persons-with-disabilities"/>
    <xsd:enumeration value="voter-via-election-registrars-office"/>
    <xsd:enumeration value="voter-via-email"/>
    <xsd:enumeration value="voter-via-fax"/>
    <xsd:enumeration value="voter-via-internet"/>
    <xsd:enumeration value="voter-via-mail"/>
    <xsd:enumeration value="unknown"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.11 The RegistrationProxy Enumeration

Used in ***request*** transactions.

Enumeration for the proxy used for the voter's registration request, used in the *<Type>* sub-element of *<RegistrationProxy>*.

Table 1.11 – Values for <RegistrationProxy>

Value	Value Description
armed-forces-recruitment-office	The voter assisted by an armed forces recruitment office.
motor-vehicle-office	The voter via an MVA/DMV.
other-agency-designated-by-state	The voter assisted by an unspecified state-designated agency.
public-assistance-office	The voter assisted by a public assistance office.
registration-drive-from-advocacy-group-or-political-party	The voter via a registration drive.
state-funded-agency-serving-persons-with-disabilities	The voter assisted by a state-designated agency serving persons with disabilities.
other	Used when the type of source is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="RegistrationProxyType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="armed-forces-recruitment-office"/>
    <xsd:enumeration value="motor-vehicle-office"/>
    <xsd:enumeration value="other-agency-designated-by-state"/>
    <xsd:enumeration value="public-assistance-office"/>
    <xsd:enumeration value="registration-drive-from-advocacy-group-or-political-party"/>
    <xsd:enumeration value="state-funded-agency-serving-persons-with-disabilities"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.12 The RegistrationRequestType Enumeration

Used in ***request*** transactions.

Enumeration for the type of voter records request, used in the *<Type>* sub-element of *<VoterRecordsRequest>*.

Table 1.12 – Values for <RegistrationRequestType>

Value	Value Description
registration	For a voter registration request.
other	Used when the type of request is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="RegistrationRequestType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="registration"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.13 The ReportingUnitType Enumeration

Used in ***request*** AND ***response*** transactions.

Enumeration for the type of geopolitical unit, used in the *<Type>* sub-element in the *<ReportingUnit>* element[3].

Table 1.13 – Values for <ReportingUnitType>

Value	Value Description
ballot-batch	Used for reporting batches of ballots that may cross precinct boundaries.
ballot-style-area	Used for a ballot style areas generally composed of precincts
borough	Used in CT, NJ, PA, other states, and New York City for boroughs. For AK and LA, see county.
city	Used for a city that reports results and/or for the district that encompasses it.
city-council	Used for city council districts.
combined-precinct	Used for one or more precincts that have been combined for the purposes of reporting. Used for "Ward" if "Ward" is used interchangeably with "CombinedPrecinct".
congressional	Used for U.S. Congressional districts.
county	Used for a county and/or for the district that encompasses it. In AK, used for counties that are called boroughs. In LA, used for parishes.
county-council	Used for county council districts.
drop-box	Used for a dropbox for absentee ballots.
judicial	Used for judicial districts.
municipality	Used as applicable for various units such as towns, townships, villages that report votes and/or for the district that encompasses it.
polling-place	Used for a polling place.
precinct	Used also for "Ward" or "District" when these terms are used interchangeably with "Precinct".
school	Used for a school district.
special	Used for a special district.
split-precinct	Used for splits of precincts.
state	Used for a state and/or for the district that encompasses it.
state-house	Used for a state house or assembly district.
state-senate	Used for a state senate district.
town	Used in some New England states as a type of municipality that reports votes and/or for the district that encompasses it.

[3] A future version of this schema may specify geographies differently using a structured registry of defined types.

Value	Value Description
township	Used in some mid-western states as a type of municipality that reports votes and/or for the district that encompasses it.
utility	Used for a utility district.
village	Used as a type of municipality that reports votes and/or for the district that encompasses it.
vote-center	Used for a vote center.
ward	Used for combinations or groupings of precincts or other units.
water	Used for a water district.
other	Used for other types of reporting units not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="ReportingUnitType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="ballot-batch"/>
    <xsd:enumeration value="ballot-style-area"/>
    <xsd:enumeration value="borough"/>
    <xsd:enumeration value="city"/>
    <xsd:enumeration value="city-council"/>
    <xsd:enumeration value="combined-precinct"/>
    <xsd:enumeration value="congressional"/>
    <xsd:enumeration value="county"/>
    <xsd:enumeration value="county-council"/>
    <xsd:enumeration value="drop-box"/>
    <xsd:enumeration value="judicial"/>
    <xsd:enumeration value="municipality"/>
    <xsd:enumeration value="polling-place"/>
    <xsd:enumeration value="precinct"/>
    <xsd:enumeration value="school"/>
    <xsd:enumeration value="special"/>
    <xsd:enumeration value="split-precinct"/>
    <xsd:enumeration value="state"/>
    <xsd:enumeration value="state-house"/>
    <xsd:enumeration value="state-senate"/>
    <xsd:enumeration value="town"/>
    <xsd:enumeration value="township"/>
    <xsd:enumeration value="utility"/>
    <xsd:enumeration value="village"/>
    <xsd:enumeration value="vote-center"/>
    <xsd:enumeration value="ward"/>
    <xsd:enumeration value="water"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.14 The SignatureSource Enumeration

Used in ***request*** transactions.

Enumeration for source of the voter's signature, used in the *<Source>* sub-element of *<Signature>*.

Table 1.14 – Values for <SignatureSource>

Value	Value Description
dmv	For the department of motor vehicles, motor vehicle authority.
local	For an unspecified local source.
state	For an unspecified state source.
voter	The voter has included a signature on the form.
other	Used when the source of the signature is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="Source">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="dmv"/>
    <xsd:enumeration value="local"/>
    <xsd:enumeration value="state"/>
    <xsd:enumeration value="voter"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.15 The SignatureType Enumeration

Used in ***request*** transactions.

Enumeration for the type of voter signature, used in the *<Type>* sub-element of *<Signature>*.

Table 1.15 – Values for <SignatureType>

Value	Value Description
digital	For a digital signature.
dynamic	For use with biometrics or other artifacts captured as part of the act of the voter signing the registration form.
electronic	For a facsimile of the signature applied to a marking surface, e.g., paper.
other	Used when the type of signature is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="SignatureType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="digital"/>
    <xsd:enumeration value="dynamic"/>
    <xsd:enumeration value="electronic"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.16 The SuccessAction Enumeration

Used in ***response*** transactions.

Enumeration for a response to a voter records request, indicating that the response to the request is successful and the action that occurred, used in the *<Action>* sub-element of *<RegistrationSuccess>*. The success action may not necessarily match the requested action, as noted in section 1.6.20.3).

Table 1.16 – Values for <SuccessAction>

Value	Value Description
address-updated	For indicating that an address was updated.
name-updated	For indicating that a name was updated.
registration-cancelled	For indicating that a registration was cancelled.
registration-created	For indicating that a registration was created.
registration-updated	For indicating that a registration was updated.
status-updated	For indicating that a registration status was updated.
other	Used for other types of success actions not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="SuccessAction">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="address-updated"/>
    <xsd:enumeration value="name-updated"/>
    <xsd:enumeration value="registration-cancelled"/>
    <xsd:enumeration value="registration-created"/>
    <xsd:enumeration value="registration-updated"/>
    <xsd:enumeration value="status-updated"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.17 The VoterClassificationType Enumeration

Used in ***request*** transactions.

Enumeration for voter status classifications, used in the *<Type>* sub-element of *<VoterClassification>*. Whether the voter status, e.g., *18-on-election-day*, is true, false, or unknown depends on the value of the *<Assertion>* sub-element.

Table 1.17 – Values for <VoterClassificationType>

Value	Value Description
eighteen-on-election-day	The voter will be 18 on election day.
deceased	The voter is deceased.
declared-incompetent	The voter has been declared incompetent.
disabled	The voter is disabled.
non-felon	The voter is not a felon.
permanently-denied	The voter has not been permanently denied.
protected	The voter status is protected.
restored-felon	The voter is a restored felon.
united-states-citizen	The voter is a United States citizen.
other	Used when the type of voter classification is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="VoterClassificationType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="eighteen-on-election-day"/>
    <xsd:enumeration value="deceased"/>
    <xsd:enumeration value="declared-incompetent"/>
    <xsd:enumeration value="disabled"/>
    <xsd:enumeration value="non-felon"/>
    <xsd:enumeration value="permanently-denied"/>
    <xsd:enumeration value="protected"/>
    <xsd:enumeration value="restored-felon"/>
    <xsd:enumeration value="united-states-citizen"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.4.18 The VoterIdType Enumeration

Used in ***request*** transactions.

Enumeration for the type of voter ID, used in the *<Type>* sub-element of *<VoterId>*.

Table 1.18 – Values for <VoterIdType>

Value	Value Description
drivers-license	Used for a driver's license.
local-voter-registration-id	Used for a local voter registration ID.
ssn	Used for a complete Social Security number.
ssn4	Used for the last four digits of a Social Security number.
state-id	Used for a state ID that is not a state voter registration ID.
state-voter-registration-id	Used for a state's voter registration ID.
unspecified-document-with-name-and-address	Used for a document that contains the voter's name and address, such as a utility bill.
unspecified-document-with-photo-identification	Used for a document that contains a photograph of the voter.
unknown	
other	Used when the type of ID is not included in this enumeration.

Schema Definition:

```
<xsd:simpleType name="VoterIdType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="drivers-license"/>
    <xsd:enumeration value="local-voter-registration-id"/>
    <xsd:enumeration value="unspecified-document-with-name-and-address"/>
    <xsd:enumeration value="unspecified-document-with-photo-identification"/>
    <xsd:enumeration value="ssn"/>
    <xsd:enumeration value="ssn4"/>
    <xsd:enumeration value="state-id"/>
    <xsd:enumeration value="state-voter-registration-id"/>
    <xsd:enumeration value="unknown"/>
    <xsd:enumeration value="other"/>
  </xsd:restriction>
</xsd:simpleType>
```

1.5 Interfaces

The UML model includes an interface to the FGDC address schema, which permits any one of the 11 address subtypes to be used in any of the address elements that are of type *<Address>*.

Schema Definition:

```
<xsd:group name="Address">
  <xsd:choice>
    <xsd:element name="CommunityAddress_type"
     type="addr:CommunityAddress_type"/>
    <xsd:element name="FourNumberAddressRange_type"
     type="addr:FourNumberAddressRange_type"/>
    <xsd:element name="GeneralAddressClass_type"
     type="addr:GeneralAddressClass_type"/>
    <xsd:element name="IntersectionAddress_type"
     type="addr:IntersectionAddress_type"/>
    <xsd:element name="LandmarkAddress_type"
     type="addr:LandmarkAddress_type"/>
    <xsd:element name="NumberedThoroughfareAddress_type"
     type="addr:NumberedThoroughfareAddress_type"/>
    <xsd:element name="TwoNumberAddressRange_type"
     type="addr:TwoNumberAddressRange_type"/>
    <xsd:element name="USPSGeneralDeliveryOffice_type"
     type="addr:USPSGeneralDeliveryOffice_type"/>
    <xsd:element name="USPSPostalDeliveryBox_type"
     type="addr:USPSPostalDeliveryBox_type"/>
    <xsd:element name="USPSPostalDeliveryRoute_type"
     type="addr:USPSPostalDeliveryRoute_type"/>
    <xsd:element name="UnnumberedThoroughfareAddress_type"
     type="addr:UnnumberedThoroughfareAddress_type"/>
  </xsd:choice>
</xsd:group>
```

1.6 Classes (Elements)

The following sections deal with the elements (i.e., complex types) in the schema, which are generated from the UML model classes.

1.6.1 The <AbsenteeBallotRequest> Element

Used in ***request*** transactions.

<VoterRecordsRequest> optionally includes this element for absentee ballot requests made with the FPCA form registration requests or made independently.

The *<Semantics>* sub-element is used to hold the type of absentee ballot request, using the *AbsenteeBallotRequestSemantics* enumeration.

Table 1.19 – Elements for <AbsenteeBallotRequest>

Element	Multiplicity	Type	Element Description
<Semantics>	1	AbsenteeBallotRequestSemantics	The type of request, e.g., *request-ab-for-next-election.*
<SpecifiedElection>	0 or more	Election	For specifying the election pertaining to the ballot request.

Schema definition:

```
<xsd:complexType name="AbsenteeBallotRequest">
  <xsd:sequence>
    <xsd:element name="Semantics" type="AbsenteeBallotRequestSemantics"/>
    <xsd:element name="SpecifiedElection" type="Election" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.2 The <AdditionalInfo> Element

Used in ***request*** transactions.

<VoterRegistration> optionally includes this element for specifying information not addressed in this schema by other elements and attributes, e.g., state-specific information that does not "fit" in any other element. The information will thus be highly specific to the generating application, and consuming applications must "know" the meaning of the information to make use of it. For this reason, use of this element is discouraged as much as is possible.

The *<StringValue>* and *<FileValue>* sub-elements are both optional, however at least one of them must be included.

Table 1.20 – Elements for <AdditionalInfo>

Element	Multiplicity	Type	Element Description
<Name>	1	xsd:string	Name of the value.
<FileValue>	0 or 1	xsd:string	Used if the value is in a file; contains the filename.
<StringValue>	0 or 1	xsd:string	Used if the value is a string; contains the string.

Schema definition:

```
<xsd:complexType name="AdditionalInfo">
  <xsd:sequence>
    <xsd:element name="FileValue" type="File" minOccurs="0"/>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="StringValue" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.3 The <ContactMethod> Element/Extension Base

Used in ***request*** and ***response*** transactions.

<ElectionAdministration> optionally includes this element to specify how to contact the election administration.

<VoterRegistration> optionally includes this element to specify the method for contacting a voter regarding the voter's registration request. If the voter can be contacted in multiple ways, the application creating the XML instance file should order the occurrences of *<ContactMethod>* by priority.

The *<PhoneContactMethod>* element uses *<ContactMethod>* as an extension base (see section 1.6.13), thus *<ContactMethod>* can be used with *xsi:type="PhoneContactMethod"* when the contact method is for a telephone and it is necessary to describe the capabilities of the telephone. For example, to indicate that a telephone number can receive voice and text messages, the following could be used:

```
<ContactMethod xsi:type="PhoneContactMethod">
  <Capability>sms</Capability>
  <Capability>voice</Capability>
  <Type>phone</Type>
  <Value>304-123-4567</Value>
</ContactMethod>
```

The *<Capability>* sub-element is provided by the *<PhoneContactMethod>* element.

Table 1.21 – Attributes for <ContactMethod>

Attribute	Required	Type	Attribute Description
xsi:type="PhoneContactMethod"	no	xsi:type	Used to describe capabilities of the telephone when contact method is for a telephone. See section 1.6.13 for additional elements specific to this usage.

Table 1.22 – Elements for <ContactMethod>

Element	Multiplicity	Type	Element Description
<Type>	1	ContactMethodType	The contact method type, e.g., *email* or *phone*.
<OtherType>	0 or 1	xsd:string	Used when *<ContactMethodType>* value is *other*.
<Value>	1	xsd:string	Contains an email address or phone number, etc.

Schema definition:

```
<xsd:complexType name="ContactMethod">
  <xsd:sequence>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="ContactMethodType"/>
    <xsd:element name="Value" type="xsd:string"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.4 The <Election> Element

Used in ***request*** transactions.

<AbsenteeBallotRequest> optionally includes this element for to specify the election corresponding to an absentee ballot request.

Table 1.23 – Elements for <Election>

Element	Multiplicity	Type	Element Description
<ExternalIdentifier>	0 or more	ExternalIdentifier	For associating an identifier with the election.
<Name>	0 or more	xsd:string	Name of the election.
<StartDate>	0 or more	xsd:date	The date of the election.

Schema definition:

```
<xsd:complexType name="Election">
  <xsd:sequence>
    <xsd:element name="ExternalIdenitfier" type="ExternalIdentifier" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
    <xsd:element name="StartDate" type="xsd:date" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.5 The <ElectionAdministration> Element

Used in ***response*** transactions.

<*ElectionAdministration*> optionally includes the <*ContactInformation*> element to specify contact information for the election authority.

<*ReportingUnit*> optionally includes this element to specify various information about an election authority.

Table 1.24 – Elements for <ElectionAdministration>

Element	Multiplicity	Type	Element Description
<ContactMethod>	0 or more	ContactMethod	For including various contact information.
<Location>	0 or 1	Location	Location of the election authority.
<Name>	0 or 1	xsd:string	Name of the election authority.
<Uri>	0 or more	xsd:anyURI	A URL for the election authority.

Schema Definition:

```
<xsd:complexType name="ElectionAdministration">
  <xsd:sequence>
    <xsd:element name="Location" type="Location" minOccurs="0"/>
    <xsd:element name="ContactMethod" type="ContactMethod" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Uri" type="xsd:anyURI" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
```

1.6.6 The <ExternalIdentifier> Element

Used in ***request*** AND ***response*** transactions.

<Party> and *<ReportingUnit>* optionally include this element for associating a jurisdiction's codes, i.e., identifiers, with political parties or geopolitical units such as counties, towns, precincts, etc. Multiple occurrences of *<ExternalIdentifier>* can be used to associate multiple codes, e.g., if there is a desire to associate multiple codes with an object such as state-specific codes as well as OCD-IDs (Open Civic Data Identifiers [11]), as follows:

```
<ExternalIdentifiers>
  <ExternalIdentifier>
    <Type>state-level</Type>
    <Value>54</Value>
  </ExternalIdentifier>
  <ExternalIdentifier>
    <Type>ocd-id</Type>
    <Value>ocd-division/country:us/state:wv</Value>
  </ExternalIdentifier>
</ExternalIdentifiers>
```

If the type of identifier is not listed in enumeration *<IdentifierType>*, use *other* and include the type (that is not listed in the enumeration) in *OtherType*, e.g.,

```
<ExternalIdentifier>
  <Type>other</Type>
  <Value>101-A</Value>
  <OtherType>Ohio County Precinct Numbers</OtherType>
</ExternalIdentifier>
```

Table 1.25 – Elements for <ExternalIdentifier>

Element	Multiplicity	Type	Element Description
<Type>	1	IdentifierType	An identifier type, e.g., FIPS.
<OtherType>	0 or 1	xsd:string	Used when *<IdentifierType>* value is *other*.
<Value>	1	xsd:string	The identifier used by the jurisdiction.

Schema definition:

```
<xsd:complexType name="ExternalIdentifier">
  <xsd:sequence>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="IdentifierType"/>
    <xsd:element name="Value" type="xsd:string"/>
  </xsd:sequence>
</xsd:complexType>
</xsd:complexType>
```

1.6.7 The <File> Element/Extension Base

Used in ***request*** transactions.

<VoterId> optionally includes this element to specify a filename for voter identification purposes such as for a utility bill. *<AdditionalInfo>* also optionally includes this element.

<File> extends the *xsd:base64Binary* simple type to add the attributes for filename and (Multi-Purpose Internet Mail Extensions) MIME type, e.g., *application/pdf* for a file of type PDF.

The *<Image>* element uses this element as an extension base (see section 1.6.8), thus *<File>* can be used with *xsi:type="Image"* when the type of file is for an image, e.g., *image/png*.

Table 1.26 – Attributes for <File>

Attribute	Required	Type	Attribute Description
<fileName>	no	xsd:string	The filename.
<mimeType>	no	xsd:string	The MIME type associated with the file.
xsi:type="Image"	no	xsi:type	Used if the type of file is for an image.

Schema definition:

```
<xsd:complexType name="File">
  <xsd:simpleContent>
    <xsd:extension base="xsd:base64Binary">
      <xsd:attribute name="fileName" type="xsd:string"/>
      <xsd:attribute name="mimeType" type="xsd:string"/>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>
```

1.6.8 The <Image> Element

Used in ***request*** transactions.

<Signature> optionally includes this element to indicate that a file contains an image of a voter's signature. *<Image>* uses *<File>* as an extension base, thus attributes and elements of *<File>* can be included in *<Image>*. (see section 1.6.7).

Schema definition:

```
<xsd:complexType name="Image">
  <xsd:complexContent>
    <xsd:extension base="File"/>
  </xsd:complexContent>
</xsd:complexType>
```

1.6.9 The <LatLng> Element

Used in ***response*** transactions.

<*Location*> optionally includes this element to specify the latitude and longitude of a voter's voting location.

Table 1.27 – Elements for <LatLng>

Element	Multiplicity	Type	Element Description
<Latitude>	1	xsd:float	Latitude of the contact location.
<Longitude>	1	xsd:float	Longitude of the contact location.
<Source>	0 or 1	xsd:string	System used to perform the lookup from location name to lat/lng, e.g., the name of a geocoding service.

Schema definition:

```
<xsd:complexType name="LatLng">
  <xsd:sequence>
    <xsd:element name="Latitude" type="xsd:float"/>
    <xsd:element name="Longitude" type="xsd:float"/>
    <xsd:element name="Source" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.10 The <Location> Element

Used in ***response*** transactions.

<ReportingUnit> optionally includes this element to specify the address and directions to a voter's voting location. The *<LatLng>* element can be included to specify the latitude and longitude of the voting location.

Table 1.28 – Elements for <Location>

Element	Multiplicity	Type	Element Description
<Address>	0 or 1	Address	Address of the voting location.
<Directions>	0 or 1	xsd:string	Directions to the voting location.
<LatLng>	0 or 1	xsd:string	Latitude/longitude of the voting location.

Schema definition:

```
<xsd:complexType name="Location">
  <xsd:sequence>
    <xsd:element name="LatLng" type="LatLng" minOccurs="0"/>
    <xsd:element name="Address" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Directions" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.11 The <Name> (<PreviousName>) Element

Used in ***request*** transactions.

<VoterRegistration> includes this element for specifying the name of a voter and, optionally, for specifying a previous name of the voter, using *<PreviousName>* instead of *<Name>*. *<MiddleName>* also includes this element for specifying the name of a registration helper.

Multiple occurrences of the *<MiddleName>* sub-element can be used as needed, e.g., for names with additional middle names or nicknames such as "John Andrew Winston (Jack) Smith", as follows:

```
<Name>
  <FirstName>John</FirstName>
  <MiddleName>Andrew</MiddleName>
  <MiddleName>Winston</MiddleName>
  <MiddleName>(Jack)</MiddleName>
  <LastName>Smith</LastName>
</Name>
```

Table 1.29 – Elements for <Name>

Element	Multiplicity	Type	Element Description
<FirstName>	0 or 1	xsd:string	Person's first (given) name.
<FullName>	0 or 1	InternationalizedText	Person's full name.
<LastName>	0 or 1	xsd:string	Person's last (family) name.
<MiddleName>	0 or more	xsd:string	Person's middle name.
<Prefix>	0 or 1	xsd:string	A prefix associated with the person, e.g., Mr.
<Suffix>	0 or 1	xsd:string	A suffix associated with the person, e.g., Jr.

Schema definition:

```
<xsd:complexType name="Name">
  <xsd:sequence>
    <xsd:element name="FirstName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="FullName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="LastName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MiddleName" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Prefix" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Suffix" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.12 The <Party> Element

Used in ***request*** transactions.

<VoterRegistration> includes this element to specify a voter's political party.

Table 1.30 – Elements for <Party>

Element	Multiplicity	Type	Element Description
<Abbreviation>	0 or 1	xsd:string	Short name for the party, e.g., "DEM".
<ExternalIdentifiers>	0 or 1	ExternalIdentifiers	For associating an ID with the party.
<Name>	1	xsd:string	Official full name of the party, e.g., "Republican".

Schema Definition:

```
<xsd:complexType name="Party">
  <xsd:sequence>
    <xsd:element name="Abbreviation" type="xsd:string" minOccurs="0"/>
    <xsd:element name="ExternalIdentifier" type="ExternalIdentifier"
     minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Name" type="xsd:string"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.13 The <PhoneContactMethod> Element

Used in ***request*** and ***response*** transactions.

<RegistrationAssistant>, and *<RegistrationProxy>* use this element to specify a telephone number as well as the capabilities of the telephone, e.g., *sms*, *fax*, etc.

<PhoneContactMethod> is an *xsi:type* of *<ContactMethod>*, i.e., it uses *<ContactMethod>* as an extension base (see section 1.6.3). Thus, the elements that include *<ContactMethod>* could use *xsi:type="PhoneContactMethod"* as applicable. An example, using sub-elements defined in *<ContactMethod>*, is as follows:

```
<ContactMethod xsi:type="PhoneContactMethod">
  <Capability>sms</Capability>
  <Capability>voice</Capability>
  <Type>phone</Type>
  <Value>304-123-4567</Value>
</PhoneContactMethod>
```

Table 1.31 – Elements for <PhoneContactMethod>

Element	Multiplicity	Type	Element Description
<Capability>	0 or more	PhoneCapability	Specifies the phone's capabilities, e.g., *fax*, *sms*.

Schema definition:

```
<xsd:complexType name="PhoneContactMethod">
  <xsd:complexContent>
    <xsd:extension base="ContactMethod">
      <xsd:sequence>
        <xsd:element name="Capability" type="PhoneCapability" minOccurs="0"
        maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

1.6.14 The <RegistrationHelper> Element

Used in ***request*** transactions.

<VoterRegistration> optionally includes this element to specify information about a registration assistant involved in a voter's registration request.

<RegistrationAssistant> includes the *<Name>* element to specify the registration assistant's name and optionally includes the *<Signature>* element if a registration assistant's signature is required.

Table 1.32 – Elements for <RegistrationHelper>

Element	Multiplicity	Type	Element Description
<Address>	0 or 1	Address	Address of the registration assistant.
<Name>	1	Name	To specify the name of the assistant.
<Phone>	0 or 1	PhoneContactMethod	Registration assistant's phone number.
<Signature>	0 or 1	Signature	To specify the signature of the assistant.
<Type>	1	RegistrationHelperType	To specify the type of helper, e.g., *assistant*.

Schema definition:

```
<xsd:complexType name="RegistrationHelper">
  <xsd:sequence>
    <xsd:element name="Name" type="Name" minOccurs="0"/>
    <xsd:element name="Signature" type="Signature" minOccurs="0"/>
    <xsd:element name="Address" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Phone" type="PhoneContactMethod" minOccurs="0"/>
    <xsd:element name="Type" type="RegistrationHelperType"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.15 The <RegistrationProxy> Element

Used in ***request*** transactions.

<VoterRegistration> optionally includes this element to specify information about the proxy for a voter records request.

<OriginTransactionId> can be used to include an optional identifier of the originating external transaction from the proxy, e.g., used for the transaction ID generated by a DMV application enacting a voter registration request to a registration portal application (on behalf of a citizen obtaining a driver's license). This sub-element is not to be confused with *<TransactionId>* in *<VoterRecordsRequest>*, which is used to include a transaction ID of the voter records request, e.g., the transaction ID of the registration portal's voter records request.

Table 1.33 – Elements for <RegistrationProxy>

Element	Multiplicity	Type	Element Description
<Address>	0 or 1	Address	An address associated with the proxy.
<Name>	0 or 1	xsd:string	A name associated with the proxy.
<OriginTransactionId>	0 or 1	xsd:string	An identifier associated with the transaction between the proxy and, e.g., the registration portal.
<Phone>	0 or 1	PhoneContactMethod	A phone number associated with the proxy.
<TimeStamp>	0 or 1	xsd:date	The date of the request from the proxy.
<Type>	1	RegistrationProxyType	The type of the requesting proxy, e.g., *motor-vehicle-office*, *voter-via-email*.
<OtherType>	0 or 1	xsd:string	Used when *<RegistrationProxyType>* value is *other*.

Schema definition:

```
<xsd:complexType name="RegistrationProxy">
  <xsd:sequence>
    <xsd:element name="Address" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OriginTransactionId" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Phone" type="PhoneContactMethod" minOccurs="0"/>
    <xsd:element name="TimeStamp" type="xsd:date" minOccurs="0"/>
    <xsd:element name="Type" type="RegistrationProxyType"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.16 The <Signature> (<PreviousSignature> Element

Used in ***request*** transactions.

<VoterRegistration> includes this element for specifying information about a voter's signature on a registration request. If there is a need to include previous signature that uses a different name, e.g., a maiden name, *<VoterRegistration>* uses *<PreviousSignature>* instead of *<Signature>.*

<Source> is used to specify the source of the voter's signature, for example, on file at a department of motor vehicles. *<FileValue>* is used to include an image of the voter's signature.

Table 1.34 – Elements for <Signature>

Element	Multiplicity	Type	Element Description
<Date>	0 or 1	xsd:date	The date of the signature, i.e., when created.
<FileValue>	0 or 1	Image	The signature image in base 64 binary.
<Source>	0 or 1	SignatureSource	A source for the signature, e.g., *dmv*.
<OtherSource>	0 or 1	xsd:string	Used when <*Source*> value is *other*.
<Type>	0 or 1	SignatureType	A signature type, e.g., *dynamic*.
<OtherType>	0 or 1	xsd:string	Used when <*SignatureType*> value is *other*.

Schema definition:

```
<xsd:complexType name="Signature">
  <xsd:sequence>
    <xsd:element name="Date" type="xsd:date" minOccurs="0"/>
    <xsd:element name="FileValue" type="Image" minOccurs="0"/>
    <xsd:element name="OtherSource" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Source" type="SignatureSource" minOccurs="0"/>
    <xsd:element name="Type" type="SignatureType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.17 The <VoterClassification> Element

Used in ***request*** transactions.

<VoterRegistration> includes this element to describe a voter's classification per criteria on the voter's registration form, e.g., *united-states-citizen* or *18-on-election-day*.

<VoterClassification> includes assertions of the voter in response to the voter registration form criteria. For example, an assertion of *true* may be used with a criterion of united-states-citizen. Assertions can be negative, such as providing an assertion of *false* for a criterion of felon, or an assertion of *unknown* to indicate that the voter does not know whether they meet or do not meet the specific criteria on the form.

Table 1.35 – Elements for <VoterClassification>

Element	Multiplicity	Type	Element Description
<Assertion>	1	AssertionValue	A positive or negative or unknown assertion.
<Type>	1	VoterClassificationType	A classification type, e.g., *disabled*.
<OtherType>	0 or 1	xsd:string	Used when <*VoterClassificationType*> value is *other*.

Schema definition:

```
<xsd:complexType name="VoterClassification">
  <xsd:sequence>
    <xsd:element name="Assertion" type="AssertionValue"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="VoterClassificationType"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.18 The <VoterId> Element

Used in ***request*** transactions.

Used to include information about a voter's identification that may be required in a registration request. *<VoterRegistration>* includes *<VoterId>*.

<AttestNoSuchId> is used to attest that the voter has no ID, thus if it is included, the value should be *false*. The *<StringValue>* and *<FileValue>* sub-elements are both optional, however at least one of them must be included.

Table 1.36 – Elements for <VoterId>

Element	Multiplicity	Type	Element Description
<AttestNoSuchId>	0 or 1	xsd:boolean	Used to attest that the voter has no ID. Assumed to be *false* if not present.
<DateOfIssuance>	0 or 1	xsd:date	Date the ID was issued.
<FileValue>	0 or 1	File	Used to include a file name for the ID.
<StringValue>	0 or 1	xsd:string	Used to include the ID as a string.
<Type>	1	VoterIdType	The type of voter ID
<OtherType>	0 or 1	xsd:string	Used when *<VoterIdType>* value is *other*.

Schema definition:

```
<xsd:complexType name="VoterId">
  <xsd:sequence>
    <xsd:element name="AttestNoSuchId" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="DateOfIssuance" type="xsd:date" minOccurs="0"/>
    <xsd:element name="FileValue" type="File" minOccurs="0"/>
    <xsd:element name="StringValue" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="VoterIdType"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.19 The <VoterRecordsRequest> Element

The root element for ***request*** transactions.

For defining items pertaining to the status and type of the voter records request and when it was generated. *<VoterRecordsRequest>* includes the *<VoterRegistration>* element to specify various information about the voter in question. It includes the *<AbsenteeBallotRequest>* element to handle a request for an absentee ballot; this request may be part of an FPCA form registration or may be submitted independently. The optional *<Signature>* sub-element is used for an XML digital signature [9] on XML instance files. *<Signature> must* be the last sub-element of *<VoterRecordsRequest>*.

Table 1.37 – Elements for <VoterRecordsRequest>

Element	Multiplicity	Type	Element Description
<AbsenteeBallotRequest>	0 or 1	AbsenteeBallotRequest	To specify the type of absentee ballot request.
<GeneratedDate>	1	xsd:date	The date that the voter records request was generated.
<Issuer>	0 or 1	xsd:string	The name of the issuer of the voter records request transaction, e.g., *State of West Virginia Voter Registration Portal*.
<TransactionId>	0 or 1	xsd:string	An identifier of the voter records request transaction.
<Type>	1 or more	RegistrationRequestType	The type of request, e.g., *registration*.
<OtherType>	0 or 1	xsd:string	Used when *<RequestType>* value is *other*.
<VendorApplicationId>	0 or 1	xsd:string	An identifier of the vendor application generating the voter registration request, e.g., X-VRDB Version 3.1.a.
<VoterRegistration>	1	VoterRegistration	Specifies information about the voter who is the subject of the request.
<Signature>	0 or 1	Signature	Reference to the *<Signature>* element of the W3C digital signature schema imported into this schema.

Schema definition:

```
<xsd:complexType name="VoterRecordsRequest">
  <xsd:sequence>
    <xsd:element name="VoterRegistration" type="VoterRegistration"/>
    <xsd:element name="AbsenteeBallotRequest" type="AbsenteeBallotRequest" minOccurs="0"/>
```

```
    <xsd:element name="GeneratedDate" type="xsd:date"/>
    <xsd:element name="Issuer" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element ref="ds:Signature" minOccurs="0"/>
    <xsd:element name="TransactionId" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="RegistrationRequestType" maxOccurs="unbounded"/>
    <xsd:element name="VendorApplicationId" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="VoterRecordsResponse" abstract="true">
  <xsd:sequence>
    <xsd:element name="ElectionAdministration" type="ElectionAdministration" minOccurs="0"/>
    <xsd:element ref="ds:Signature" minOccurs="0"/>
    <xsd:element name="TransactionId" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.20 The <VoterRecordsResponse> Element/Extension Base

The root element for ***response*** transactions.

For defining items pertaining to the status of a response to a voter records request. *<VoterRecordsResponse>* is an abstract element with three *xsi:types* that get used according to the type of response:

- *<VoterRecordsResponse xsi:type="RegistrationAcknowledgement">*, used to indicate an acknowledgement only (see section 1.6.20.1)
- *<VoterRecordsResponse xsi:type="RegistrationRejection">*, used to indicate a failure and the type of failure (see section 1.6.20.2)
- *<VoterRecordsResponse xsi:type="RegistrationSuccess">*, used to indication that a successful registration action occurred and the type of registration action, which may differ from the type of registration action requested (see section 1.6.20.3)

<VoterRecordsResponse> optionally includes the *<TransactionId>* sub-element associated with the voter records request. The optional *<Signature>* sub-element is used for an XML digital signature [9] on XML instance files. *<Signature>* *must* be the last sub-element of *<VoterRecordsResponse>*.

Table 1.38 – Elements for <VoterRecordsResponse>

Element	Multiplicity	Type	Element Description
<TransactionId>	0 or 1	xsd:string	Transaction ID associated with the voter records request.
<Signature>	0 or 1	Signature	Reference to the *<Signature>* element of the W3C digital signature schema imported into this schema.

Schema definition:

```
<xsd:complexType name="VoterRecordsResponse" abstract="true">
  <xsd:sequence>
    <xsd:element name="TransactionId" type="xsd:string" minOccurs="0"/>
    <xsd:element ref="ds:Signature" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
```

1.6.20.1 The xsi:type=”RegistrationAcknowledgement”

Used in ***response*** transactions.

For indicating that the request was received but action on the request is pending.

Schema Definition:

```
<xsd:complexType name="RegistrationAcknowledgement">
  <xsd:complexContent>
    <xsd:extension base="VoterRecordsResponse"/>
  </xsd:complexContent>
</xsd:complexType>
```

1.6.20.2 The xsi:type="RegistrationRejection"

Used in ***response*** transactions.

For indicating that the request failed. The *<Error>* sub-element is used to indicate the type of error that occurred. The *<AdditionalDetails>* sub-element can be used to provide more information as to the rejection.

Table 1.39 – Elements for <VoterRecordsResponse xsi:type="RegistrationRejection">

Element	Multiplicity	Type	Element Description
<AdditionalDetails>	0 or more	xsd:string	Used to provide additional details as applicable.
<Error>	0 or more	RegistrationError	Used to indicate the type of error.
<OtherError>	0 or more	xsd:string	Used when *<RegistrationError>* value is *other*.

Schema definition:

```
<xsd:complexType name="RegistrationRejection">
  <xsd:complexContent>
    <xsd:extension base="VoterRecordsResponse">
      <xsd:sequence>
        <xsd:element name="AdditionalDetails" type="xsd:string" minOccurs="0"
         maxOccurs="unbounded"/>
        <xsd:element name="Error" type="RegistrationError" minOccurs="0"
         maxOccurs="unbounded"/>
        <xsd:element name="OtherError" type="xsd:string" minOccurs="0"
         maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

1.6.20.3 The xsi:type="RegistrationSuccess"

Used in ***response*** transactions.

For indicating a successful response to a request. The *<Action>* sub-element is used to indicate the action that occurred, which may differ from what was requested. For example, a request for a new voter registration may succeed, but if the voter was already registered, the response may indicate a registration update as opposed to a registration create.

The response also includes, optionally, information useful to the voter, including a description of the voter's precinct and polling place, as well as the districts (i.e., contests) associated with the precinct.

Table 1.40 – Elements for <VoterRecordsResponse xsi:type="RegistrationSuccess">

Element	Multiplicity	Type	Element Description
<Action>	0 or 1	SuccessAction	Used to indicate the action that occurred.
<OtherAction>	0 or 1	xsd:string	Used when *<SuccessAction>* value is *other*.
<Districts>	0 or more	ReportingUnit	The districts associated with the voter's precinct.
<EffectiveDate>	0 or 1	xsd:date	The effective date of the action.
<PollingPlace>	0 or 1	ReportingUnit	The voter's polling place.
<Precinct>	0 or 1	ReportingUnit	The voter's precinct.

Schema definition:

```
<xsd:complexType name="RegistrationSuccess">
  <xsd:complexContent>
    <xsd:extension base="VoterRecordsResponse">
      <xsd:sequence>
        <xsd:element name="Action" type="SuccessAction" minOccurs="0"
         maxOccurs="unbounded"/>
        <xsd:element name="OtherAction" type="xsd:string" minOccurs="0"
         maxOccurs="1"/>
        <xsd:element name="Districts" type="ReportingUnit" minOccurs="0"
         maxOccurs="unbounded"/>
        <xsd:element name="EffectiveDate" type="xsd:date" minOccurs="0"/>
        <xsd:element name="PollingPlace" type="ReportingUnit" minOccurs="0"/>
        <xsd:element name="Precinct" type="ReportingUnit" minOccurs="0"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

1.6.21 The <VoterRegistration> Element

Used in ***request*** transactions.

<VoterRecordsRequest> includes this element to specify information about the voter.

All sub-elements are optional excepting *<Name>* and *<RegistrationAddress>* and *<RegistrationMethod>*. If the *<RegistrationAddressIsMailingAddress>* boolean is *true*, *<MailingAddress>* need not be included.

Table 1.41 – Elements for <VoterRegistration>

Element	Multiplicity	Type	Element Description
<AdditionalInfo>	0 or more	AdditionalInfo	For including other information not specified by this schema.
<BallotReceiptPreference>	0 or more	BallotReceiptMethod	The voter's preference on how to receive their ballot in order from their most preferred method to least, used if an absentee ballot request.
<ContactMethod>	0 or more	ContactMethod	How to contact the voter, listed in order of preference.
<DateOfBirth>	0 or 1	xsd:date	
<Ethnicity>	0 or 1	xsd:string	
<Gender>	0 or 1	xsd:string	Older systems may not understand values other than 'Male' or 'Female' (the only choices available on FPCA).
<LastDateOfUSResidency>	0 or 1	xsd:date	
<MailingAddress>	0 or 1	Address	Where the voter receives postal mail.
<Name>	1	Name	Voter's name.
OverseasEmployer			
<Party>	0 or 1	Party	Voter's political party.
<PreviousName>	0 or 1	Name	A voter's previous name.
<PreviousRegistrationAddress>	0 or 1	Address	Where the voter was previously registered.
<PreviousSignature>	0 or 1	Signature	Information about a previous voter signature on the registration form.
<RegistrationAddress>	1	Address	Where the voter is registered or requests to be registered.
<RegistrationAddressIsMailingAddress>	0 or 1	xsd:boolean	If set to *true*, *<MailingAddress>* need not be included.
<RegistrationForm>	0 or 1	RegistrationForm	If the request is for a voter registration, the registration form used by the voter.

Element	Multiplicity	Type	Element Description
<RegistrationHelper>	0 or 1	RegistrationHelper	Included if the registration involves a registration assistant organization.
<OtherRegistrationForm>	0 or 1	xsd:string	Used when <*RegistrationForm*> value is *other*.
<RegistrationMethod>	1	RegistrationMethod	The method used by the voter to register.
<OtherRegistrationForm>	0 or 1	xsd:string	Used when <*RegistrationMethod*> value is *other*.
<RegistrationProxy>	0 or 1	RegistrationMethod	Included if the registration request is via a proxy, e.g., the DMV.
<Signature>	0 or 1	Signature	Information about the voter signature on the registration form.
<VoterClassification>	0 or more	VoterClassification	How the voter is classified per assertions the voter has made on a registration form.
<VoterId>	0 or more	VoterId	Information to provide voter identity.

Schema definition:

```
<xsd:complexType name="VoterRegistration">
 <xsd:sequence>
  <xsd:element name="Party" type="Party" minOccurs="0"/>
  <xsd:element name="AdditionalInfo" type="AdditionalInfo" minOccurs="0" maxOccurs="unbounded"/>
  <xsd:element name="VoterId" type="VoterId" minOccurs="0" maxOccurs="unbounded"/>
  <xsd:element name="Name" type="Name"/>
  <xsd:element name="VoterClassification" type="VoterClassification" minOccurs="0" maxOccurs="unbounded"/>
  <xsd:element name="Signature" type="Signature" minOccurs="0"/>
  <xsd:element name="ContactMethod" type="ContactMethod" minOccurs="0" maxOccurs="unbounded">
   <xsd:annotation>
    <xsd:documentation xml:lang="en">
   Contact methods, listed in order of contact preference.
  </xsd:documentation>
   </xsd:annotation>
  </xsd:element>
  <xsd:element name="RegistrationHelper" type="RegistrationHelper" minOccurs="0" maxOccurs="unbounded"/>
  <xsd:element name="RegistrationProxy" type="RegistrationProxy" minOccurs="0"/>
  <xsd:element name="BallotReceiptPreference" type="BallotReceiptMethod" minOccurs="0" maxOccurs="unbounded">
   <xsd:annotation>
    <xsd:documentation xml:lang="en">
     The voter's preference on how to receive their ballot in order from their most preferred method to least.
     This property is only used if this request is an absentee ballot request.
  </xsd:documentation>
   </xsd:annotation>
  </xsd:element>
  <xsd:element name="DateOfBirth" type="xsd:date" minOccurs="0"/>
  <xsd:element name="Ethnicity" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Gender" type="xsd:string" minOccurs="0">
   <xsd:annotation>
    <xsd:documentation xml:lang="en">
     Older systems may not understand values other than 'Male' or 'Female' (the only choices available on FPCA)
  </xsd:documentation>
   </xsd:annotation>
  </xsd:element>
```

```
    <xsd:element name="LastDateOfUSResidency" type="xsd:date" minOccurs="0"/>
    <xsd:element name="MailForwardingAddress" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="MailingAddress" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="OtherRegistrationForm" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OtherRegistrationMethod" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OverseasEmployer" type="xsd:string" minOccurs="0"/>
    <xsd:element name="PreviousName" type="Name" minOccurs="0"/>
    <xsd:element name="PreviousRegistrationAddress" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="PreviousSignature" type="Signature" minOccurs="0"/>
    <xsd:element name="RegistrationAddress">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="1" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="RegistrationAddressIsMailingAddress" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="RegistrationForm" type="RegistrationForm" minOccurs="0"/>
    <xsd:element name="RegistrationMethod" type="RegistrationMethod"/>
    <xsd:element name="SelectedLanguage" type="xsd:language" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">
         The language specified by the voter, if any.
     </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
```

Appendix A—Acronyms

Selected acronyms and abbreviations used in this document are defined below.

CDF	Common Data Format
EAC	Election Assistance Commission
EAVS	EAC Election Administration and Voting Survey
FIPS	Federal Information Processing Standard
FWAB	Federal Write-in Absentee Ballot
JSON	JavaScript Object Notation
MMS	Multimedia Messaging Service
MIME	Multipurpose Internet Mail Extensions
NIST	National Institute of Standards and Technology
NVRA	National Voter Registration Act
OCD-ID	Open Civic Data Identifiers
SMS	Short Message Service
SP	Special Publication
UML	Unified Modeling Language
UOCAVA	Uniform and Overseas Citizens Assistance in Voting Act
VVSG	Voluntary Voting Systems Guidelines
XML	eXtensible Markup Language

Appendix B—Glossary

Selected terms used throughout this document are defined below. In some of the definitions, there is ancillary information that is not part of the definition but helpful in understanding the definition; this ancillary information is preceded with "*Note:*". Synonyms are preceded with "*Syn:*".

Election official:	Any county clerk and recorder, election judge, member of a canvassing board, member of a board of county commissioners, member or secretary of a board of directors authorized to conduct public elections, representative of a governing body, or other person contracting for or engaged in the performance of election duties as required by the election code.
Electoral district:	As used in elections, administrative divisions in which voters are entitled to vote in contests that are specific to that division, such as those for state senators and delegates.
Polling place:	Location at which voters cast ballots in-person on vote-capture devices (e.g., DRE) under the supervision of poll workers usually on election day. *Syn:* polling station or poll. *Note:* A polling place is typically in 1-to-1 correspondence with a precinct except for combined precincts and vote centers.
Precinct:	An election administration division corresponding to a contiguous geographic area that is the basis for determining the contests and measures on which the voters legally residing in that area are eligible to vote.
Registration assistant:	An organization whose purpose includes assisting voters in registering to vote.
Registration proxy:	An organization that submits a voter registration request on behalf of the voter, e.g., a DMV office that submits a voter registration request for a voter.
Registration witness:	An individual who witnesses a voter's registration, i.e., the voter signing his/her registration form.
Reporting unit:	An administrative division that reports votes or to which votes are associated, e.g., state, county, city, precinct, etc.
Schema:	A file containing definitions of data elements and attributes with rules for usage, e.g., for XML.

UOCAVA voter: From the Uniform and Overseas Citizens Assistance in Voting Act (UOCAVA); A U.S. citizen who is an active member of the Uniformed Services and the Merchant Marine, or the commissioned corps of the Public Health Service or the National Oceanic and Atmospheric Administration, their eligible family members, and U.S. citizens residing outside the United States.

Appendix C—References

[1] W3C, *Extensible Markup Language (XML) 1.0 (Fifth Edition)*, W3C Recommendation, November 26, 2008, http://www.w3.org/TR/xml/ [accessed 2/1/2016].

[2] Object Management Group (OMG), *UML Specification version 1.1* (OMG document ad/97-08-11) September 22, 2011, http://omg.org/ [accessed 2/1/2016].

[3] Election Assistance Commission, *Election Administration and Voting Survey* [Web site], http://www.eac.gov/research/election_administration_and_voting_survey.aspx [accessed 2/1/2016].

[9] W3C, *XML Signature Syntax and Processing (Second Edition)*, W3C Recommendation, June 10, 2008, http://www.w3.org/TR/xmldsig-core/ [accessed 2/1/2016].

[10] Federal Geographic Data Committee (FGDC), *United States Thoroughfare, Landmark, And Postal Address Data Standard*, [Web page], http://www.fgdc.gov/standards/projects/FGDC-standards-projects/address-data/index_html [accessed 2/1/2016].

[11] Open Civic Data, *OCD Identifiers* [Web page], http://opencivicdata.readthedocs.org/en/latest/ocdids.html [accessed 2/1/2016].

Appendix D—File Download Locations

The files associated with this specification are available for download from a NIST repository. These files are:

- This specification,
- XML schema,
- Example XML files,
- Any validation tools, and
- UML model.

Other files or updates to the files may be added. The repository URL is located at:

http://vote.nist.gov

Appendix E—XML Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns="NIST_V0_voter_records_interchange.xsd"
xmlns:addr="http://www.fgdc.gov/schemas/address/addr" xmlns:ds="http://www.w3.org/2000/09/xmldsig#"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" targetNamespace="NIST_V0_voter_records_interchange.xsd"
elementFormDefault="qualified" version="0.0">
  <!-- ========== Imports ========== -->
  <xsd:import namespace="http://www.fgdc.gov/schemas/address/addr" schemaLocation="addr.xsd"/>
  <xsd:import namespace="http://www.w3.org/2000/09/xmldsig#"
schemaLocation="http://www.w3.org/2000/09/xmldsig#"/>
  <!-- ========== Roots ========== -->
  <xsd:element name="VoterRecordsRequest" type="VoterRecordsRequest"/>
  <xsd:element name="VoterRecordsResponse" type="VoterRecordsResponse"/>
  <!-- ========== Primitives ========== -->
  <!-- ========== Enumerations ========== -->
  <xsd:simpleType name="AbsenteeBallotRequestSemantics">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="request-ab-for-next-election"/>
      <xsd:enumeration value="request-ab-for-specified-elections"/>
      <xsd:enumeration value="request-ab-for-all-elections-this-year"/>
      <xsd:enumeration value="request-permanent-absentee-status"/>
      <xsd:enumeration value="request-permanent-vote-by-mail-status"/>
      <xsd:enumeration value="unknown"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="AssertionValue">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="no"/>
      <xsd:enumeration value="yes"/>
      <xsd:enumeration value="unknown"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="BallotReceiptMethod">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="email-or-online"/>
      <xsd:enumeration value="mail"/>
      <xsd:enumeration value="fax"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="ContactMethodType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="email"/>
      <xsd:enumeration value="phone"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="IdentifierType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="fips"/>
      <xsd:enumeration value="local-level"/>
      <xsd:enumeration value="national-level"/>
      <xsd:enumeration value="ocd-id"/>
      <xsd:enumeration value="state-level"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="PhoneCapability">
    <xsd:restriction base="xsd:string">
```

```
      <xsd:enumeration value="fax"/>
      <xsd:enumeration value="mms"/>
      <xsd:enumeration value="sms"/>
      <xsd:enumeration value="voice"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="RegistrationError">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="identity-lookup-failed"/>
      <xsd:enumeration value="incomplete"/>
      <xsd:enumeration value="incomplete-address"/>
      <xsd:enumeration value="incomplete-name"/>
      <xsd:enumeration value="ineligible"/>
      <xsd:enumeration value="invalid-form"/>
      <xsd:enumeration value="no-birth-date"/>
      <xsd:enumeration value="no-signature"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="RegistrationForm">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="fpca"/>
      <xsd:enumeration value="nvra"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="RegistrationHelperType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="assistant"/>
      <xsd:enumeration value="witness"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="RegistrationMethod">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="armed-forces-recruitment-office"/>
      <xsd:enumeration value="motor-vehicle-office"/>
      <xsd:enumeration value="other-agency-designated-by-state"/>
      <xsd:enumeration value="public-assistance-office"/>
      <xsd:enumeration value="registration-drive-from-advocacy-group-or-political-party"/>
      <xsd:enumeration value="state-funded-agency-serving-persons-with-disabilities"/>
      <xsd:enumeration value="voter-via-election-registrars-office"/>
      <xsd:enumeration value="voter-via-email"/>
      <xsd:enumeration value="voter-via-fax"/>
      <xsd:enumeration value="voter-via-internet"/>
      <xsd:enumeration value="voter-via-mail"/>
      <xsd:enumeration value="unknown"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="RegistrationProxyType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="armed-forces-recruitment-office"/>
      <xsd:enumeration value="motor-vehicle-office"/>
      <xsd:enumeration value="other-agency-designated-by-state"/>
      <xsd:enumeration value="public-assistance-office"/>
      <xsd:enumeration value="registration-drive-from-advocacy-group-or-political-party"/>
      <xsd:enumeration value="state-funded-agency-serving-persons-with-disabilities"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="RegistrationRequestType">
```

```
    <xsd:annotation>
      <xsd:documentation xml:lang="en">
     The specific type of message being sent. Each type indicates a desired result by the system receiving the message. The meanings of each type will need to be explicitly stated.

     This attribute is optional, and if not specified (or other), the required Action attribute will determine the message semantics generically.

     For example: 'address update' indicates that only the voter's address should be updated on an existing voter registration.
     'address update' requests would specify the 'update' RegistrationAction.
    </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="registration"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="ReportingUnitType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="ballot-batch"/>
      <xsd:enumeration value="ballot-style-area"/>
      <xsd:enumeration value="borough"/>
      <xsd:enumeration value="city"/>
      <xsd:enumeration value="city-council"/>
      <xsd:enumeration value="combined-precinct"/>
      <xsd:enumeration value="congressional"/>
      <xsd:enumeration value="county"/>
      <xsd:enumeration value="county-council"/>
      <xsd:enumeration value="drop-box"/>
      <xsd:enumeration value="judicial"/>
      <xsd:enumeration value="municipality"/>
      <xsd:enumeration value="polling-place"/>
      <xsd:enumeration value="precinct"/>
      <xsd:enumeration value="school"/>
      <xsd:enumeration value="special"/>
      <xsd:enumeration value="split-precinct"/>
      <xsd:enumeration value="state"/>
      <xsd:enumeration value="state-house"/>
      <xsd:enumeration value="state-senate"/>
      <xsd:enumeration value="town"/>
      <xsd:enumeration value="township"/>
      <xsd:enumeration value="utility"/>
      <xsd:enumeration value="village"/>
      <xsd:enumeration value="vote-center"/>
      <xsd:enumeration value="ward"/>
      <xsd:enumeration value="water"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="SignatureSource">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="dmv"/>
      <xsd:enumeration value="local"/>
      <xsd:enumeration value="state"/>
      <xsd:enumeration value="voter"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="SignatureType">
    <xsd:restriction base="xsd:string">
```

```
      <xsd:enumeration value="digital"/>
      <xsd:enumeration value="dynamic"/>
      <xsd:enumeration value="electronic"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="SuccessAction">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="address-updated"/>
      <xsd:enumeration value="name-updated"/>
      <xsd:enumeration value="registration-cancelled"/>
      <xsd:enumeration value="registration-created"/>
      <xsd:enumeration value="registration-updated"/>
      <xsd:enumeration value="status-updated"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="VoterClassificationType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="eighteen-on-election-day"/>
      <xsd:enumeration value="deceased"/>
      <xsd:enumeration value="declared-incompetent"/>
      <xsd:enumeration value="disabled"/>
      <xsd:enumeration value="non-felon"/>
      <xsd:enumeration value="permanently-denied"/>
      <xsd:enumeration value="protected-voter"/>
      <xsd:enumeration value="restored-felon"/>
      <xsd:enumeration value="united-states-citizen"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="VoterIdType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="drivers-license"/>
      <xsd:enumeration value="local-voter-registration-id"/>
      <xsd:enumeration value="ssn"/>
      <xsd:enumeration value="ssn4"/>
      <xsd:enumeration value="state-id"/>
      <xsd:enumeration value="state-voter-registration-id"/>
      <xsd:enumeration value="unspecified-document-with-name-and-address"/>
      <xsd:enumeration value="unspecified-document-with-photo-identification"/>
      <xsd:enumeration value="unknown"/>
      <xsd:enumeration value="other"/>
    </xsd:restriction>
  </xsd:simpleType>
  <!-- ========== Interfaces Defined ========== -->
  <!-- === Interface Address === -->
  <xsd:group name="Address">
    <xsd:choice>
      <xsd:element name="CommunityAddress_type" type="addr:CommunityAddress_type"/>
      <xsd:element name="FourNumberAddressRange_type" type="addr:FourNumberAddressRange_type"/>
      <xsd:element name="GeneralAddressClass_type" type="addr:GeneralAddressClass_type"/>
      <xsd:element name="IntersectionAddress_type" type="addr:IntersectionAddress_type"/>
      <xsd:element name="LandmarkAddress_type" type="addr:LandmarkAddress_type"/>
      <xsd:element name="NumberedThoroughfareAddress_type" type="addr:NumberedThoroughfareAddress_type"/>
      <xsd:element name="TwoNumberAddressRange_type" type="addr:TwoNumberAddressRange_type"/>
      <xsd:element name="USPSGeneralDeliveryOffice_type" type="addr:USPSGeneralDeliveryOffice_type"/>
      <xsd:element name="USPSPostalDeliveryBox_type" type="addr:USPSPostalDeliveryBox_type"/>
      <xsd:element name="USPSPostalDeliveryRoute_type" type="addr:USPSPostalDeliveryRoute_type"/>
      <xsd:element name="UnnumberedThoroughfareAddress_type"
type="addr:UnnumberedThoroughfareAddress_type"/>
```

```
    </xsd:choice>
  </xsd:group>
  <!-- ========== Interfaces Extended ========== -->
  <!-- ========== Classes ========== -->
  <xsd:complexType name="AbsenteeBallotRequest">
    <xsd:sequence>
      <xsd:element name="Semantics" type="AbsenteeBallotRequestSemantics"/>
      <xsd:element name="SpecifiedElection" type="Election" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="AdditionalInfo">
    <xsd:sequence>
      <xsd:element name="FileValue" type="File" minOccurs="0"/>
      <xsd:element name="Name" type="xsd:string"/>
      <xsd:element name="StringValue" type="xsd:string" minOccurs="0"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="ContactMethod">
    <xsd:sequence>
      <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
      <xsd:element name="Type" type="ContactMethodType"/>
      <xsd:element name="Value" type="xsd:string">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">
        The value of the ContactMethod. This will be the text value of the phone number, email address, or other
mechanism. The values must be free of any formatting characters, such as parentheses or dashes for a phone number.
       </xsd:documentation>
        </xsd:annotation>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="Election">
    <xsd:sequence>
      <xsd:element name="ExternalIdenitfier" type="ExternalIdentifier" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
      <xsd:element name="StartDate" type="xsd:date" minOccurs="0"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="ElectionAdministration">
    <xsd:sequence>
      <xsd:element name="Location" type="Location" minOccurs="0"/>
      <xsd:element name="ContactMethod" type="ContactMethod" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
      <xsd:element name="Uri" type="xsd:anyURI" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="ExternalIdentifier">
    <xsd:sequence>
      <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
      <xsd:element name="Type" type="IdentifierType"/>
      <xsd:element name="Value" type="xsd:string"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="File">
    <xsd:simpleContent>
      <xsd:extension base="xsd:base64Binary">
        <xsd:attribute name="fileName" type="xsd:string"/>
        <xsd:attribute name="mimeType" type="xsd:string"/>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
```

```
<xsd:complexType name="Image">
  <xsd:complexContent>
    <xsd:extension base="File"/>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="LatLng">
  <xsd:sequence>
    <xsd:element name="Latitude" type="xsd:float"/>
    <xsd:element name="Longitude" type="xsd:float"/>
    <xsd:element name="Source" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="Location">
  <xsd:sequence>
    <xsd:element name="LatLng" type="LatLng" minOccurs="0"/>
    <xsd:element name="Address" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Directions" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="Name">
  <xsd:sequence>
    <xsd:element name="FirstName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="FullName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="LastName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MiddleName" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Prefix" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Suffix" type="xsd:string" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="Party">
  <xsd:sequence>
    <xsd:element name="ExternalIdentifier" type="ExternalIdentifier" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Abbreviation" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Name" type="xsd:string"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="PhoneContactMethod">
  <xsd:complexContent>
    <xsd:extension base="ContactMethod">
      <xsd:sequence>
        <xsd:element name="Capability" type="PhoneCapability" minOccurs="0" maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="RegistrationAcknowledgement">
  <xsd:complexContent>
    <xsd:extension base="VoterRecordsResponse"/>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="RegistrationHelper">
  <xsd:sequence>
    <xsd:element name="Name" type="Name" minOccurs="0"/>
    <xsd:element name="Signature" type="Signature" minOccurs="0"/>
    <xsd:element name="Address" minOccurs="0">
```

```
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Phone" type="PhoneContactMethod" minOccurs="0"/>
    <xsd:element name="Type" type="RegistrationHelperType"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="RegistrationProxy">
  <xsd:sequence>
    <xsd:element name="Address" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OriginTransactionId" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Phone" type="PhoneContactMethod" minOccurs="0"/>
    <xsd:element name="TimeStamp" type="xsd:date" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">
      The date this source received the request.
     </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element name="Type" type="RegistrationProxyType"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="RegistrationRejection">
  <xsd:complexContent>
    <xsd:extension base="VoterRecordsResponse">
      <xsd:sequence>
        <xsd:element name="AdditionalDetails" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element name="Error" type="RegistrationError" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element name="OtherError" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="RegistrationSuccess">
  <xsd:complexContent>
    <xsd:extension base="VoterRecordsResponse">
      <xsd:sequence>
        <xsd:element name="Action" type="SuccessAction" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element name="Districts" type="ReportingUnit" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element name="EffectiveDate" type="xsd:date" minOccurs="0"/>
        <xsd:element name="PollingPlace" type="ReportingUnit" minOccurs="0"/>
        <xsd:element name="Precinct" type="ReportingUnit" minOccurs="0"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="ReportingUnit">
  <xsd:sequence>
    <xsd:element name="Location" type="Location" minOccurs="0"/>
    <xsd:element name="ExternalIdentifier" type="ExternalIdentifier" minOccurs="0" maxOccurs="unbounded"/>
```

```
    <xsd:element name="IsDistricted" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="Name" type="xsd:string" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">
      Name of the reporting unit.
     </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="ReportingUnitType">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">
      Type of reporting unit, e.g., state, jurisdiction, district, etc.

      This field is a key into the NIST maintained registry of GpUnit types.
      The key specifies the geo-political category of the locality, the type of locality, and optionally a sub-type.

      If an 'Other' type or subtype is specified, then it will be defined via the OtherType value.
     </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="Signature">
  <xsd:sequence>
    <xsd:element name="Date" type="xsd:date" minOccurs="0"/>
    <xsd:element name="FileValue" type="Image" minOccurs="0"/>
    <xsd:element name="OtherSource" type="xsd:string" minOccurs="0"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Source" type="SignatureSource" minOccurs="0"/>
    <xsd:element name="Type" type="SignatureType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="VoterClassification">
  <xsd:sequence>
    <xsd:element name="Assertion" type="AssertionValue"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="VoterClassificationType"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="VoterId">
  <xsd:sequence>
    <xsd:element name="AttestNoSuchId" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="DateOfIssuance" type="xsd:date" minOccurs="0"/>
    <xsd:element name="FileValue" type="File" minOccurs="0"/>
    <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="StringValue" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" type="VoterIdType"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="VoterRecordsRequest">
  <xsd:sequence>
    <xsd:element name="VoterRegistration" type="VoterRegistration"/>
    <xsd:element name="AbsenteeBallotRequest" type="AbsenteeBallotRequest" minOccurs="0"/>
    <xsd:element name="GeneratedDate" type="xsd:date">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">
      The date of this message's creation
     </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
```

```
      <xsd:element name="Issuer" type="xsd:string" minOccurs="0"/>
      <xsd:element name="OtherType" type="xsd:string" minOccurs="0"/>
      <xsd:element ref="ds:Signature" minOccurs="0"/>
      <xsd:element name="TransactionId" type="xsd:string" minOccurs="0"/>
      <xsd:element name="Type" type="RegistrationRequestType" maxOccurs="unbounded">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">
        The specific type of request that is being made. Each type indicates a desired result by the system receiving the
message. The meanings of each type will need to be explicitly stated.

        This attribute is optional, and if not specified (or other), the required Action attribute will determine the message
semantics generically.

        For example: 'address update' indicates that only the voter's address should be updated on an existing voter
registration.
        'address update' requests would specify the 'update' RegistrationAction.
       </xsd:documentation>
        </xsd:annotation>
      </xsd:element>
      <xsd:element name="VendorApplicationId" type="xsd:string" minOccurs="0"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="VoterRecordsResponse" abstract="true">
    <xsd:sequence>
      <xsd:element name="ElectionAdministration" type="ElectionAdministration" minOccurs="0"/>
      <xsd:element ref="ds:Signature" minOccurs="0"/>
      <xsd:element name="TransactionId" type="xsd:string" minOccurs="0"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="VoterRegistration">
    <xsd:sequence>
      <xsd:element name="Party" type="Party" minOccurs="0"/>
      <xsd:element name="AdditionalInfo" type="AdditionalInfo" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="VoterId" type="VoterId" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="Name" type="Name"/>
      <xsd:element name="VoterClassification" type="VoterClassification" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="Signature" type="Signature" minOccurs="0"/>
      <xsd:element name="ContactMethod" type="ContactMethod" minOccurs="0" maxOccurs="unbounded">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">
        Contact methods, listed in order of contact preference.
       </xsd:documentation>
        </xsd:annotation>
      </xsd:element>
      <xsd:element name="RegistrationHelper" type="RegistrationHelper" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="RegistrationProxy" type="RegistrationProxy" minOccurs="0"/>
      <xsd:element name="BallotReceiptPreference" type="BallotReceiptMethod" minOccurs="0"
maxOccurs="unbounded">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">
        The voter's preference on how to receive their ballot in order from their most preferred method to least.

        This property is only used if this request is an absentee ballot request.
       </xsd:documentation>
        </xsd:annotation>
      </xsd:element>
      <xsd:element name="DateOfBirth" type="xsd:date" minOccurs="0"/>
      <xsd:element name="Ethnicity" type="xsd:string" minOccurs="0"/>
      <xsd:element name="Gender" type="xsd:string" minOccurs="0">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">
```

```
        Older systems may not understand values other than 'Male' or 'Female' (the only choices available on FPCA)
       </xsd:documentation>
        </xsd:annotation>
      </xsd:element>
      <xsd:element name="LastDateOfUSResidency" type="xsd:date" minOccurs="0"/>
      <xsd:element name="MailForwardingAddress" minOccurs="0">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
      <xsd:element name="MailingAddress" minOccurs="0">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
      <xsd:element name="OtherRegistrationForm" type="xsd:string" minOccurs="0"/>
      <xsd:element name="OtherRegistrationMethod" type="xsd:string" minOccurs="0"/>
      <xsd:element name="OverseasEmployer" type="xsd:string" minOccurs="0"/>
      <xsd:element name="PreviousName" type="Name" minOccurs="0"/>
      <xsd:element name="PreviousRegistrationAddress" minOccurs="0">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:group ref="Address" minOccurs="0" maxOccurs="1"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
      <xsd:element name="PreviousSignature" type="Signature" minOccurs="0"/>
      <xsd:element name="RegistrationAddress">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:group ref="Address" minOccurs="1" maxOccurs="1"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
      <xsd:element name="RegistrationAddressIsMailingAddress" type="xsd:boolean" minOccurs="0"/>
      <xsd:element name="RegistrationForm" type="RegistrationForm" minOccurs="0"/>
      <xsd:element name="RegistrationMethod" type="RegistrationMethod"/>
      <xsd:element name="SelectedLanguage" type="xsd:language" minOccurs="0">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">
        The language specified by the voter, if any.
       </xsd:documentation>
        </xsd:annotation>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```

Appendix F—UML Class Diagrams – Detailed

This appendix contain detailed images of the UML class diagrams that when viewed electronically can be expanded to show attributes and other details. The images can also be downloaded using the instructions in Appendix D—File Download Locations.

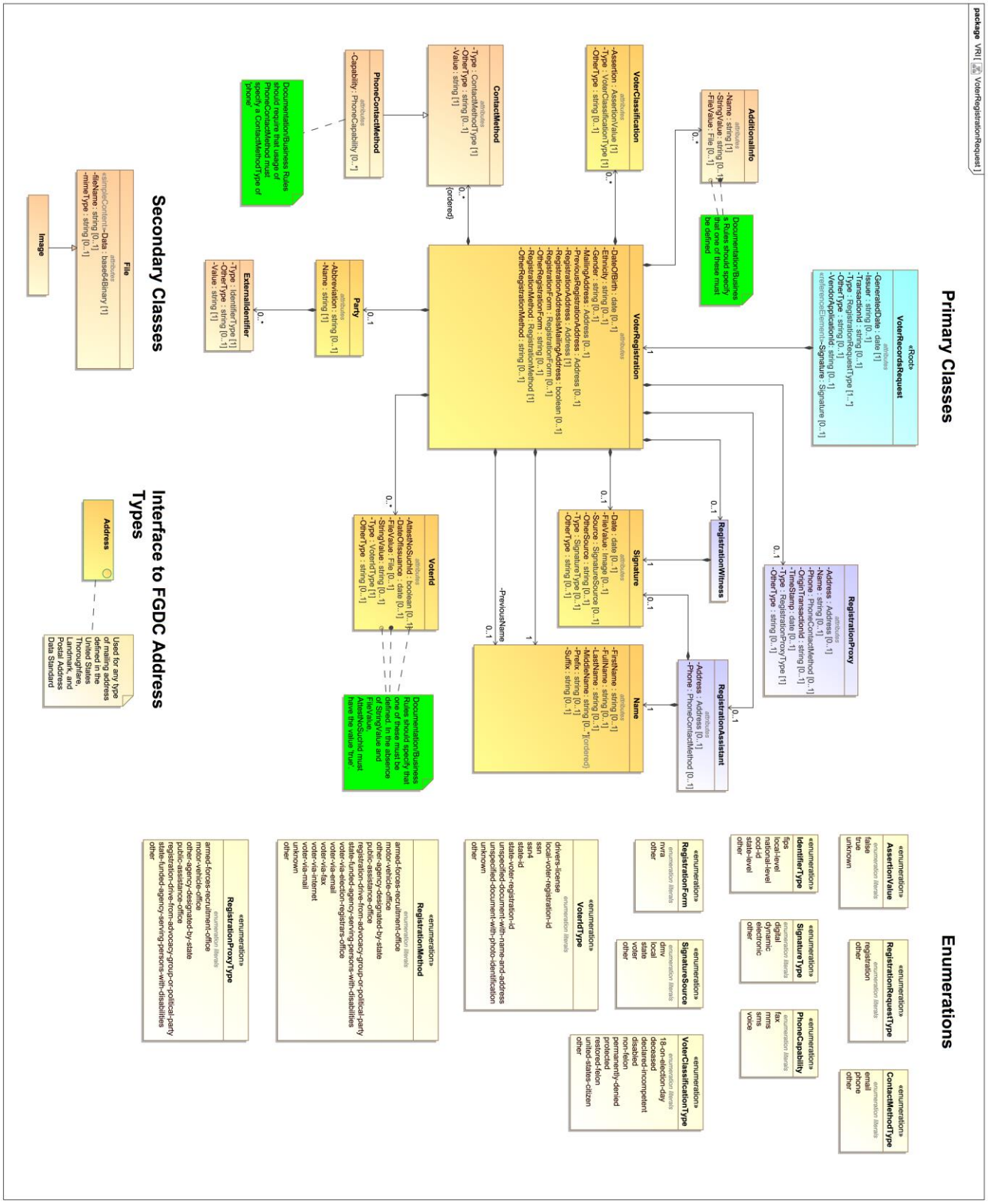

Figure 1 - Voter Records Request UML Class Diagram

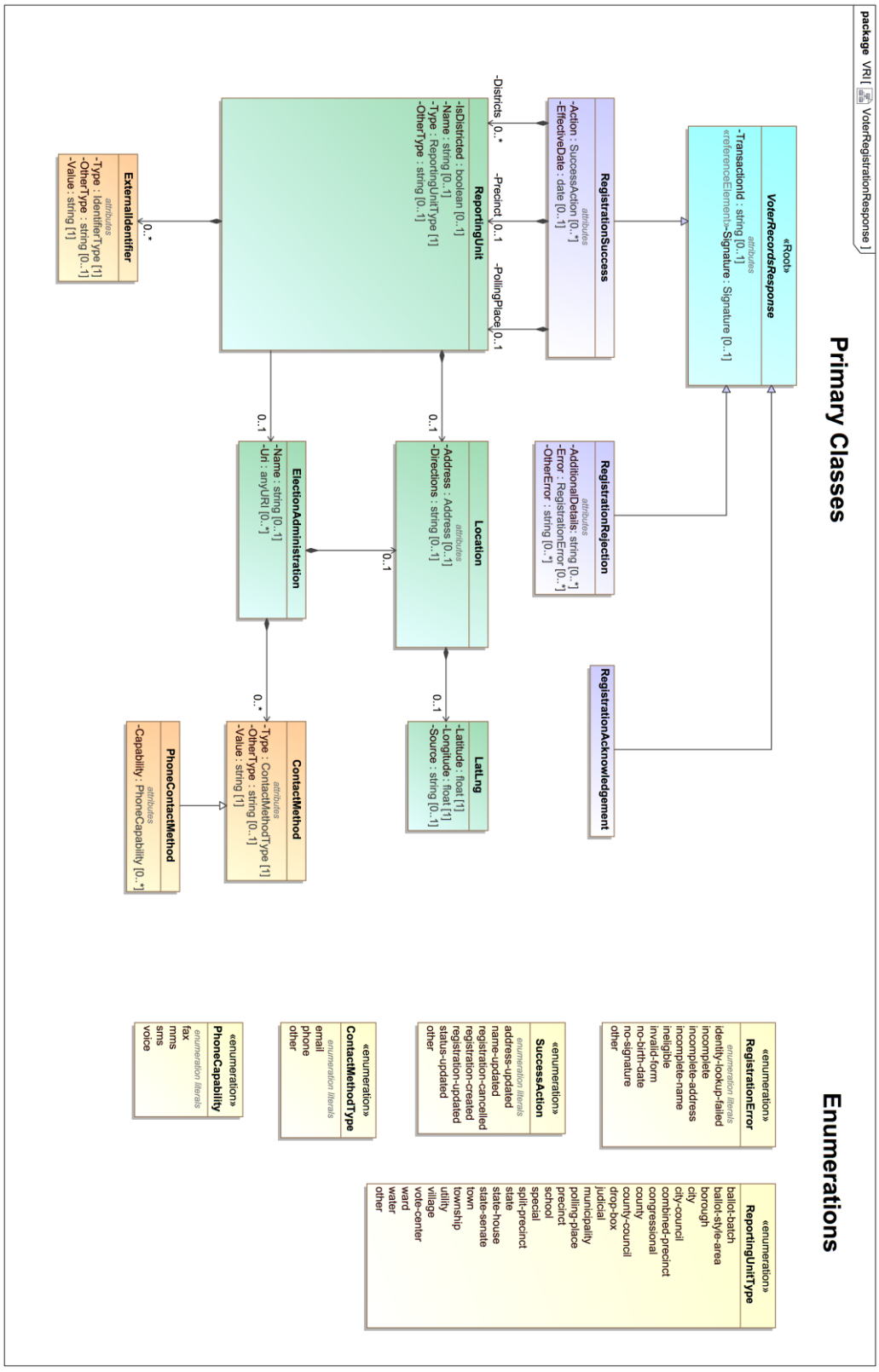

Figure 2 - Voter Records Response UML Class Diagram

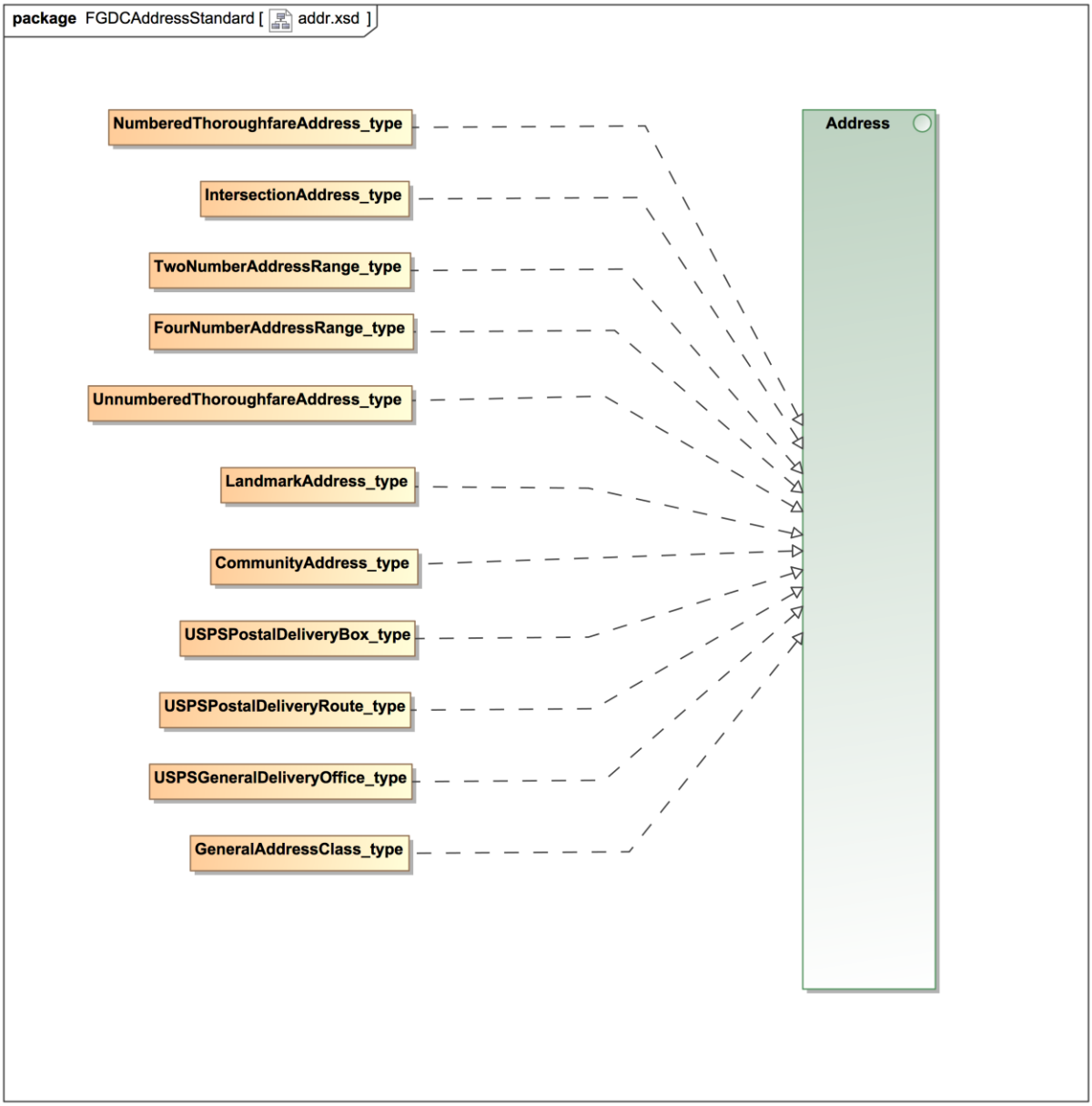

Figure 3 - Interface to FGDC Address Types