



Emergency Data Exchange Language (EDXL)

Project Initiation Document (PID)

For the

PHASE II - Tracking of Emergency Clients (EDXL-TEC) Messaging Standard

Draft Version 2.5

11/07/2011

Follow-on to Phase I: **Tracking of Emergency Patients (EDXL-TEP)**

Prepared by SE Solutions
Sponsored by the DHS S&T-OIC EDXL Program
Defined by the EDXL Practitioner Steering Group and TEC Steering Committee

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Document Distribution List

Name	Distributed (Yes / No)	Date (mm/dd/yyyy)
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EDXL full Stakeholder and Standards Working Group (SWG), Practitioner Steering Group (PSG), and vendors	Yes	09/30/2011
EDXL TEC Steering Committee, EDXL full Stakeholder and Standards Working Group (SWG), Practitioner Steering Group (PSG), and vendors	Yes – posted to the project web site	11/08/2011

Approvals

(BY THE EDXL-TEC STEERING COMMITTEE)

STATUS: Complete. Though a few outstanding issues remain, the PID has stabilized to the point where detailed requirements and message design may commence.

NEXT STEP: Version 2.5 contains minor revisions based upon late comments received by Google and Alexandria Consulting LLC. This PID as revised shall represent the scope and objectives of the EDXL-TEC standard excepting additional issue resolution and/or further consensus-based scope decisions TBD.

Revision History

Author	Date <mm/dd/yy>	Reason	Reviewers	Version
Low Leinenweber	02/23/2011	Initial draft		0.0
Low Leinenweber	06/03/2011	Revised initial draft		0.5

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EDXL Project Team	06/10/2011	Revised draft		1.0
EDXL Project Team	09/02/2011	Revised draft		2.0
EDXL Project Team	09/12/2011	Revised draft – For Final Steering Committee Approval		2.1
EDXL Project Team	09/29/2011	Address and incorporate added input from the final 1-week Steering review		2.4
EDXL Project Team	11/07/2011	Address and incorporate added input late October, 2011 from Google and Alexandria Consulting LLC.		2.5

Related work:

This specification is related to:

EDXL-TEC Messaging Standard Research Report & Research Artifacts – 16 May 2011

EDXL-TEP Messaging Standard Research Report & Research Artifacts – December 2009

Requirements Statement and Draft Messaging Specification for the PHASE I - Tracking of Emergency Patients (EDXL-TEP) Messaging Standard, Draft Version 2.2, dated 05/05/2010

EDXL Distribution Element v1.0

http://docs.oasis-open.org/emergency/edxl-de/v1.0/EDXL-DE_Spec_v1.0.doc

EDXL Resource Messaging v1.0

<http://docs.oasis-open.org/emergency/edxl-rm/v1.0/os/EDXL-RM-v1.0-OS.doc>

EDXL Hospital Availability Exchange v1.0

http://docs.oasis-open.org/emergency/edxl-have/os/emergency_edxl_have-1.0-spec-os.doc

EDXL Situation Reporting (SitRep)

(Specification development in-progress in the OASIS Emergency Management Technical Committee (EM-TC))

1 Executive Summary

1.1 Document Purpose

The purpose of the Project Initiation Document (PID) is to define and gain consensus on the purpose, objectives, and scope of the Phase II EDXL-TEC (Tracking of Emergency Clients) standard – follow-on to the Phase I Tracking of Emergency Patients (TEP) standard definition. This document provides a vehicle to solicit input from broad practitioner and stakeholder organizations, gain consensus and buy-in, and set the foundation for the detailed Requirements and draft Messaging Specification. These two primary deliverables will be submitted to the Standards Development Organization (SDO) for publication as a public, international standard for emergency systems information exchange.

Though consensus is required to support detailed definition, the PID will act as a “living document”, refined as project scope is refined, and feeding relevant information into the Requirements and Draft Messaging Specification document. The purpose of the later deliverable is to accurately and completely represent your data exchange needs at the level of detail required for the SDO to finalize the standard.

For clarification purposes, this EDXL-TEC effort will not result in development of an automated system; nor will it develop a data standard such as NEMESIS, or such as NIEM which is used to develop data exchanges. The specification to follow this PID will provide the basis for creation of a free, public international XML-based data exchange standard, which provides a format for native information exchange between any disparate systems that adopt and implement the standard interface.

1.2 Project Summary

Section 7 of this document provides a complete overview of the Emergency Data Exchange Language (EDXL) background, program, process and current standards. EDXL is a family of practitioner-driven public XML messaging standards, governed by the Organization for the Advancement of Structured Information Systems (OASIS). The EDXL program works with practitioners who identify top priority data-sharing needs across the emergency response & management continuum such as emergency alerts, Hospital Status and Availability, Resources & Tracking, Overall Situation Reporting, and Tracking of Patients and Evacuees.

The program focuses on areas where sharing of data across different systems is paramount to the mission, enabling BROAD interoperability across jurisdiction and professional boundaries to support core process that are most important to emergency and disaster response. Acceptance and use of these standards enables emergency data exchange across any disparate systems of local, state, tribal, national, international and non-governmental organizations *regardless of infrastructure and technologies used*. Systems using this standard interface may then send, receive, display, and process data natively using their existing systems to support their routine business processes and escalated needs.

EDXL is not a new “XML language”, and is not a data standard such as NIEM, which provides standardized elements and tools for use in defining an exchange. EDXL utilizes XML to pre-define a practitioner-driven standard data exchange format which fulfills a specific business purpose. The XML vocabulary used is based on agreed-upon data elements drawn in large part from existing vocabulary sources, and combined into a specified message structure and format. This standard provides a means for interoperable exchange among parties over a variety of communications networks, without changes or significant development effort.

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This PID addresses a new EDXL standard, EDXL-TEC, currently under definition by practitioners within this second project phase. The Phase I effort defined the requirements and specification for the EDXL-TEP (Tracking of Emergency Patients), which has been submitted to OASIS for development and processing for adoption to become a public, international standard. The TEC follow-on effort likewise aims to define the scope, requirements and detailed messaging specification for information sharing and tracking of evacuees, for submission to OASIS to become a standard.

The following provides an overview of these two phases. As the requirements and draft design become better understood, criteria will be developed and applied during the Standards Development Organization (SDO) process, in consultation with the stakeholder groups, to determine whether these requirements ultimately are best addressed as one or perhaps more public standards or standard exchanges.

EDXL-TEP - Phase I

EDXL-TEP is an XML messaging standard primarily for exchange of emergency client (patient) and tracking information from the point of patient encounter until patient admission (“handoff” to definitive care such as an Emergency Department), or release from emergency care. TEP supports patient tracking across the EMS emergency medical care continuum, as well as hospital evacuations and patient transfers, providing real-time information to responders and care facilities in the chain of care and transport. The TEP purpose embraces larger effort objectives, but is aimed at increased effectiveness of emergency medical management, patient tracking, and continued patient care capabilities during emergency care, supporting local, day to day needs as well as mass care situations.

TEP was championed by the National Association of State Emergency Medical Services Officials (NASEMSO) with other associations and agencies, and the definition effort prioritized by the EDXL Practitioner Steering Group (PSG). TEP supports the goals of the Department of Health and Human Services (HHS) - Agency for Health and Research Quality (AHRQ) recommendations for general population and patient movement, regulating and tracking and gaps identified by the Health Information Technology Standards Panel (HITSP). TEP supports the objectives of Emergency Support Function (ESF) #8, the Public Health and Medical Services mechanism for coordinated Federal assistance to supplement State, tribal, and local resources in response to a public health and medical disaster.

The draft TEP specification has been successfully piloted in two major National Disaster Medical System (NDMS) live exercises. The 2010 live patient movement exercise tracked volunteer patients between the states of Maryland and Tennessee with TEP interoperability enabled among one Federal (HHS), two states and one local system. The results were used to enhance the TEP specification prior to submission to the SDO. In 2011 5 states within the National Level Exercise (NLE) utilized the improved TEP specification to track patient movement in and between the states of Missouri, Louisiana, Tennessee, Wisconsin, and Mississippi, with TEP interoperability enabled between four current tracking systems.

EDXL-TEC - Phase II

This PID addresses phase II of the overall effort for EDXL-TEC (Tracking of Emergency Clients). Stakeholder and practitioner comments to this PID will confirm and drive out project scope, determine areas that are in or out of TEC scope, and determine relative prioritization of each in order to focus project resources and outcome of the ultimate standard.

EDXL-TEC expands the Phase I scope from strictly patient-focused, to support information exchange more broadly about general population, or “clients” such as evacuees, those sheltered in place or self-evacuating. TEC enables tracking of client movement, search, people-finding and reunification, shelter availability, and matching of special needs with available transportation, shelters and resources (“regulation”). It is aimed at effective evacuation management, and supports coordination and effective use of assets, information exchange to support locating clients for family reunification, and fills gaps

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identified by HHS-AHRQ processes. TEC supports the objectives of Emergency Support Function (ESF) #6 in the coordination of Federal mass care, emergency assistance, housing, and human services, when local, tribal, and State response and recovery needs exceed their capabilities." TEC and also supports ESF 8 functions for sheltering those with special medical needs and co-located Federal Medical Station (FMS) sheltering of non-medical care givers and family members accompanying patients. Figure 1 contains the original phase I graphical view of the phased approach to the Tracking of Emergency Clients requirements. The TEC standard will facilitate standardized data exchange(s) specifically in support of the following processes, described in greater detail later in this document. These are generally presented in priority order, and may evolve into one or more standards, or more than one data exchange within one standard.

- 1) Enable cross-system **client tracking** and **evacuation management** whether self-evacuated, sheltered in place, or being transported or assisted, from the time of encounter through final disposition, location or exit from the tracking process, including repatriation.
- 2) Provide the ability to share information over and above a person's current and planned location. Examples include information such as special needs, property and relationships to other clients.
- 3) Improve processes for search, **people-finding and family re-unification**, through access to richer, more complete and consistent information, by sharing data about clients, their location and status *across* existing public, NGO and federal "**Registry**" systems.
- 4) Share **Shelter Availability** information about pre-existing or temporary shelters to assist **client routing** to the nearest available shelter which contains resources that address client functional needs and medical special needs.
- 5) Support information-sharing that improves **matching evacuee needs with available services**, transportation, shelters and resources. ("**Regulation**" - see definition in Section 4.2).
- 6) Support **other** processes and information needs that may involve evacuation routes, road conditions, gas/other facilities availability, traffic, weather, etc., which may improve evacuation management. (NOTE: Clarification and prioritization is required for these information needs and functional area - See Section 5.3, Outstanding Scope Decisions and Potential Issues).

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Phase I Tracking of Emergency Patients (TEP) & Phase II Tracking of Emergency Clients (TEC)

Tuesday, August 31, 2010

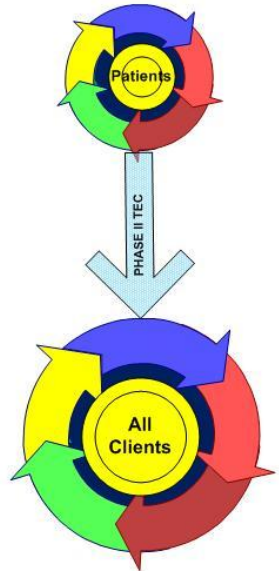
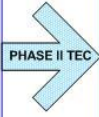


Figure 2 - Tracking of Emergency Clients & Patients - Phases

1.3 Status and Next Steps

Figure 3 provides the tentative Phase I EDXL-TEC schedule. TEC underwent a research phase resulting in a Research Report initially prepared in December 2010; subsequent revisions have been made to the Research Report resulting from continued research and stakeholder interviews to produce the current version dated 16 May 2011. The report is a living document and will be updated as new information comes available. The report sought to re-use present and past effort information and identify coordination points and potential stakeholders.

The current effort will work with the "Standards Working Group" (SWG) a DHS sponsored group of cross-profession emergency practitioners and extended stakeholder groups of emergency practitioners to review practitioner objectives, scope, and information needs, while in-parallel developing straw-man use cases to drive and define the TEC Requirements and draft Messaging Specification.

For a more detailed view of the TEC project schedule, please reference the EDXL TEC project schedule Gantt chart contained in Section 13 of this document.

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Milestones	Delivery Targets
EDXL TEC Executive Steering Committee Kickoff Meeting	Q4 2010 (Conducted Dec 2010)
TEC Research Report	Q4 2010 (Initial draft completed Dec 2010)
TEC Draft Project Initiation Document (PID) (TEC Steering Committee)	Q2 2011
TEC PID Finalized	Q3 2011
Scenarios, Use Cases, Initial Messaging Design.	Q3 2011
Requirements & draft Messaging Specification	Q4 2011
Review Cycles: TEC Steering Committee, Stakeholders, SWG, Vendors & Stakeholder Executives	Q1 2012
Approvals and Packaging	Q1 2012
Submit Package to EIC / OASIS	Q2 2012

Figure 3 – Tentative TEC Schedule

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1.4 Additional Information

EDXL- TEC Project Details

Project Name	EDXL Tracking of Emergency Patients (TEC)		
Sponsoring Organization	DHS-S&T-OIC, Denis Gusty denis.gusty@dhs.gov		
Practitioner Lead	TEC Steering Committee		
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Project Work Group / Steering Committee Members	(SEE BELOW)		
Stakeholder Community	SEE APPENDIX A		
Start Date:	Research Phase: Q3/4, 2010 Project Start: December, 2010	Completion Date:	Target Standards Development Organization (SDO) submission Q2 2012

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EDXL TEC Project Steering Committee Members

Organization	Primary Contacts	Title	Alternate Contacts
DoD Office of the Assistant Secretary of Defense (OASD) -Homeland Defense and Americas' Security Affairs DoD Office of the Assistance Secretary of Defense (OASD) Health Affairs	Christy Music Scott Henderson	Program Director, Health & Medical Defense Support of Civil Authorities Program Manager, Document and Information Collection and Management Program	
DHS Office of Health Affairs (OHA)	Sally Phillips		Mike Zanker
National Guard Bureau	John Foley	Contractor, NGB-J35	
National Institute of Health (NIH) - National Library of Medicine -Lost Person Finder	Glenn Pearson	Project Co-Lead/Senior Developer LPF Communications Engineering Branch	Michael Gill
FEMA	- Scott Bowman - Waddy Gonzalez	- Individual Assistance Division, Systems Development /Integration Deputy Branch Chief - Mass Care & Emergency Assistance Branch Section Chief	- Kenneth Graham - Scott Shoup
Maryland Department of Human Resources Division of Administrative Operations	Pamela Spring	Director Office of Emergency Operations - ESF 6 Lead	- John Donahue - David Bohannon
Department of Emergency Medicine LSU Health Sciences Center – Shreveport, Emergency Nurses Association (ENA)	Knox Andress	Designated Regional Coordinator Louisiana Region 7 Hospital Preparedness	
Tennessee Department of Health	Jeff Sexton	Preparedness and Response	Captain Robert Newsad
Department of Transportation (DOT)	Drew Dawson	Director Office of Emergency Medical Services National Highway Traffic Safety Administration	- Gam Wijetunge - Gregory Brown - Susan McHenry
Department of Health and Human Services Office of	Joe Lamana	Senior Program Analyst Response Operations	- Linda Cashion - Charles Knell

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Organization	Primary Contacts	Title	Alternate Contacts
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Department of Veterans Affairs	Kevin Hanretta	Deputy Assistant Secretary for Emergency Management	Michael Feeser
American Red Cross	Katherine Galifianakis	Manager, Mass Care and Family Reunification	Dee Yeater Mary Casey-Lockyer
Department of Justice (DOJ)-IJIS			
National Association of State EMS Officials, DHS Practitioner Steering Group (PSG)	Kevin McGinnis		
Los Angeles Fire Department	Xenophon "Yo" Gikas	Captain	
New Jersey Office of Homeland Security and Preparedness	David Gruber	Special Assistant to the Director	
Heartland Center for Public Health Preparedness - St. Louis University School of Public Health	Michael W. Thomas	Associate Director	
State of Texas Department of State Health Services	- David Lakey - Bruce Clements	- Commissioner - Director, Community Preparedness Section Department of State Health Services Division for Prevention and Preparedness	Richard Bays
St. Louis City Emergency Management Agency	Gary A. Christmann	Commissioner	

2 EDXL-TEC Project Organization and Communication Plan

Section 7 of this document provides a detailed overview of the Emergency Data Exchange Language (EDXL) background, program, process and current standards.

The EDXL-TEC Steering Committee represents stakeholders selected from the broad range of emergency practitioners involved with emergency and disaster response and recovery processes. The Practitioner Steering Group (PSG) and Standards Working Group (SWG) for TEC represent an expansion beyond those responsible for EDXL-TEP in order to broaden subject matter expertise and advocacy beyond healthcare and medical-domain stakeholders. These groups include organizations and professionals responsible for managing the tracking, movement and sheltering of general population evacuees impacted by an emergency event. Input to this project is further expanded to applicable vendors and industry representatives to review project artifacts and provide feedback as practitioner requirements are solidified. A full stakeholder list is contained in the appendices.

The EDXL-TEC project organization and process flow is shown in Figure 4.

DHS-OIC and its project team, shown in the **Red** boxes, provide project sponsorship, stakeholder practitioner facilitation and consensus-building, and requirements definition, analysis, and design in the development of required deliverables. The project team also coordinates between Standards Development Organizations (SDOs) such as OASIS, HL7, and the Open Geospatial Consortium (OGC®), between local, state, and federal agencies, and between the Stakeholders, SWG and vendors for development of deliverables. Though not depicted in Figure 4, the project team is also an OASIS member, directly supporting the OASIS process and deliverables and representing the needs of the original stakeholders.

The Practitioner Steering Group (PSG) and Stakeholder groups, shown in the **Blue** boxes, represent practitioners, leaders and experts which guide priorities, and define deliverables for the domain of the TEC requirements. The Steering Committee with input from research efforts drives proposed scope, objectives, requirements and draft messaging specification at each stage for input by the broader and larger Standards Working Group (SWG), rather than starting from a “blank whiteboard”. As the PID solidifies, a rigorous scenario and use case process drives down specific requirements, data and structure of the standard information exchange(s). Throughout the process, these groups work together to resolve issues and build consensus. Stakeholder input and buy-in is critical to this effort to ensure broad interoperability needs are addressed and coordinated, and eventually adopted and implemented.

Industry, vendors and the EIC, shown as boxes in **Green**, also provide input, but more significantly they support exercises and proof of concept tests to improve the standard, as well as early-adoption. The practitioner requirements are then submitted jointly to the public SDO, OASIS.

The Organization for the Advancement of Structured Information Standards (OASIS), shown in the **Purple** shaded box, is a not-for-profit consortium that drives the development, convergence and adoption of open standards for the global information society. It is one of a number of SDOs that take responsibility for development, maintenance and lifetime governance for international, publicly-available standards that emerge from industry needs and practices. OASIS then performs an open and public process including public reviews for final creation of a technically implementable public standard.

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The communication plan for the TEC effort is managed through email distribution lists, open web site and direct outreach, and using a publically-available web folder used to manage all research and development artifacts. Outreach, marketing and additional communications is managed through web sites, publications, conferences and newsletters managed by DHS S&T with the Practitioner Steering Group, the Emergency Interoperability Consortium (EIC), the emForum Special Interest Group, and OASIS.

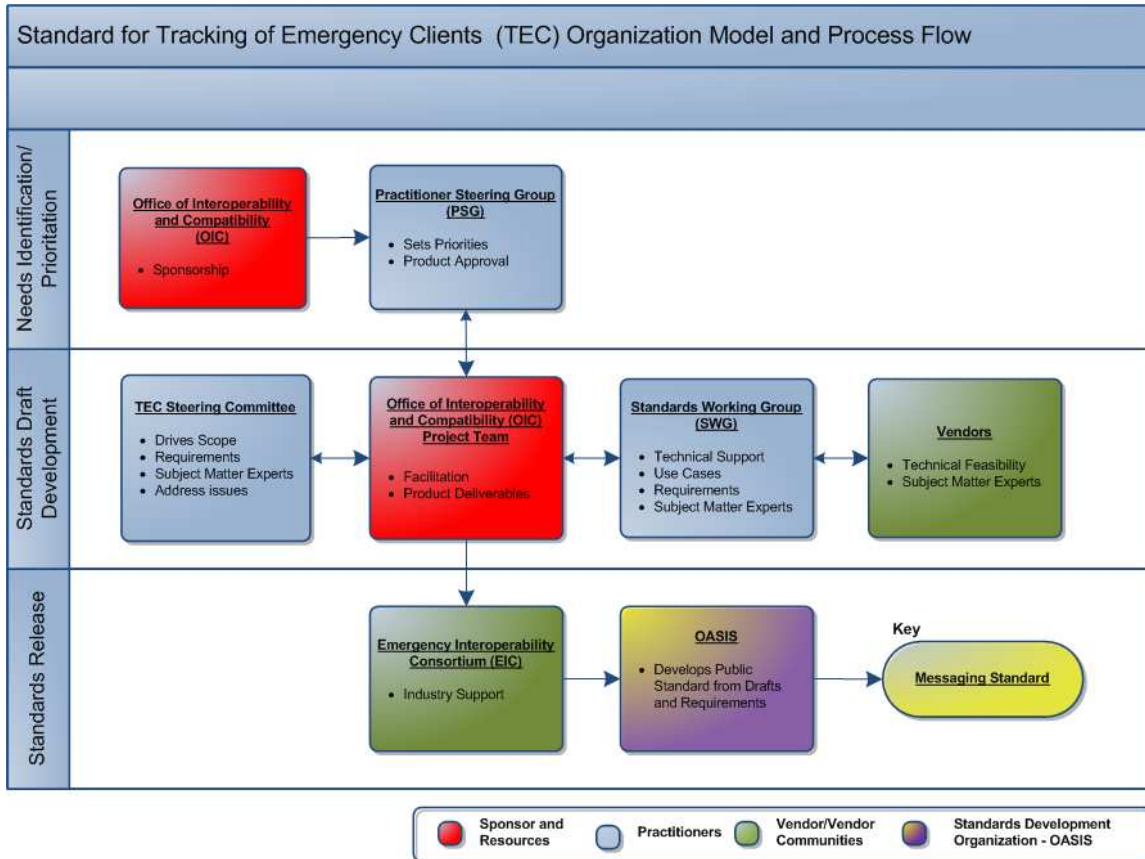


Figure 4 - TEC Standards Organization Model and Process Flow

3 Phase II - EDXL Tracking of Emergency Clients (EDXL-TEC) Overview

This project is being conducted as Phase II follow-on to the companion Phase I EDXL –Tracking of Emergency Patients (TEP) standards definition. This section describes the background, purpose and scope summary for this Phase II project effort.

3.1 Background

Various disasters and other emergency events continue to confirm that the United States faces a legitimate threat of intentional and natural mass casualty incidents. In response, numerous efforts have been launched to strengthen emergency response infrastructure.

In response to the ongoing occurrence of local incidents as well as disasters and mass casualty incidents, members of the emergency response and medical communities have identified priority requirements for tracking of patients and evacuees (clients) during emergencies and disasters, and have adopted systems to address these needs. However, multiple systems now exist within each locality, within states, across federal agencies and within the DoD – and this current situation will continue to proliferate as each exercise their own procurement decisions to meet their unique needs

These organizations very often must coordinate and work together in the movement, care and tracking of patients and evacuees in response to emergencies and particularly mass casualty incidents. In the later case, patients and evacuees must be transported within states, across state boundaries, and often utilizing federal and DoD resources. This drove the requirement for a solution for tracking across multiple existing systems and infrastructure, which is low cost and low effort to implement, can be used every day, but is scalable to support tracking of mass casualty / mass evacuee incidents. In addition, a 2009 AHRQ report outlined systems and interoperability requirements for use during a mass casualty or evacuation event, to locate, track, and regulate patients and evacuees.

EDXL provides a systems interoperability approach that meets all of these requirements, through a standardized data exchange that facilitates any system to share patient or evacuee movement information with their neighbors and partners, and with any other system that adopts the data exchange standard. In order to address this specific requirement, new EDXL standards needed to be defined.

The new standards definition effort was prioritized by the EDXL Practitioner Steering Group (PSG), with the Phase I EDXL-TEP effort addressing patient tracking. That practitioner effort was completed and the requirements package submitted into the SDO process.

This PID addresses the “client” side – general population evacuees, self-evacuees and those who shelter-in-place. Effective client tracking systems serve as a means to improve emergency response and preparedness capabilities by electronically capturing information about population affected by an emergency event. However, systems are only part of the answer. Tracking software systems have been based on non-standard tracking content and format resulting in lack of interoperability. TEC will address similar issues as patients for TEP where agencies and organizations have expressed frustration with the lack of a standardized approach to share “Client Tracking” (evacuee), shelter and other information.

3.2 Purpose and Scope Summary

This section provides a general overview of the EDXL-TEC standard purpose and scope. Later sections provide a specific statement of objectives, and detailed statements which govern scope of the effort.

The EDXL Tracking of Emergency Clients (EDXL-TEC) standard is being developed to support specific requirements for general population evacuee client tracking during emergencies and disasters. TEC facilitates standards-based information-sharing between any disparate systems that track clients at local, state, tribal, federal and DoD levels. It is intended for use in all-hazard mass casualty situations but is also intended for use on a routine basis, supporting local, day to day incidents, utilizing current software products.

Tracking of clients; displaced individuals or evacuees, faces issues similar to those addressed during the development of the TEP standard. The AHRQ 2009 report "*Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System*" makes the following observations that generally apply to Clients as well as Patients:

- "...issues of separation between patient-family and family-family (in particular, children separated from parents) and the need for reunification were noted. These tracking needs are compounded by the fact that many complex evacuations across the U.S. involved an average of 3.5 moves, most of which were made across State lines."
- ".....during a disaster, data exists on patients, institutionalized individuals, and public citizens residing in or visiting a community. Effective response in times of disaster requires that such data be readily accessible and linked to support tracking needs. We lack the capability to exchange meaningful data across systems to facilitate evacuation holistically. The need to integrate soloed systems so that they can inform decision makers on sources/destinations, critical personal information, and evacuee status is emphasized by experience from prior disasters."
- "...for any patient identification and tracking system to work effectively, it must either be extremely easy and intuitive to use or it must be used on a routine basis... "...any standards and protocols in the National System should be compatible with the Emergency Data Exchange Language (EDXL) protocol overseen by OASIS..."

The TEC requirement is aimed at increased effectiveness of tracking client movement, "regulation" (see definition Section 4.2) and decision-making, service and reunification of all clients, whether displaced, evacuated, sheltering in place, or self-evacuated. TEC will provide a standard XML interoperable message exchange format for non-medical *client tracking* information in support of the following processes. These are generally presented in priority order, and may evolve into one or more specific data exchanges or standards.

- 1) Enable cross-system **client tracking** and **evacuation management** whether self-evacuated, sheltered in place, or being transported or assisted, from the time of encounter through final disposition, location or exit from the tracking process.
- 2) Improve processes for search, **people-finding and family re-unification**, through access to richer, more complete and consistent information, by sharing data about clients, their location and status across existing public, NGO and federal "**Registry**" systems.

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- 3) Share **Shelter Availability** information about pre-existing or temporary shelters to assist **client routing** to the nearest available shelter which contains resources that address client functional needs and medical special needs.
- 4) Support information-sharing that improves **matching evacuee needs with available services**, transportation, shelters and resources. (“**Regulation**” - see definition in Section 4.2).
- 5) Support **other** processes and information needs that may involve evacuation routes, road conditions, gas/other facilities availability, traffic, weather, etc., which may improve evacuation management. (Clarification of these other processes and prioritization is needed. See Section 5.3, Outstanding Scope Decisions and Potential Issues).

The TEC operational context and information flow is shown in Figure 5 below, followed by the TEP Phase I scope diagram (Figure 7) is provided to aid in understanding the separation of scope boundaries.

Figure 5 provides a high-level depiction of the four primary components that make up the EDXL-TEC standard purpose, functions, data, and potential standard XML messages to be supported by the eventual open standard.

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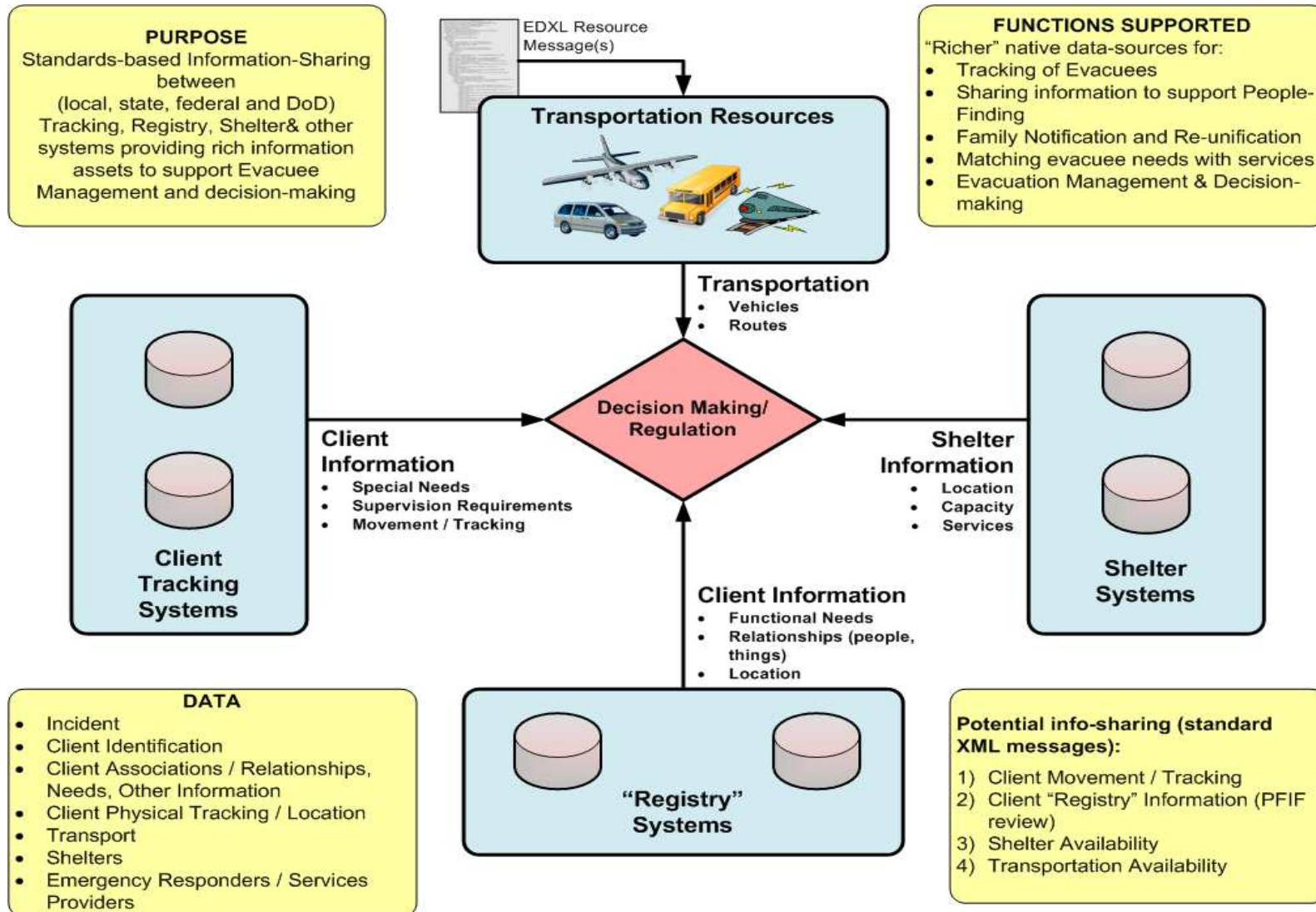


Figure 5, TEC Operational Context and Information Flow

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For context purposes, this EDXL-TEC effort will not result in development of another automated system; nor will it develop a new “data” standard such as NEMSIS. The specification to be developed according to this PID will provide the basis for creation of a free, public international XML messaging standard, based on a vocabulary of data elements composed in a defined structure, which enables seamless information exchange between any disparate systems that adopt and implement the standard. It will, however, draw on other appropriate data standards such as NIEM, PFIF and others where common data elements can be reused.

Though requirements and inputs to this standard will be developed and refined through U.S.-based cross-profession emergency support practitioners, the intent of this effort is to publish an open, public, international XML-based standard, defining standard tags and message structure, used by implementers to build standards-based information exchanges. Everyday systems with this standard interface will understand these structures and thus the underlying data. This structure enables each to send, receive, display, and process shared data in their own native environment supporting their routine business processes and escalated needs. This format is intended to be used collaboratively with other EDXL standards over any data transmission system, including but not limited to SOAP using the HTTP binding.

An EDXL-TEC message will be designed as a “payload”, meaning a standard structure to carry the data, but without a built-in routing capability. An EDXL-TEC message is designed to be routed using the EDXL Distribution Element (DE) (description in the [EDXL overview section](#)). EDXL-DE provides a flexible routing mechanism for EDXL or any other well-structured XML payloads and non-XML objects such as files or photos. However, use of the EDXL-DE is not absolutely required if other routing mechanisms provide appropriate metadata in a form consistent with the DE, or if the sender specifies specific recipients of the message.

4 TEC Objectives

This section describes objectives of the TEC *project*, as well as the eventual TEC *standard*. Subsequent sections below describe proposed scope boundaries, high-level requirements, and list candidate data elements under consideration to meet the requirements of this standard.

4.1 Terminology

Though detailed requirements will be defined during the subsequent phase, the key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC 2119] – “Key words for use in Requests For Comments to Indicate Requirement Levels” – Harvard University.

The term “Conditional” as used in this specification is to be interpreted that a message *element* MUST be used, according to specified rules (elements MUST be one of “Required,” “Optional” or “Conditional”).

RFC 2119 specifies:

1. **MUST** This word, or the terms "REQUIRED" or "SHALL", means that the definition is an absolute requirement of the specification.
2. **MUST NOT** This phrase, or the phrase "SHALL NOT", means that the definition is an absolute prohibition of the specification
3. **SHOULD** this word, or the adjective "RECOMMENDED", means that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.
4. **SHOULD NOT** This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
5. **MAY** this word, or the adjective "OPTIONAL", mean that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation which does not include a particular option MUST be prepared to interoperate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option MUST be prepared to interoperate with another implementation which does not include the option (except, of course, for the feature the option provides.)

4.2 Definitions

A glossary is provided as an appendix to this document. The following definitions are focused on the key subject matter of this standard.

Client - A person of the general population who is impacted by an incident and who is displaced, evacuated, sheltering in place, expired, and/or requiring shelter or medical attention.

Self-Presenting Clients – Are persons who present themselves for assistance at evacuation staging areas or shelters without assistance from responding agencies. Self-presenting clients may also be individuals who identify themselves in need of assistance through registry or other local notification systems.

Evacuee - A person who has been evacuated from an unsafe area which may include healthy general population and patients. Evacuees may choose to evacuate or to remain in place, but must still be tracked.

Self-Evacuee – A person who is able to provide their own transportation to depart the area affected by an incident to seek shelter in a safe location.

Displaced person – Is a person who has been forced to leave his or her home due to an emergency or disaster.

Shelter-in-Place – Person(s) who has chosen to seek shelter in their home or current location. Current location can include a variety of places, such as place of business, hotel, school, etc.

Patient - A person requiring medical oversight or attention, being medically evaluated, or a fatality. In the companion TEP standard, the term patient may be used interchangeably with the term client.

Emergency Responders – Agencies and personnel with governmentally recognized responsibility for responding to emergencies and disasters of any scale. Examples include: Fire, law enforcement, EMS, 9-1-1, emergency management, search and rescue, and public health.

Client “Registry” System – A public, NGO or federal system that provides the ability to collect information about persons who may have been affected because of an emergency or disaster and in some cases may be considered by others as “missing”. Information may be collected about persons whose whereabouts are being sought by family, friends or other associates. Information may also be entered by or for persons who have been displaced as a result of an emergency or disaster incident to assist the affected persons to locate or reunite with one another.

Client “Tracking” System – A system typically used by EMS or other patient movement organizations or used by evacuation agencies or organizations, that provides the ability to know, at any given time, the location and status of a client from the time s/he is first encountered by an emergency responder to arrival at a facility, whether the facility is a hospital, shelter or morgue.

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“Regulation” – “Regulation” is a term adopted and used within several HHS and DoD organizations and agencies, to denote a decision process which matches client / client movement needs with available transportation, facilities and resources. This process attempts to ensure that a patient or evacuee is transported on an appropriate vehicle to a location that has the facilities, staff, equipment, and supplies that are needed to care for this person¹. A system that ‘regulates’ will provide authorized users with a mechanism for assigning a patient or evacuee to a vehicle and then assigning a destination to that vehicle².

Sender – A party who originates an exchange of information or submits a broadcast or targeted information distribution using a standard information exchange format.

Recipient – A party who receives an exchange of information distributed by a sender using a standard information exchange format.

Repatriation - The process of returning a client back to their initial place of origin

People Finder Interchange Format (PFIF) - The People Finder Interchange Format is both a data model and an XML-based exchange format for sharing data about people who are missing or displaced by natural or human-made disasters.

Service Providers- Services providers are emergency responders, transport providers, aid and shelter organizations who are assisting clients

¹ AHRQ Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System, January 2009, Executive Summary, page 1

² Ibid. Section 2, page 9

4.3 Objectives of the TEC Project

This section describes objectives which provide focus for the TEC *project*. Section 4.4 describes objectives of the TEC *standard*.

1. In accordance with TEC project objectives below, drive standards process and messaging standardization to facilitate tracking of emergency clients during emergencies, disasters, and routine day to day incidents.
 - a. The goal of messaging standardization is to facilitate information sharing across disparate organizations and systems regardless of existing levels of data standardization.
2. Thoroughly research and analyze existing approaches to client identification, registration, tracking, regulating, locating, movement, and sheltering in both the public and private sectors providing input to avoid duplication of effort. Such analysis will help to identify objectives, requirements, key system features, assess mechanisms and information needs for data exchange among disparate systems.
3. Foster data exchange across systems by utilizing common interface and existing data standards whenever possible, and by providing sufficient documentation to drive development of public standards (published by an SDO) in areas where requirements and gaps are identified.
4. Perform detailed scope definition and data identification to balance value vs. scope, in order to ensure no “false starts” and minimize development time. A critical success factor of this effort is in the definition and management of detailed scope to balance reasonable time to market with value proposition, leaving open the possibility of subsequent phases, additional standards, or future standard enhancements.
5. The project approach will define the standard in such a way as to ensure that it is as simple and easy to understand as possible, particularly for small aid-providing groups that may have limited technical capacity and want to use the standard for very specific purposes. Requirements shall stipulate that the resulting public standard be complete but brief and straight-forward, to facilitate its use to fulfill a specific purpose or perform a specific task.
6. Ensure standards are scalable, extensible and flexible, to address both “basic” data requirements (e.g. “light payloads” or very specific purpose) and “maximum” information needs to support stated objectives, considering varied levels of state and local capabilities, functional requirements, and constraints presented by varied incidents such as incident size and causalities, resource availability, technology available, etc.
7. Support submission of standard requirements into an open, public standards development organization (SDO) providing access and participation, and open, transparent process and governance for addressing practitioner requirements, minor and major versions and subsequent standards.
8. Support applicable objectives of the AHRQ “*Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System*” (specifics contained in section 4.2) for example as identified below:

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The TEC project will endeavor explore and address the following requirement identified in the AHRQ report. These requirements will be explored during TEC:

- a. Develop a coordinated multi-jurisdictional evacuee information exchange capability that builds on existing resources and procedures available at the state, local, and federal level.

The following is extracted from the AHRQ report:

*“... for the feeder system concept to work standards are needed for communicating with the National System. Early in Phase I detailed protocols and procedures need to be developed that specify how data are transmitted between feeder systems and the National System. Broad acceptance of these requirements is critical to the success of the project, as is adherence to existing standards and related initiatives. In particular, any **standards and protocols in the National System should be compatible with the Emergency Data Exchange Language (EDXL) protocol** overseen by the Organization for the Advancement of Structured Information Standards (OASIS), as well as the initiatives of the Office of the National Coordinator for Health Information Technology.”*

As opposed to a centralized view of a “National System”, the AHRQ concept focuses on a “system of systems” distributed approach, tying together local, state, tribal and federal systems serving specific needs with open standards and web services information-sharing to support end to end processes. This vision continues to hold true and support the diverse needs of clients and patients as well as the practitioners on the ground and their federal partners.

4.4 Objectives of the TEC Standard

The following states the objectives intended to be met by the TEC Standard, when adopted to implement one or more specific data exchanges between systems.

The EDXL-TEC standard will...

1. Facilitate more effective client evacuation, transportation and sheltering management.
2. Enable standardized sharing of available information for use during routine emergencies as well as both small and large-scale disasters, supporting local, state, federal or DoD evacuations and tracking of clients whether at a shelter, self-evacuated or sheltering-in-place.
Enable information-sharing about client encounters with emergency professionals and transitions between them, and client movement/evacuation at current, intermediate and final locations including family reunification and repatriation.
 - a. Sharing information to track clients from first encounter until the client is either released or transported to a designated shelter facility including tracking them as they move throughout all locations to a “final” disposition or location.
 - b. Facilitate more effective physical tracking of client movement between locations (current and previous) and between various shelters or medical facilities.
 - c. Sharing information about clients who shelter-in-place, or who self-evacuate.
 - d. Sharing client tracking information made available at any point throughout the continuum of an incident (evacuation, transportation registration, sheltering) until a client is either released or travels to another facility.

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- e. Facilitate early preparation of receiving facilities and more effective services for clients through notification to receiving facilities about clients that are in route, and providing information about client needs and functional needs for decision support to receiving facilities and organizations.
 - f. Facilitate sharing of client information which may provide input to determine services and special requirements that are associated with clients to be evacuated and sheltered.
3. Support Emergency Support Function (ESF) #6 Mass Care, Emergency Assistance, Housing, and Human Services and ESF #8 Public Health and Medical Services.
 - a. ESF 6 provides the coordination of the delivery of federal mass care, emergency assistance, housing, and human services when local, tribal, and state response and recovery needs exceed their capabilities.
 - b. ESF 8 supports sheltering those with special medical needs and co-located Federal Medical Station (FMS) shelters to support non-medical care givers and family members accompanying patients being treated at an FMS
 4. Enable sharing of available information between client "Registry" systems to better support family re-unification. Many public, NGO and federal systems are in place today which allow direct or assisted entry of information about "you", your location, status and condition, so that family members or others may search or query "your" whereabouts or condition. This objective enables individual "registry" systems to contain records entered into many others, providing access to richer, and more complete and consistent information across various systems.
 - a. Adopt current specifications like People Finder Interchange Format (PFIF), either in present or an enhanced form to develop an open international community standard for transparent SDO governance and maintenance enabling broader use emergency "registries".
 - b. Support sharing of metadata for data reliability and traceability, such as the origin of the data and the time a record was created or last updated.
 - c. Support sharing of metadata for data privacy, such as a time at which a record expires (and thus should be deleted by conforming participants).
 - d. Definition of a "data life cycle" that explicitly supports sharing of data among multiple repositories, including:
 - i. The concept of an original data owner or originating record (the "original repository" in PFIF)
 - ii. Flexibility to accommodate a broad range of identifier schemes used by different organizations (NOTE: a data exchange standard cannot, however, prevent collision of unrelated records as this is an application function)
 - iii. Support for incremental export and update, by sharing the time that each repository received its copy of a particular record
 5. Facilitate more effective use of assets providing distribution guidance and decision support to persons and organizations with responsibility for client assessment, tracking, regulating and

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movement. Standard information-sharing should support routing of clients to the proper facility to match individual needs and facility capacity for efficient use.

6. Enable sharing of available information to assist “regulation” decisions (see definition Section 4.2). This may include data about available client transportation resources, equipment and supplies that can be matched and reserved to meet the client’s special needs.
7. Enable sharing of Shelter Availability Information, whether for pre-existing or temporary shelters, to assist routing of clients to the nearest available shelter which contains resources that address client functional needs and medical special needs. Shelter information to be shared would include, but not be limited to shelter name, location, capacity, and available services.
8. Facilitate sharing of client shelter capacity, usage, and availability information which may be used to respond to “data calls” up the chain of command to local, state and federal executives, politicians and decision-makers.
9. Facilitate sharing of client location information in order to support family reunification processes by those “outside” of the emergency or incident.
10. Facilitate the tracking of client Associations such as attendants, family members, pets, service animals, luggage and associated medical equipment.
11. Support the sharing of client transportation information, such as availability of transportation assets and those already in-use as well as capabilities and capacities of transportation assets to satisfy the evacuee population requirements throughout the evacuation and sheltering process.
12. Facilitate sharing of available transportation resource information which may be used to respond to “data calls” up the chain of command to local, state and federal executives, politicians and decision-makers.
13. Facilitate sharing of client evacuation information which may be used to respond to “data calls” up the chain of command to local, state, tribal and federal executives, politicians and decision-makers as well as agencies responsible for client/evacuee and patient tracking, movement, and “regulation”.
 - a. Facilitate sharing of client information which may support input to statistics on number of clients processed from source to destination facility, providing input to service metrics and possible funding in support of incidents.
14. Support repatriation processes by tracking when clients are returned to their point of origin.. For example, a TEC message / information exchange may be used to share information about an encounter with a client at a shelter location, and then movement of that client back to their point of origin.
15. Support intuitive information-sharing to track the reality of *patients* being released and becoming “clients” requiring ongoing services and tracking, as well as *clients* developing sickness or injury and becoming patients who require ongoing care and tracking.
 - a. Ensure information-sharing standard(s) support the integrity required to track the same “person” (with that person’s associations and relationships) as they shift from a “state” of being a patient to that of being a “client” and vice versa.
16. Identify and define required data elements and messages that are needed to fulfill the purpose and objectives of this standard. This may include basic emergency responder dispatch

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information such as incident type and location, shelter and transport demographics, unique client identification which may assist with access to other client information, tracking of physical movement, client transition of responsibility between shelters or medical facilities or care, and basic client needs or special needs, and group or personal associations.

17. Support scalability from routine, local emergencies up to mass causality incidents. The most effective systems are used routinely in day to day incidents and then ramped up for MCI's (Mass Casualty Incidents, or Disasters); not activated just in the case of a MCI.
18. Enable better response to all types of hazards, including those without a defined "origination point" (such as Pandemic Influenza).
19. Facilitate interoperability in a way that utilizes existing investments in disparate systems at the national, local, state, federal, and tribal levels as well as private industry.
20. Support consistency between the Common Alerting Protocol (CAP) and all applicable EDXL standards such as the EDXL-Distribution Element (DE), Hospital Availability Exchange (HAVE), Resource Messaging (RM), Situation Reporting (SitRep) and Tracking of Emergency Patients (TEP), to support the broad interoperability and information-sharing needs of the Emergency Response and Disaster Management practitioner communities.
21. Continue collaboration efforts with SDO's such as HL7 in areas of mutual interest and benefit to users. Although this primarily applies to EDXL-TEP due to targeted usage by hospitals and other health organizations which traditionally subscribe to HL7, the possibility does exist that TEP and TEC could become one standard for tracking movement of people who happen to be evacuees or patients in the emergency. As applicable, design, implementation and usage of the resultant standard shall provide methods to support implementation of policies to comply with the Health Information Portability and Accountability Act of 1996 (HIPAA), client and patient confidentiality (Patient Identification Information (PII)), Federal privacy regulations and other policies or regulations as determined by local, state, national or international jurisdiction.
22. Provide emergency response personnel with data they need to make decisions about client tracking systems for their respective communities, and to do so in ways that enhance overall emergency data communications and interoperability, and utilizes federal grant funding in this area.
23. Data Exchange standard(s) resulting from this scope, objectives and practitioner requirements effort will help improve general population evacuee identification, tracking and reunification through the following objectives:
 - a. The resulting data exchange standard will be as simple and easy to understand as possible, particularly for small aid-providing groups that may have limited technical capacity and want to use the standard for very specific purposes. Requirements shall stipulate that the resulting public standard be complete but brief and straight-forward, to facilitate its use to fulfill a specific purpose or perform a specific task.
 - b. **Rapid**, through XML standards-based information exchange and common data definition
 - c. **Flexible**, to address both "minimum" and "maximum" data / messaging needs to support stated objectives, through standardized information exchange between existing disparate systems (not a "new" system). Standards will:
 - i. Support varied levels of state and local capabilities in the field (now as well as future capabilities)

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- ii. Start with minimal data / messages, and update or build up information capture and sharing over the client tracking continuum as it becomes available.
- d. **Scalable**, to support local day to day up to mass casualty incidents through scalable message structures, and through phased implementation of information exchanges over time as local capabilities and resources evolve.
- e. **Sustainable**, allowing for phased approaches to information exchange, and a standardized path to information exchange as core automated systems are developed, purchased, changed and maintained.
- f. **Exhaustive** (drawing upon national, state, tribal, local, and private industry resources), again utilizing existing databases and systems; however, evaluation of and use by “all” available systems is not an objective of this effort. The objective is to evaluate and analyze a representative sub-set of existing systems as input to analysis and definition.
- g. **Comprehensive** (e.g. addresses needs of mental health and special needs populations), by facilitating tracking of all categories of clients with a variety of needs.
- h. **integrated** and coordinated, through national and international standards implementation with local control
- i. **Appropriate**, to provide support and services to match their essential needs in the most ethical manner within available capabilities.

4.5 Other Drivers

This effort also supports and is driven by the Homeland Security Interagency Security Planning Effort as well as HSPD-21: Public Health and Medical Preparedness objectives.

(From the National Mass Patient and Evacuee Movement, Regulating, and Tracking Initiative - AHRQ presentation “Public Health Emergency Preparedness: Planning and Practicing for a Disaster - Monday, February 9th, 2009):

- Supports HSPD-21: Public Health and Medical Preparedness
 - Integrate all vertical and horizontal levels of government and community components, achieving a much greater capability than we currently have.
 - Help ensure (*general population evacuee*) and patient movement is “(1) rapid, (2) flexible, (3) scalable, (4) sustainable, (5) exhaustive (drawing upon all national resources), (6) comprehensive (e.g. addresses needs of mental health and special needs populations), (7) integrated and coordinated, and (8) appropriate (correct treatment in the most ethical manner with available capabilities).”
- Post Katrina Emergency Management Reform Act of 2006
 - develop and evaluate strategies and technologies for providing and maintaining emergency communications capabilities and communications interoperability among emergency response providers and government officials in the event of a natural or man-made disaster
 - develop interoperable data communications, including medical and victim information, so that this information can be shared among emergency response providers, as needed, at all levels of government, and in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act of 1996 (Public Law 104–91;26 110 Stat. 1936).

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- Emergency Support Function (ESF) #6 – Mass Care, Emergency Assistance, Housing, and Human Services coordinates the delivery of Federal mass care, emergency assistance, housing, and human services when local, tribal, and State response and recovery needs exceed their capabilities.

5 TEC Scope Boundaries

This section of the PID describes project scope using in-scope and out-of-scope statements. The TEC operational context and information flow is shown in

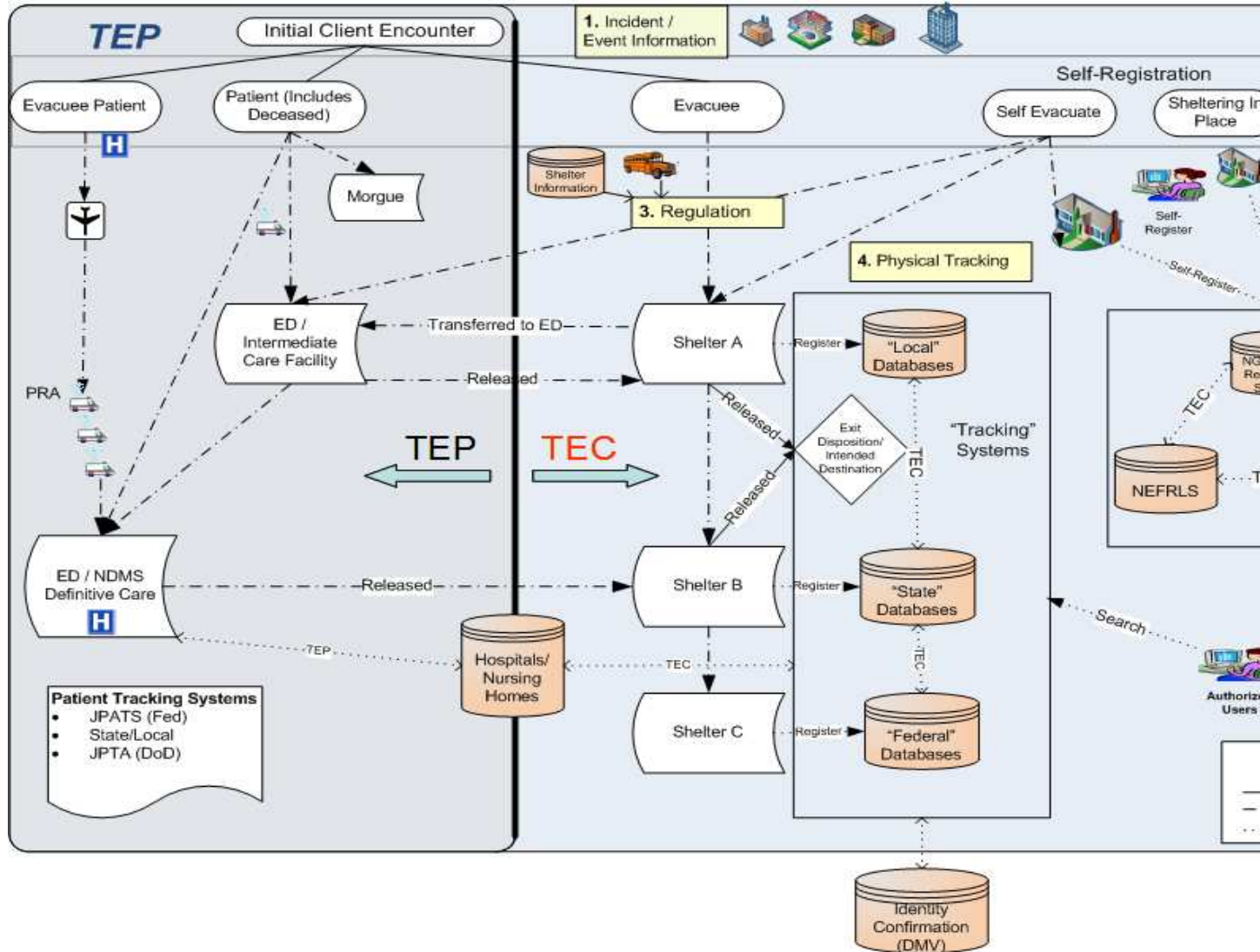


Figure 6 below, followed by the TEP Phase I scope diagram in Figure 7 below, are provided to aid in understanding the separation of scope boundaries. Other efforts have experienced frustration with lack of progress with some past efforts due to “scope creep” resulting in false starts and lack of tangible results. A critical success factor of this effort is in the definition and management of scope in order to balance reasonable time to market with value proposition, leaving the door open to subsequent phases, standards, or standard enhancements.

The “Statement of Scope – IN Scope” section below provides clarifying statements and description of each of the information needs / element type requirements. This is followed by “Statement of Scope – OUT of Scope” to clarify topics and information that will not be addressed within TEC.

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Appendix E lists candidate information elements required to meet project objectives, as candidate elements in the draft design and definition of the messaging specification.

The purpose of Figure 6, EDXL TEC Scope is two-fold. First, to graphically represent TEC scope and processes supported. Secondly, the diagram shows the delineation between EDXL TEC and TEP while illustrating the fact that in a disaster, a client (evacuee) may become injured or sick and become “classified” as a patient, or a client (patient) may be released at any point from medical care and become “classified” as an evacuee requiring transport and/or sheltering. Regardless of original “classification”, clients must be seamlessly tracked regardless of whether the person is a “patient” or an “evacuee” at any point in time.

Both processes start with an encounter which determines disposition as a non-medical client or as a patient requiring evaluation and/or care. Upon encounter, available incident/event information may be associated with a particular client as represented in Box 1, and certain client demographic information is collected, Box 2. Following the “Evacuee” process flow, a decision must be made to ensure that client needs are met given the available resources. This process of matching client needs to available resources shown in Box 3 is termed “Regulation”. Box 4, Physical Tracking, shows how clients may be tracked to and between shelters until “released” on their own, or perhaps handled as a “patient” within TEP Scope.

“Self Evacuees” and those “Sheltering in Place” may voluntarily register themselves in a “Registry” System. Box 5 Person Finding demonstrates how person finding queries may be made using both “Tracking” and “Registry” systems. While some systems provide open, public access and others may support client identity verification from outside sources. Support for such external identity verification is outside the scope of TEC.

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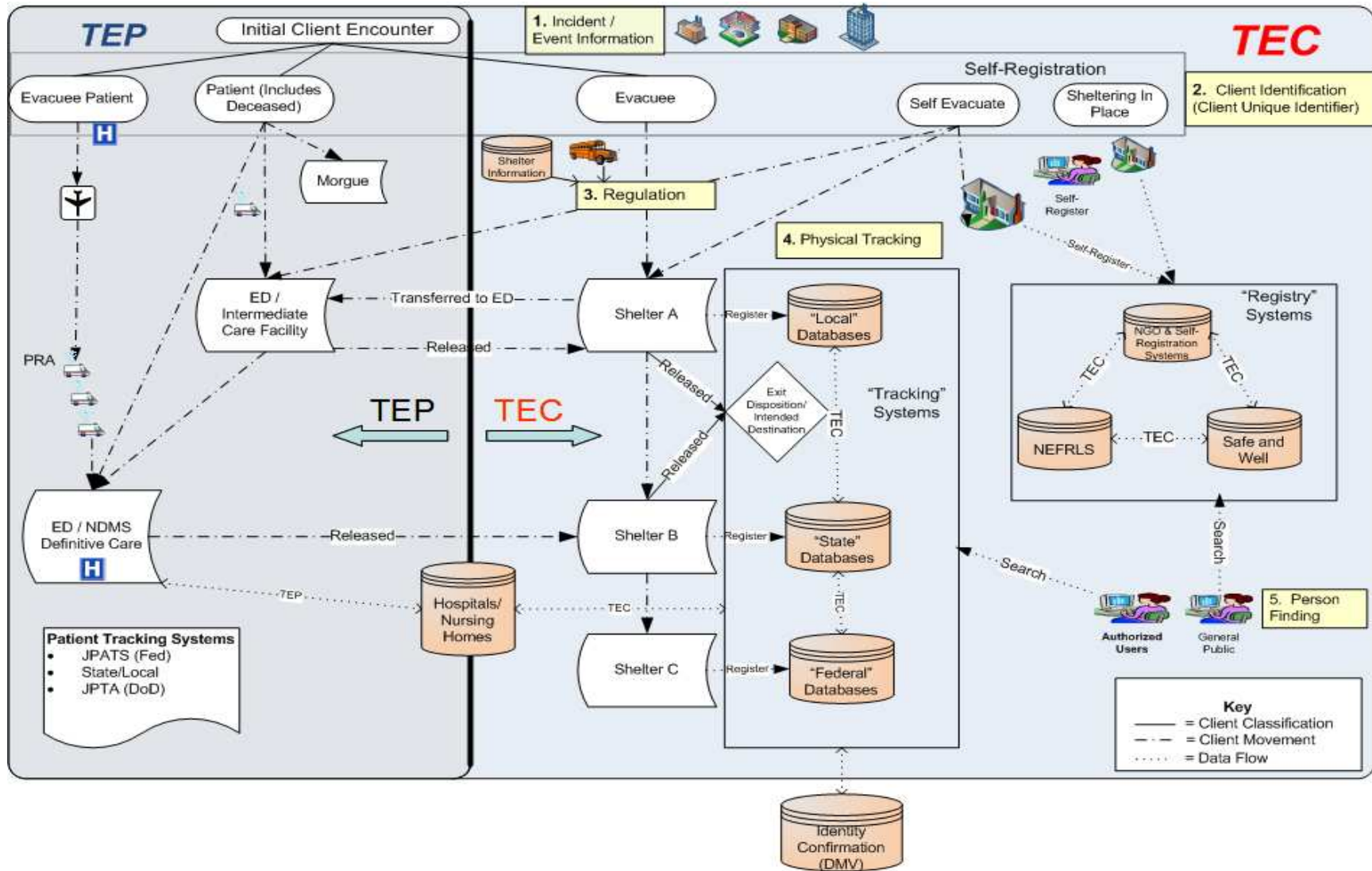


Figure 6 - EDXL-TEC Scope

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In the Phase I (TEP) scoping and requirements development process, some functional areas were identified as important, but out of TEP scope and earmarked for Phase II (TEC). The TEP Phase I scope diagram shown in Figure 7 below is provided to aid in understanding the scope that separates the Phase I (TEP) effort from this Phase II (TEC) effort. In-scope considerations shown in Figure 7 are represented inside the gray circle and by connections in and out of the gray circle. Objects outside of the gray circle are considered out of scope of the TEP messaging standard.

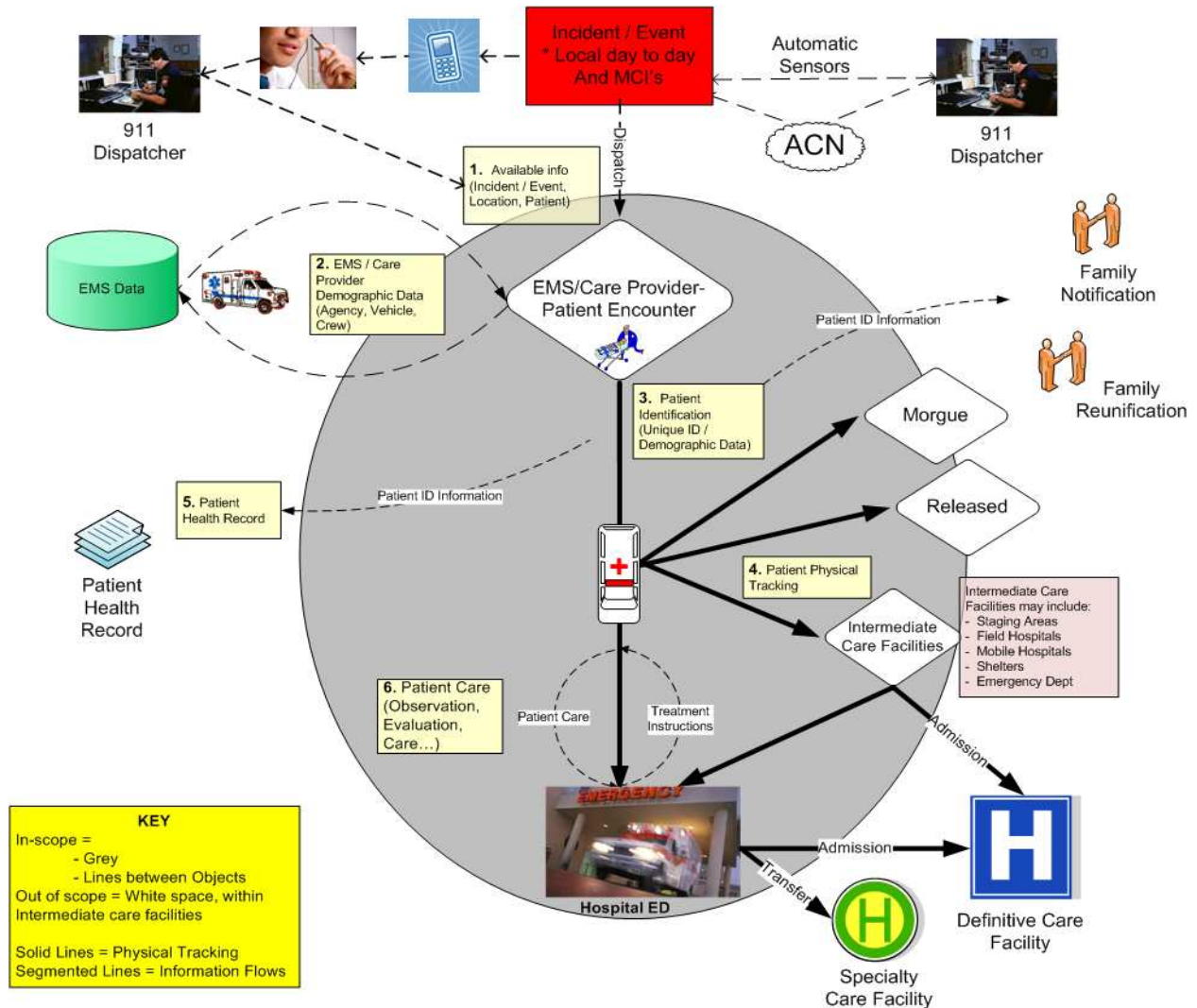


Figure 7 , EDXL-TEP (Phase I) Scope

5.1 Statement of Scope – Requirements IN TEC Scope

It is important to note that Statements below apply to the TEC effort specifically, and do not address the scope of the previous TEP effort. Definition of scope refers only to development of messaging standard(s) to be used in building information exchanges between entities involved in client tracking and other processes and objectives of the TEC standard. This does not preclude other *uses* of exchanged data for any purpose applicable to a particular system, process or business need.

1. Standards-based information exchange - This effort focuses on open, standards-based information sharing during emergencies and disasters of any scale, between all disparate devices, applications, systems and databases that support client information and tracking as described herein. The TEC standard will facilitate the sharing of client tracking information at any point throughout the continuum of incident mitigation, pre-planning and response.
2. Messaging and Data Standards - Messaging standardization is the focus of this effort, pursued through the documented EDXL development process. However, the effort will also perform re-use analysis and provide input into applicable data standardization efforts. Required elements for TEC will be analyzed and mapped to NIEM, where appropriate, as candidates for broader re-use.
3. Client (general population evacuee) scope – The TEC effort focuses primarily on client support processes and tracking, performed and/or validated by various emergency support professions and participants. They identify clients and information about client needs, identify shelter facilities that meet those needs, assist with arrangement or assignment for transport to appropriate shelters, provide said transportation, and have authority to share official information guided by formal agreements between agencies and organizations. They may work for various organizations at any level of jurisdiction, such as local, state, federal, and international.
4. Process / Life-cycle scope – TEC process scope will include requirements that cover and/or provide richer native data sources supporting the following processes for general population evacuees:
 1. Input to evacuation / population management and decision-making
 2. Client evacuation / movement
 3. Client tracking, including Client relationships and associations (e.g. family members, attendants, equipment, pets and service animals etc.)
 4. Client Movement , “Regulation” decision support & Transportation (matching evacuee needs with services)
 5. Client Sheltering and other services and support
 6. Client Registration (data-sharing)
 7. Person-finding
 8. Client family and/or associated group notification and reunification

This TEC scope recognizes the scope boundary already covered by the EDXL-TEP candidate standard effort that has preceded this TEC effort. Thus, TEC will leverage and compliment the previous TEP defined requirements.

5. Organization, Agency, Jurisdiction Scope – As is the case with EDXL-TEP, EDXL-TEC is intended for use enabling disparate system interoperability both within and between localities,

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states, the federal government, and international boundaries

6. Types of Systems – The EDXL-TEC standard is intended to enable interoperability and automated information-sharing between the disparate systems currently implemented or planned within the “Organization Scope” statement, which perform or support processes included in the “Process Scope” statement. Generally speaking, this standard will be designed to be utilized by the following “types” of systems:
 1. Client and Patient Tracking Systems – These systems provide “near real-time” information and updates about client encounter, location, movement and destination, often using wireless hand-held scanning devices and barcodes.
 2. “Registry” systems utilized for person-finding – providing the ability to share data / records with other registry systems.
 3. Shelter Information Systems – providing information on Shelter availability, capacity and services
 4. “Resource” and “Regulating” Systems – providing information on available transportation resources, their location and capabilities

Though not intended to be fully comprehensive, the “EDXL-TEC Research Report” identifies specific systems in TEC scope, but does not exclude use by many other systems of similar type or function, or other systems which may envision an alternative use of this standard.

7. Shelter facilities – TEP messaging will share client tracking information created, updated or received as stated above. This includes tracking to / from such locations as the incident scene, staging areas and shelter locations. These shelter locations may for example include triage areas, staging areas, intermediate/interim shelters, permanent shelters etc. which may be operated by various levels of jurisdiction, community or faith-based organizations, etc.

Clients (evacuees) may also seek shelter at locations remote from the actual disaster scene. Staging areas are considered an intermediate facility if the client is being transferred to another shelter or facility, rather than being released.

8. Evacuees – “Evacuees” in scope are considered to be persons who are being assisted out or away from a situation or location by emergency support professionals and/or their support contractors
9. Shelter-In-Place – Persons sheltering-in-place are considered in EDXL-TEC scope where their presence is made known either through self-registration processes or assisted registration processes (entered by emergency support personnel, e.g. through a phone call)
10. Self-evacuees - Clients who have self-evacuated (either to authorized shelters or to any destination of their choosing) are considered in EDXL-TEC scope where their presence is made known either through self-registration processes or assisted registration processes (entered by emergency support personnel, e.g. through a phone call)
11. “Self-Presenting” Clients – Clients who ‘self present’ at any point in the emergency response continuum are considered in-scope. A significant number of clients arrive at shelters or evacuation embarkation sites without assistance.
12. “Person” tracking: Client vs. Patient – During an emergency, a client may be encountered as part of a triage process that is initially performed (medical evaluation) to identify clients who are healthy vs. those classified as patients requiring medical care. During this encounter, information

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may be collected and shared using the TEC messages (or TEP for individuals classified as patients) to indicate disposition and next destination.

1. EDXL-TEC will support seamless and/or intuitive information-sharing to track patients that are released and become “clients” requiring ongoing support and tracking, as well as clients developing sickness or injury becoming patients and thus, requiring ongoing support and tracking. EDXL-TEC design will ensure information-sharing standard(s) to support the integrity required to track the same “person” (with that person’s associations and relationships) as they shift from patient to client and vice versa.

13. Method of Conveyance – Because self-presenting clients may arrive at facilities by various means, methods of transport other than by government provided methods, it may be useful to capture this information about the client. In general, methods of transport could include, private automobiles, buses, vans, helicopter, fixed-wing aircraft, marine vehicle, self-propelled (walking), all-terrain vehicles, etc.

14. EDXL-TEC standard XML messages – During initial interviews, facilitated sessions and analysis of purpose, objectives and scope of this effort, potential need for the following types of standard XML messages were identified. The TEC Steering Committee has identified the following Messages order of importance, guiding requirements and design analysis focus during development of the TEC specification.
 1. **Client Movement/Tracking**

During an incident, clients may be required or choose to leave their home or current location to seek shelter or assistance. Movement of clients (evacuees) may involve a sequence of locations starting from initial encounter to staging areas, to shelters or other assistance facilities. Often during incidents of significant size, state and federal resources and systems pro-actively tag, transport and track evacuees to the safety of shelter locations. Similar to EDXL-TEP, movement and tracking using EDXL-TEC will be used to exchange information about these movements to assist in locating and re-unification with family or associated groups and for overall evacuation management and reporting.
 2. **Client “Registry” Information**

In order to assist in locating and re-unification of clients with family or associated groups, information is needed to identify the client and their location. Many different “Client Registry systems” exist at the state and federal level and NGO’s, and information entries may be performed by shelter staff upon arrival, or may be provided by the client directly via self-registration, depending on the system and situation. The TEC “registry” information exchange provides a standard way to share information between existing “registry” systems in order to provide a “richer” set of information available in any one of those registry systems. As noted elsewhere, PFIF is being explored as a possible alternative for adoption to meet this need.
 3. **Shelter Availability**

Information about available shelters is needed to assist movement of affected clients from an incident area and to inform the public about suitable shelter facilities. The EDXL-TEC standard aims to provide a “Shelter Availability Exchange” (perhaps not dissimilar to the “HAVE” standard) providing such information among emergency responders to facilitate the effective and efficient movement of clients and to track Shelter status.
 4. **Transportation Resource Availability**

In order to facilitate movement of affected clients, information is needed to identify and match the types and availability of suitable transportation to support the needs and numbers of clients affected. Although some of the previously identified information

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exchanges may contain information about transport being applied, a “Transportation Availability” exchange may add value by sharing information about available public, private, and federal transportation (NOTE: see Section 5.3, statement #1 regarding relative priority and questions regarding existing data sources)..

15. Missing Persons – Within a TEC *Tracking* data exchange, an individual is not considered a Client in the context of TEC until they have been encountered as part of an emergency response as defined in this PID. Therefore, an individual who is missing, or chooses to remain unaccounted for or due to foul play are not yet considered Clients in scope if a source of information about these persons does not yet exist.

1. However, two general use cases exist which are supported by TEC:

- i. Tracking data about Clients being evacuated may be used (within appropriate privacy policy and controls) to assist query and search for missing persons, and
- ii. Information supplied by those querying about or searching for missing persons may be stored in Registry systems. Where the registry system captures the source / supplier of the missing person information, the TEC Registry data exchange standard must accommodate exchange of that information as well.
- iii. Once exchanged (data received by systems and applications using TEC), registry systems and applications may be used to support queries and searches about missing person, their location and status. This was a key capability demonstrated in the 2011 NLE TEP Patient Movement Interoperability POC – a concept which is transferrable to TEC.

16. People Finder Interchange Format (PFIF) - Adoption of the current People Finder Interchange Format (PFIF), either in its present or an enhanced form, is considered in scope of this effort; fulfilling the need for a standard “Client “Registry” Information XML message. This effort will promote use of PFIF as an open and transparent public, international standard, with ongoing SDO governance and maintenance. Exchange of client registry data will provide for a richer data source, supporting responses to questions and queries about missing persons and family members, and promoting family reunification.

1. Adoption of PFIF as an open standard (in its current form or enhanced through this effort in cooperation with current PFIF stakeholders) will enable broader use and application of TEC message exchanges for sharing of available client “registration” data. The intent is to work with the current designers, maintainers and users of PFIF, in order to specify clear and complete requirements for submission to the SDO.

17. Information Needs & Element Types – The Subject Matter Expert consensus process will determine the optimal data elements required to support project objectives, scope and messaging requirements. The following lists provide general information and examples of the types of information to be addressed by the TEC standards effort, which map to the TEC Scope Diagram numbered boxes. Refer to Appendix E for the list of detailed candidate data elements required to meet these information needs.

- a. **Emergency Responder Dispatch Information** – Emergency responder dispatch information from CAD systems contain incident information i.e. incident type, location, etc. If desired, an organization may initially populate a TEP or TEC message directly from data in their CAD system if the process and information flow started there. The objective is to enable association and sharing of basic incident, incident location and possibly dispatch information with the client (e.g. Incident, location, client)

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- b. **Client and transport demographics** – The objective is to associate emergency responder service providers with clients during each such encounter and to identify means of transport with the client being tracked.
- c. **Unique Client Identification** - The TEC Standard must include the capability to retain and share all assigned UCIs used by jurisdictions to identify the client for tracking purposes through the evacuation and sheltering process. It is recognized that different localities will use various methods of Client Identification and that the TEC standard must capture multiple data types such as from RFID, Barcodes or Triage Tags, System generated ID's, and other available information such as name, gender, estimated age, DOB, license #, SSN, photo, ethnicity, fingerprints.
- d. **Client physical tracking (location and movement)** - The objective is to track the client and their movement, possibly starting with dispatch information and/or at scene, embarkation hub, or another location on each encounter throughout the incident response. The client is associated and tracked with the transport vehicle, current and destination location until sheltered or released. Client tracking by location may include both geopolitical and/or geospatial location.
- e. **Linkage to client information records** - The intent is to provide information or identifier(s) that may be used to facilitate the capability for systems to use incoming emergency client information to find and match with existing related client information records, to assist with client needs and/or to facilitate updating of the client information records.
- f. **Client Evaluation and Support** – Client support needs will be recorded throughout the continuum of an incident response. The amount of client support data available will be scalable depending upon capability and situation. The objective is to provide information about the client needs, associations, medications or services required to assist the shelter or other facility with preparation or routing and for adequate support upon receipt.
- g. **Situation, Incident, Event Information** – The TEC standard will carry basic information about the incident associated with the client, including the assigned name, type, unique ID location and date/time. TEC will carry information about the incident associated with the client at any point in time, providing the ability to carry multiple ID's, each with the source of that ID. An incident ID may be associated with each TEC message sent to reflect a client transport / movement, arrival or change in service provider. Any TEC message may include the same, an additional, or a new incident ID as the previous one sent. Therefore, an application or system receiving TEC updates may associate the incident ID with each “event” reported, as input to requirements such as associating incidents with actual events for purposes of reimbursement. See Appendix E for candidate elements. Implementations may re-use and verify data from other processes such as emergency dispatch if available, or may capture the information as appropriate.

5.2 Statement of Scope – OUT of TEC Scope

1. Client Tracking Systems – This effort will not result in design or development of an automated system for client tracking or specific data standards.
2. Situation, Incident, Event Information – The TEC standard will not address information about the actual emergency, event or disaster that has occurred other than stated herein.
3. Dispatch Processes – Resultant standards will not address dispatch processes or information, except to accept and use applicable emergency responder dispatch information if available. This effort does not attempt to standardize information sharing for automated sensor / ACN information, PSAP-911, and CAD / dispatch information other than stated herein.
4. Patient vs. Client – In context of an emergency, a triage process is initially performed (medical evaluation) to determine general population who are healthy vs. those classified as patients requiring care. At first contact with EMS care providers, information may be collected and shared using the TEP standard. Following patient medical evaluation, individuals who require medical care will be tracked within the scope of TEP.
5. Missing Persons - An individual is not considered a Client in the context of TEC until they have been encountered as part of an emergency response as defined in the PID and later in the Requirements and Specification document. Therefore, individuals who are missing or choose to remain unaccounted for on their choosing or due to foul play are not yet considered Clients in scope.
 - a. However, data received by systems and applications using TEC may be used to support queries and searches about missing person, their location and status. This was a key capability demonstrated in the 2011 NLE TEP Patient Movement Interoperability POC – a concept which is transferrable to TEC.
6. Fatalities – Fatalities are considered “Patients” and therefore in scope of TEP, but OUT of scope for the TEC effort (i.e. related requirements are captured in the TEP effort deliverables). When a fatality is encountered or occurs, protocol is expected to require these cases to be dealt with by appropriate emergency medical professionals or death care officials. All deceased transport will be handled through the TEP requirements.
7. Person validation process – The process of validating a person/patient identity is out of scope. This process (typically performed by Law enforcement) may involve Drivers License, VIN information etc. to submit a request for Client ID, and return a message with confirmed Client ID information.
8. Client information records – The processes of requesting, receiving and updating external client information records is out of scope. However, systems may use client information received via TEC to support these purposes.

5.3 Outstanding Scope Decisions and Potential Issues

The following issues are being addressed or a process established to address the need or reduce risk. The project team is targeting practitioner approval by midyear 2012 followed by submission to OASIS in June 2012.

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Unless otherwise stated as OUT of scope in this document, the stated goals and objectives shall be considered IN scope.

The Steering Committee is requested to provide input, guidance priorities in order to clarify, insert or revise stated IN scope and OUT of scope statements contained in this document.

1. **Scope clarification**

Clarification is required with regards to sharing of available information to assist client movement “regulation” decisions. This includes data about available client transportation resources, equipment and supplies for matching to the needs of evacuees:

- a. Are data sources (manual or automated) available or planned to create data that may be exchanged?
- b. Should TEP be extended to include sharing of information about available patient transportation resources? Is there a need for information exchange regarding availability of ambulances and other patient transport? Are data sources available for this?

Clarification is required with regards to sharing of available information to assist evacuation and transportation logistics and other processes such as approved evacuation routes, road conditions, gas/other facilities availability, traffic, weather, etc.

- a. Although information needs have been identified in facilitated sessions and interviews, this area has not been identified as a key priority during this phase of standards development. Require input on priority of this area of scope. Decision to include this area IN scope will require further analysis of specific objectives, requirements and information needs.

2. **Stakeholder Representation**

The diverse composition of the TEC Steering Committee and Standards Working Group / Stakeholders for this effort results in additional effort for outreach, communication, education, collaboration, and consensus-building. During the scope refinement phase more time is anticipated to address this breadth of expertise and organizations. This increased effort may carry over to subsequent review of detailed requirements and messaging design.

This effort aims to pursue an open and inclusive process with open communication and full participation. Broad outreach efforts are ongoing with requests to identify other appropriate stakeholders. Request recommendations are provided to the project team at edxlswg@evotecinc.com to assist in this goal.

3. **EDXL Marketing and Outreach**

Significant opportunities for marketing and education, and to encourage adoption of EDXL standards are planned for NIEM Training event in August 2011; abstracts have been submitted but details for content is still required to prepare and coordinate panels and demonstrations.

6 TEC Initial Analysis Results

6.1 Past “Client Tracking” Efforts & Research

The Research Task of the Tracking of Emergency Clients Standard Project used a systematic process for collecting and analyzing information about previous and ongoing client information tracking efforts in order to increase understanding of the current landscape. The primary goal was to create insight that is not just reliable, but actionable throughout the standards development process in the adoption and re-use of requirements and information needs.

Refer to Appendix D “References” for a complete list of researched client tracking efforts

6.2 TEC STATEMENT OF REQUIREMENTS

Structured and traceable requirements statements are an essential and driving component of the eventual Requirements and draft Messaging Specification. Development of requirements statements is in progress with development of use cases and draft message definition.

6.3 TEC Information Needs

A preliminary survey of information needs is being gathered during sessions with the TEC Steering Committee with input from researched efforts. A preliminary cross-initiative data analysis was developed along with an initial list of data requirements / candidate elements. These tools will provide input into the scenario and use case process, the identification of data collection points along the emergency response continuum, and the definition of standard message(s) for data exchange.

6.3.1 TEC Data Requirements / Candidate Information Needs

A preliminary list of candidate data elements was developed using requirements developed from analysis of previous EDXL-TEP patient tracking efforts, interviews, meetings and workshops conducted with the TEC Steering Committee. These data requirements identify key data categories consistent with TEC project scope.

The preliminary list of candidate data elements is contained in APPENDIX .

6.3.2 TEC Cross-Initiative Data Analysis

A further detailed analysis, based on the preliminary list of data elements referred to above and documented in APPENDIX F – EDXL-TEC Candidate Elements, will be performed and subsequently documented in a TEC Data Analysis Document. The intent of this document is to drive candidate data elements, perform cross-effort data analysis, and serve as a TEC data reference in the subsequent TEC Detailed Requirements and Draft Messaging Specification. Information needs identified, captured and analyzed from key client tracking and management documents, systems and related efforts will be used to develop a mapping of the data across those efforts, as well as mapping against key data standardization efforts. The following activities, programs and initiatives are a representative sample set of those analyzed during this process and included in the TEC Data Analysis Document mapping:

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- ❖ Target Capabilities List, A Companion to the National Preparedness Guidelines, DHS September 2007
- ❖ People Finder Information Format (PFIF)
- ❖ HHS AHRQ Evacuee Movement
- ❖ Red Cross Safe and Well/Family Links
- ❖ HHS AHRQ Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System Report
- ❖ DoD Emergency Tracking Accountability System (ETAS)
- ❖ FEMA National Emergency Family Registry & Locator System (NEFRLS)
- ❖ FEMA National Mass Evacuation Tracking System (NMETS).
- ❖ National Library of Medicine Lost Person Finder

7 APPENDIX A EDXL Overview

7.1 EDXL Messaging Standards Background

The genesis of the EDXL (Emergency Data Exchange Language) Standards Program comes from the known fact that responders often cannot talk within their own agencies—let alone other agencies — or across cities, counties, and states. Ineffective data communications risk the lives of responders in the field, and for those awaiting help. There is no one “Silver Bullet” to solve interoperability challenges. The interoperability landscape consists of tens of thousands of state and local public safety agencies, federal agencies and other stakeholders; which mean tens of thousands of different sets of procurement regulations, budgets, equipment lifecycles and solution decisions.

The challenge for the Department of Homeland Security (DHS) is to provide ALL stakeholders (Federal, state and local), with the right mix of policies, tools, methodologies and guidance to enable improved communications interoperability at all levels and with international organizations, as applicable. Jurisdictions all over the country and the world are working on mechanisms, processes and technologies to capture relevant patient and other client information; whether by hand-held devices in the field or dictating to manual data entry. The key is capturing and sharing that data in a standard, seamless and agreed-upon format which may be sent and received in a way that any system can understand. Recipients can then determine how to display and process the information within their specific processes and applications.

The EDXL goal is to provide for the widest possible sharing capability for sensitive but unclassified (SBU) emergency management information, including network-to-network dissemination regardless of infrastructure and technologies used:

- Lower entry barriers employing broadly-used technology (XML) and interoperability standards for commercial applications of all kinds
- Network of systems infrastructure - a non-proprietary operational interoperability backbones that can share information
- Acts as a "level playing field" to allow disparate third-party applications, systems, networks and devices to share information in a non- proprietary, open, standards based format
- Supports the delivery of real-time data and situational awareness to emergency responders in the field, at operation centers and across all levels of response management.
- Serves as a test bed to facilitate the development of open non- proprietary standards to support interoperable information sharing for the emergency responder community.

The program focuses on definition of messaging standards supporting systems interoperability between organizations and systems that respond to all-hazard emergencies, disasters, and day to day incidents. While other efforts focus on “voice” interoperability, this suite of standards (“EDXL” – Emergency Data Exchange Language) allow all types of systems to seamlessly share information regardless of vendor or underlying technology.

The goal of the EDXL family of interoperability standards is to facilitate emergency information sharing and data exchange across the local, state, tribal, national and non-governmental organizations of different professions that provide emergency response and management services. EDXL will accomplish this goal by focusing on the standardization of specific messages (messaging interfaces) to facilitate emergency communication and coordination particularly when more than one profession or governmental jurisdiction

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is involved. Any system may send and receive information applying these standards through open Application Programming Interfaces (API), and then display and process the data within the native system in a user-friendly format.

The standards are XML-based but are not a “new XML language”, and not “data standards”. Requirements for these messaging standards are practitioner-driven through the Practitioner Steering Group (PSG) and Standards Working Group (SWG); an open and inclusive process (see Section 2.1 and 2.2). They are then vetted and governed by a public standards development organization, and then are open and free to use, with available test and evaluation services ensuring conformance.

7.2 EDXL Messaging Standards Program and Process

In addition to voice interoperability initiatives, the Department of Homeland Security's Office for Interoperability and Compatibility (OIC) (Science and Technology Directorate) sponsors a practitioner-driven Messaging Standards Initiative, lead by a cross-profession Practitioner Steering Group (PSG) and Standards Working Group (SWG). This initiative is a public-private partnership to create information-sharing capabilities between disparate emergency response software applications and systems.

The process for developing EDXL message standards was formalized in partnership with the Organization for the Advancement of Structured Information Standards (OASIS), based on the Common Alerting Protocol (CAP) process sponsored by the Partnership for Public Warning. The EDXL process has developed emergency support standards for reporting of hospital status and availability (HAVE), sharing emergency resources, equipment and supplies (RM), and providing a common routing framework (DE). In addition to developing the Tracking of Emergency Clients (TEC), new EDXL standards are also being developed to handle overall situation reporting (SitReps) as well as for Tracking of Emergency Patients (TEP).

Figure 7 below depicts the EDXL standards development process overlaid with the NIEM IEPD development process. PSG priorities are further defined and specified by the OIC EDXL Standards Working Group (SWG), comprised of PSG representatives, their designees, and subject matter and technical experts in the particular domain of the standard. Through an iterative process the SWG turns the detailed requirements into a draft specification which is approved by the PSG and submitted in coordination with vendor representation through the Emergency Interoperability Consortium (EIC) to an international standards body (OASIS). OASIS then conducts its Emergency Management Technical Committee process for establishment as an international, public standard.

Adoption of standards is supported through the National Incident Management System Support Center (NIMS SC) testing and certification process, pilots and demonstrations, grant language, and RFP templates to assist state and local practitioners.

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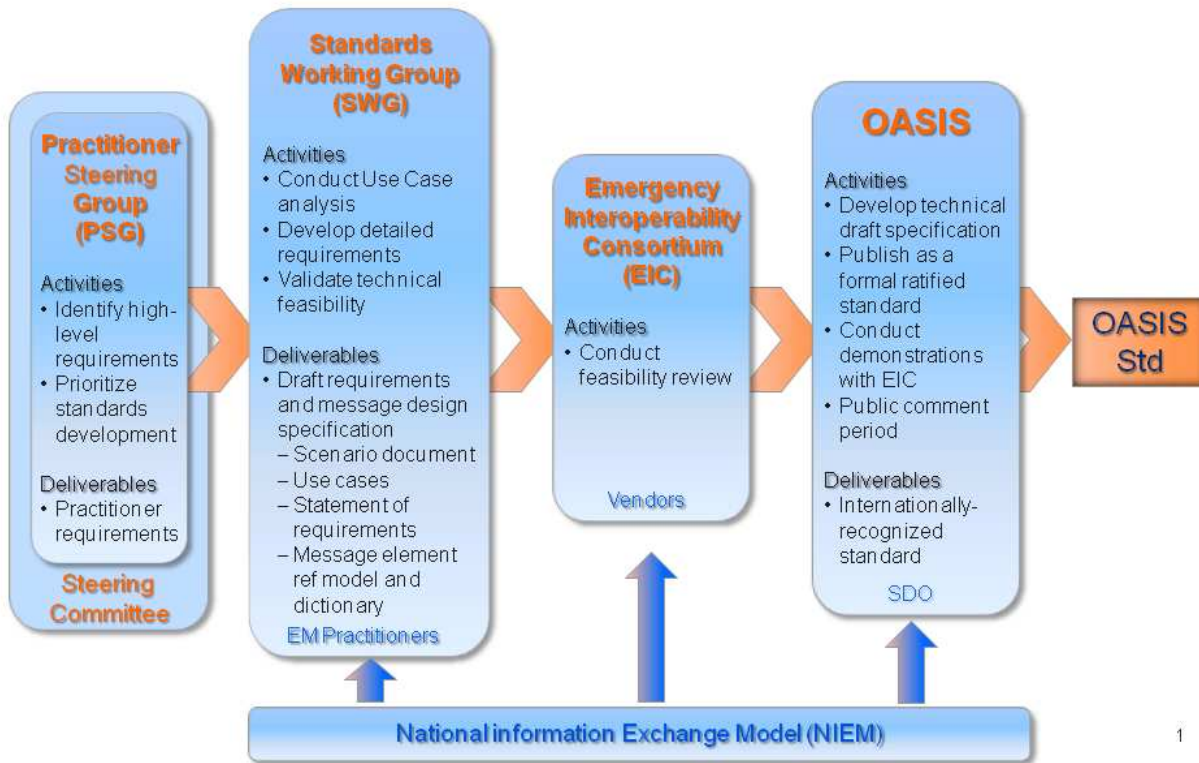


Figure 8 - EDXL Standards Development Process

7.3 EDXL & TEC Interoperability

Like other EDXL standards, TEC will focus on addressing a specific functional need for emergency response and management, but will be designed to leverage interoperability with other EDXL standards to meet additional and broader needs. As a standard format for XML client tracking messages, the TEC standard will guide standard messages. These messages are actually structured “payloads” of information requiring a standard way to route them. The EDXL Distribution Element (DE – see below) provides a flexible routing mechanism for EDXL or any other well-structured XML payloads or objects. However, use of the DE is not absolutely required where other routing mechanisms provide appropriate metadata in a consistent form, or if the sender specifies specific recipients of the message.

7.4 Current EDXL Standards

EDXL and related standards to date include the following:

- **Common Alerting Protocol (CAP) Version 1.2** – CAP was the original standard which modeled this public-private partnership. Although technically not an EDXL standard because it came first, CAP is planned for formal inclusion in the EDXL family. CAP v1.2 was adopted as a standard in August 2010, providing the ability to exchange all-hazard

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emergency alerts, notifications, and public warnings, which can be disseminated simultaneously over many different warning systems (e.g., computer systems, wireless, alarms, television, and radio).

- **Distribution Element (DE) Version 1.0** – DE 1.0 was adopted as a standard in FY 2006. DE provides a flexible message-distribution framework for data sharing by emergency information systems. Messages may be distributed by specific recipients, by a geographic area, or by other codes such as agency type (e.g. police, fire, and Emergency Medical Services).
- **Hospital Availability Exchange (HAVE) Version 1.0** – HAVE was adopted as a standard in early FY 2009. HAVE enables the exchange of hospital status, capacity, and resource availability/utilization between medical and health organizations and emergency information systems. HAVE allows dispatchers and emergency managers to make sound logistical decisions, such as where to route victims based on up-to-date information on which hospitals are able to provide the particular service needed by the victim.
- **Resource Messaging (RM) Version 1.0** – RM was adopted as a standard in early FY 2009. RM enables the seamless exchange of resource information, such as requests for personnel or equipment, needed to support emergency and incident preparedness, response, and recovery.
- **Situation Reporting Standard (SitRep)** – Situation Reporting addresses information gathered from a variety of sources, which provides a basis for incident management decision making. It provides information on the current situation, the operational picture, and current response and resources in an actionable form. The SitRep candidate standard has nearly completed the final steps of the process leading to vote for adoption and publication, which is anticipated in Q2 2011.

Tracking of Emergency Patients (TEP) & Clients (TEC):

(See “Executive Summary” and the remainder of this document)

8 APPENDIX B - EDXL-TEC Stakeholders

This is a working list of individuals and organizations that comprise the EDXL Tracking of Emergency Clients Stakeholder Group. This list expands the current PSG (Practitioner Steering Group) shown in APPENDIX and SWG (Standards Working Group) shown in APPENDIX , in order to broaden the subject matter expertise and advocacy to include Tracking of Emergency Clients interests.

Last Name	First Name	Organization
Phillips	Sally	DHS Office of Health Affairs
Dixon	Marry	Defense Manpower Data Center, Director
Kury	Joseph	Akron Fire Department, Safety Communications
Bianchi	Maria	American Ambulance Association -AAA - Exec VP
Murray	Rick	American College of Emergency Physicians -ACEP - EMS Manager
		American College of Surgeons: Committee on Trauma -ACS-COT
		American Heart Association -AHA
		American Hospital Association - AHA
		American Public Health Association - APHA
Snyder	John	Arlington County Fire Department
Pye	Robert	Arlington County Fire Department
Dobbs MD	Capt. Allen	Assistant Secretary for Preparedness and Response - ASPR
Cantrill	Steve, Dr.	Associate Director, Emergency Medical Services Denver Health Medical Center
McMahon	Kathy	Association of Public-Safety Communications Officials
Smith	Robert	Association of Public-Safety Communications Officials
Wisely	Steve	Association of Public-Safety Communications Officials
Eyestone	Scott, Dr. O.D.	Battelle, past military Patient tracking experience, Pre-TRAC2ES
Williams	Laura	Boston EMS
Whitney	Jolene	Bureau of EMS State of Utah
Hunt MD	Rick	CDC - Division of Injury Response - Director
Bass	Dr. Bob	Chair of Preparedness Committee- National EMS Advisory Committee, MIEMSS Exec Director
Henkel	David	City of Long Beach
Bell	Beverly	Council of State Governments
Christoph	Paul	Dept of Veterans Affairs
Payne	James	Dept of Veterans Affairs

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Last Name	First Name	Organization
Gusty	Dennis	DHS Office for Interoperability and Compatibility Science and Technology
Kramer	John	DHS Office of Health Affairs
Kalin	Bill	DHS OIC S&T
Dawson	Drew	Director, EMS Division, National Highway Traffic Safety Administration, USDOT
Morris	Tommy	DoD OASD (Health Affairs) , VA Military Services
Music	Capt. F. Christy	DoD OASD(Homeland Defense and Americas' Security Affairs)
Goldstein	Mark	Emergency Nurses Association-ENA
		EMSC National Resource Center -NRC
Pullen	Charles, Capt	Fairfax County Fire and Rescue
Bydume	Glenn	Fairfax County Fire and Rescue
Shoup	Scott	Federal Emergency Management Administration -FEMA
Bischoff	John	Federal Emergency Management Administration -FEMA
Biddinger	Paul	Harvard School of Public Health Center for Public Health Preparedness
		Health Level 7 - HL7
Kavanaugh	Dan	Health Resources and Services Administration -HRSA
Glickman	Mike	HITSP
Hufnagel	Stephen Dr.	HITSP Provider Perspective Technical Committee co-chair
		HRSA's Office of Rural Health Policy -ORHP
Parker	Scott	IJIS Institute
Lent	Bill	International Association of Emergency Managers - IAEM
Caldwell	Alan	International Association of Fire Chiefs - IAFC
Manning	Michael	International Association of Fire Fighters - IAFF
Moore	Lori	International Association of Fire Fighters - IAFF -VP
Contestabile	John	JHU Applied Physics Lab
McGinnis	Kevin	JNEMSLC, NASEMSO, Chair-OIC PSG National Association of State EMS Officers -NASEMSO
Moreland	Joe	Kansas Board of EMS
Andress	Knox	LA R- 7 Hospital Disaster Preparedness/Emergency Nurses Association-ENA
Donohue	John	Maryland Institute for EMS Systems (MIEMSS)
Manley	Dan	Mid American Regional Council
Mann	Clay, Dr.	NASEMSD, National EMS Information System (NEMISIS), HITSP

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Last Name	First Name	Organization
Norlen	Robert	NAEMSO Data Committee Chair
Daugherty	Stephanie	NAEMSO Data Committee Chair Elect
Briggs	Bill	National Academies for Emergency Dispatch - NAED
Clawson	Jeff	National Academies for Emergency Dispatch - NAED
		National Associate of Search and Rescue - NASAR
Kearns	Chuck 'C.T.'	National Association of Emergency Medical Technicians (NAEMT
Cohen	Pamela	National Association of Emergency Medical Technicians -NAEMT
Kind	Jerry Lynn	National Association of EMS Physicians -NAEMSP
Rosen	Brian	National Emergency Number Association -NENA
Thornburg	Barb	National Emergency Number Association -NENA
Halley	Patrick	National Emergency Number Association -NENA
Hixson	Roger	National Emergency Number Association -NENA
Jones	Rick	National Emergency Number Association -NENA
Roberts	Larry	National EMS Management Association - NEMSMA, formerly NAEMSQP
Wingrove	Gary	National EMS Management Association - NEMSMA, formerly NAEMSQP
McHenry	Susan	National Highway Traffic Safety Administration -NHTSA
Corbin	John	National Traffic Incident Management Coalition - NTIMC
Wiedrich	Tim	North Dakota Department of Health; Association of State and Territorial Health Officials - ASTHO
Jones	J.J	Office of Emergency Management, City of Fort Worth, TX
PSG-SWG	PSG-SWG	OIC-sponsored EDXL Practitioner Steering Group (PSG) and Standards Working Group (SWG)
Kane	Catherine	Red Cross
Lamana	Joseph	Response Operations HHS/ASPR/OPEO
Havron	Doug	SE Texas Regional Advisory Council
Spivey	Lisa	Southeast Texas Trauma Regional Advisory Council
Yancie	Monroe	St. Louis Fire-EMS
Fike	Randy	Stanislaus County Health Services Agency
Sexton	Jeff	Tennessee DOH Office of Information Technology Services, HITSP
Kaye	Robert	The Healthcare Information and Management Systems Society (HIMSS)
Collins	David	The Healthcare Information and Management Systems Society (HIMSS)
Griskewicz	Mary	The Healthcare Information and Management Systems Society (HIMSS)
Mears	Greg, Dr.	UNC Chapel Hill EMS Medical Director
		Urban Search and Rescue - USAR

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Last Name	First Name	Organization
Kirschner	Cory	USTRANSCOM/TCAQ-M
Booth	Jim	
Hultquist	Chip	
Lynch	Lana	
Lonchena	Terry	
Connelly	Mary	
Magoscy	Mary	
Berryman	Mark	
Petrie	Michael	
Norville	Robert	
Edmond	Ron	
Pickard	Stephen, Dr.	
Pearson	Glenn	US National Library of Medicine/NIH
Bridggman	Brian	US National Library of Medicine/NIH
Kola	Bridggman	US National Library of Medicine/NIH
Ma	Wei	US National Library of Medicine/NIH
Epley	Eric	Southwest Texas Regional Advisory Council for Trauma
Dickson	Leisa	RadiantRFID
Blumenstock	Jim	Association of State and Territorial Health Officials
Bakker	Gerrit	Association of State and Territorial Health Officials
Rabine	COL Leslie	Civil Military Medicine Force Health Protection and Readiness Programs OASD
Rumney	Art	Dept of Children and Family Services Emergency Preparedness and Management Division State of Louisiana
Gill	Joshua	Dept of Children and Family Services Emergency Preparedness and Management Division State of Louisiana
Blanchard	Heather	Crisis Commons
James	Dr. James	American Medical Association Center for Public Health Preparedness and Disaster Response
Johnson	Mary-Ellen	American Medical Association Center for Public Health Preparedness and Disaster Response
Zinna	Diane	American Red Cross

9 APPENDIX C - DHS Office for Interoperability and Compatibility (OIC) Practitioner Steering Group (PSG)

Name	Organization
Ron Haraseth	Association of Public Safety Communications Officials (APCO)
Paul S. Embley	International Association of Chiefs of Police (IACP)
Reuben Varghese. MD, MPH	National Association of County and City Health Officials (NACCHO)
Kevin K. McGinnis, MPS, EMT-P	National Association of State EMS Officials (NASEMSO, Joint National Emergency Medical Services Leadership Conference (JNEMSLC)
Timothy Loewenstein	National Association of Counties (NACo)
Tim Baughman	National Emergency Management Association (NEMA)
Juan Otero	National Governors' Association (NGA)
Joseph Trella	National Governors' Association (NGA)
Mayor Vicki Barnett	National League of Cities (NLC)
John Thompson	National Sheriffs Association (NSA)
Tim Wiedrich	Association of State and Territorial Health Officials (ASTHO)
Bill Lent, CEM	International Association of Emergency Managers (IAEM)
Ed Somers (Invited)	The U.S. Conference of Mayors (USCM)
John Contestabile	American Association of State Highway and Transportation Officials (AASHTO)
Tim Butters	International Association of Fire Chiefs (IAFC) Tim Butters (invited)
Reuben Varghese	National Association of County and City Health Officials (NACCHO)
Robert Holden	National Congress of American Indians (NCAI)

10 APPENDIX D - DHS Office for Interoperability and Compatibility (OIC) Standards Working Group (SWG)

Last Name	First Name	Organization
Anderson	Kiersten	
Armitage	Ed	State of CA
Armstrong	Elizabeth	International Association of Emergency Managers (IAEM) Executive Director
Arnold	Delaine	NENA
Atkinson	DJ	US Dep of Commerce NTIA, NIST
Atri	Kamran	
Baker	Ashley	
Baker	George	OnStar (removed Feb. 07)
Baker	Bobby	NSPA/WVEMS
Ball	Bill	OnStar (removed Feb. 07)
Ball	William	
Ballentine	Greg	APCO
Barnett	Vicki	National League of Cities (NLC). Mayor - City of Farmington Hills, Michigan
Barthell	Ed	EM System
Baughman	Tim	National Emergency Management Association (NEMA)
Bitner	Claudia	MyStateUSA
Blatt	Alan	General Dynamics
Bliss	Scott	Blue292
Bluhm	Patty	NENA
Boehly	Bill	NAED
Borne	Raymond	
Botterell	Art	Incident.com
Bowers	Don	Captain - Fairfax County Fire & Rescue Department Public Safety CAD/RMS Project Team
Bowles	John	E Team
Brickner	Darcie	
Brown	Mike	
Brown	RoxAnn	Nashville 9-1-1
Burnett	Vanessa	FEMA/IMSI
Byrd	Amanda	NIST
Byun	Hyuk	DOJ

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Last Name	First Name	Organization
Cade	Bill	APCO
Callsen	Christian	Austin-Travis County EMS
Campbell	Megan	ATIS
Chanachote	Grant	DOI Enterprise Data Architecture Team (for S.Acar)
Christian	Elliot	Interior, USGS.
Churchill	Bruce	National Engineering Technology Corporation
Colwell	Dave	EMSystem, LLC
Conrad	Jim	Buffalo Computer Graphics
Contestabile	John	MDOT
Cook	Jim	Atlanta-Fulton County EMA & IAEM
Copeland	Tommy	EMS
Coppens	Julie	Dice Corporation
Correll	Steve	NLETS
Couper	Chris	IBM
Crosby	Judy	NWCG
Dash	Bryna	IBM
Davis	Dan	EastBanc Technologies
Dawson	Drew	NHTSA
Deane	Michelle	
Degan	Kerry	Lakes Region EMS
Deitz	Allen	NIFC – National Interagency Fire Center / NWCG (National Wildfire Coordinating Group) Data Architect
Delaine	Arnold	NENA
Desjardins	Pierre	Positron
Detwiler	Steve	Orange County Fire and Rescue
Dickerson	Audrey	HIMSS
Dissek	Josh	Buffalo Computer Graphics
Donnan	Elizabeth	
Doss	Ernie	Lincoln County Department of Public Safety
Druger	Kirby	
Dubrueler	Amy	ComCARE
Dwarkanath	Sukhomar	ComCARE
Eastlee	Christopher	AAMS
Eisen	Alan	
Ellis	David	Sandia, DOD: DITRA, Northcom, and Project Guardian
Embley	Paul	G&H, Global Justice / NIEM
Etie	Stephen	Versant

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Last Name	First Name	Organization
Fargano	Mike	Qwest
Faulkner	Otis	Independent Consultant
Fekety	John	NREMT-P
Felton	Matt	CGIS Towson Univ.
Ferrentino	T	Battelle, Fire Chief
Ferrentino	Tom	Retired Fire Captain
Fischer	Chris	(APCO)
Flaherty	Laurie	NHTSA / DOT
Forbush	Bill	Garden City Fire Department
Foster-Bradley	Pat	GA-3 DMAT
Fox	Jack	DHS
Fox	Jeff	Mobile Foundations
Fraser	Michael	National Association of County and City Health officials: (NACCHO), Executive Director
Frederick	Thomas	Unisys
Fullerton	Gordon	Disaster Management
Funke	Doug	General Dynamics
Gareri	Robert	Ex-Chief, Birmingham Alabama Fire and Rescue, SAIC, & NIMS Support Center (NIMS SC)
GDM	GDM	
Gikas	Xenophon	Chief, LA City Fire Dept
Gill	Ken	DOJ/BJA
Gillen	Dave	Mobile Foundations
Gillum	Danny	EMS
Glazer	Melinda	National League of Cities
Graham	Lani	State of Maine Public Health
Grapes	Tim	Consultant to DHS-OIC, EDXL, Evolution Technologies, Inc.
Graver	Carmen	
Greeves	Bob	DOJ/BJA
Guillot	Stephen	EMS
Gusty	Denis	Program Manager Homeland Security Enterprise and First Responder Group
Hall	Ed	ATIS
Halley	Patrick	NENA
Ham	Gary	
Hansen	Jenny	APCO, Montana Public Safety

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Last Name	First Name	Organization
Haraseth	Ron	PSG member (Association of Public Safety Communications Officials- International, Inc. (APCO)). Director, Automated Frequency Coordination
Hardy, MD	George	Association of State and Territorial Health Officials (ASTHO), Executive Director
Haslip	Mike	Law Enforcement Information Technology Standards Council (LEITSC)/International Association of Chiefs of Police (IACP), Chief - City of Blaine
Hatfield	Dale	IEEE
Higgins	Kathleen	NIST
Hill	Rebecca	
Hines	Chip	Disaster Management Program
Hixson	Roger	NENA
Hogan	Edward	Unisys
Holden	Robert	National Congress of American Indians (NCAI)
Houser	Nyla	G&H International
Hoyt	Sue	ComCARE/ENA
Hufnagel	Steve	Lead, HITSP
Hughes	Amy	
Hughes	Tom	ATS
Hulme	Mike	IJIS Institute
Hunt	John	OnStar
Insignares	Manny	NTCIP Center-to-Center Communications Working Group
Irby	Robert	EMS
Jacobs	Tom	CapWin
Jagow	James	EMS Regulatory Board
Jamieson	Gil	
Jijina	Jasmin	OnStar
Johnson	Merrie	NPS
Johnson	Tom	NIFC- Forest Service
Jones	David	NENA, Spartanburg County, SC 9-1-1
Jones	Elysa	OASIS
Jones	Rick	NENA
Joynson	Robert	CSC
Justus	Ralph	

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Last Name	First Name	Organization
Kane	Tony	American Association of State Highway and Transportation Officials (AASHTO), Director of Engineering and Technical Services
Kanwal	Mini	SAIC/MCOE
Kelley	David	DOT/IEEE 1512
Kincaid	Chris	TouchStone
Kitey	Alan	ComCARE
Kolias	Stacy	Dartmouth College
Korow-Diksa	Karen	
Lafayette	Janine	
Lawton	Jim	Proxicom
Lebudde	Mike	EM System (alternate)
Lee	Erin	
Lehr	Raymond	Director, Public Safety and Homeland Security CSC Networks and Telecommunication Integrated Solutions Division
Leigh	Kim	Qwest
Lent	Bill	International Association of Emergency Managers (IAEM) Executive Director
Lewis	Earl	Assistant Secretary - MDOT/MD Interoperability Initiative
Locke	Bonnie	NLETS
Loewenstein	Tim	National Association of Counties (NACo)
Loonsk	John	Centers for Disease Control and Prevention (CDC), Director for Informatics
Lorscheider	Ann	IEEE 1512, AASHTO, North Carolina DOT
Loverude	J	ATS
Luke	Barry	APCO, Orange County Fire Rescue
MacDonald	Curt	ESI
MacDonald	Greg	National Sheriffs' Association (NSA)
Mancuso	Dawn	AAMS
Mann	Clay	NASEMSD, National EMS Information System (NEMESIS), HITSP
Marquess	Alvin	Fire
Marsters	Robert	Geodecisions
McAfee	Scott	DHS/FEMA GIS Symbology
McCarley	Wanda	APCO International
McCormick	Cathy	On-star
McCreary	Patrick	DOJ/GLOBAL
McEwen	Harlin	IACP/GLOBAL

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Last Name	First Name	Organization
McGinnis	Kevin	PSG Vice-Chair (Joint National Emergency Medical Services Leadership Conference (JNEMSLC)/National Association of State EMS Officials (NASEMSO))
McGinnis	Kevin(Already In)	Joint National Emergency Medical Services Leadership Conference (JNEMSLC)
McHenry	Susan	NHTSA
McIntyre	Rob	Disaster Management Program
McLamb	John	UNC Emergency Medicine
McMurray	Bill	NENA, President
Mears	Greg	NASEMSD, UNC Chapel Hill
Menkes	Alex	
Merkle	Tom	CapWIN
Mince	Frank	NLETS
Miner	Ron	Northrop Grumman
Mitchell	Rene	Medtronic
Mittelman	Kirk	Center for Emergency Programs Health Promotion and Education
Morgan	John	Towson University Center for GIS
Moses	Enoch	
Muehleisen	Tom	Nuovox
Munnikhuysen	Dick	Battelle
Murphy	Ken	Oregon EM director & NEMA
Neal	John	Versant
Nielsen	Kirstjen	White House
O'Brien	Jim	
O'Brien	Michael	
Odell	John	ESI
Oenning	Bob	NENA, Washington State 9-1-1
Oldham	Gary	CSC
Orr	Dereck	NIST
O'Shea	Kevin	Dartmouth University
Pack	Michael	University of Maryland
Pearce	Vince	FHWA/USDOT
Peard	Laura	
Peebles	Tim	Hall County Fire Services
Perkins	Kris	State of Maine Public Health
Pickard	Steven	Doctor, Epidemiology
Pietrasiewicz	Val	NIST

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Last Name	First Name	Organization
Poldy	Greg	Northrop Grumman
Pollock	Nancy	Minneapolis 9-1-1, APCO
Porter	Randy	EMS
Porter	Scott	CAPSIT
Potter	Jack	Valley Health System
Pyott	Charles	ATIS
Ramadan	Walid	Blue292, Inc.
Reece	Sonja	National League of Cities (NLC). Mayor Pro Tem, Town of Normal, IL & Dir. of Government Affairs and Property Management BroMenn Healthcare
Reingold	Sue	
Retamoza	Ami	
Rickey	Catherine	
Roberts	Jeff	Towson University Center for GIS
Robinson	DR	Open Road Consulting
Robinson	Kathy	
Roe	Cheri	Public Safety Coordinator Office of State and Local Government Coordination U.S. Department of Homeland Security Office: (202) 282-9814
Rogers	Shawn	EMS
Rosen	Brian	NENA (National Emergency Number Association)
Ryan	Tracy	Oracle
Schilling	Roger	EMS
Sebring	Amy	Contractor, FEMA DM Program
Sexton	Jeff	Tennessee DOH Office of Information Technology Services, HITSP
Sheets	Trina	National Emergency Management Association (NEMA), Executive Director
Sherry	Robert	Intrado Inc.
Shows	Josh	Emergency Services integrators
Silhol	Kate	NLETS
Sisk	Ted	Northrop Grumman Public Safety
Skeels	Jon	USDA Forest Service
Smey	Mike	
Smith	Robert,	APCO International Director of Comm Center & 9-1-1 Services
Smotrisky	Mike	CAPSIT

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Last Name	First Name	Organization
Snyder	Matt	IACP
Somers	Ed	United States Conference of Mayors (USCM)
Souder	Steve	Montgomery County ECC (APCO)
Stokes	Shawn	Assistant to the Executive Director International Association of Fire Chiefs PSG rep for the International Association of Fire Chiefs (IAFC).
Stout	Tom	DOT FHWA
Sullivan	Elizabeth	EMS
Suter	John	American College of Emergency Physicians (ACEP)
Thackery	Ron	AMR Corporation
Thomas	Donald	
Thompson	John	National Sheriffs' Association (NSA)
Thornburg	Barb	NENA
Tincher	Lee	Consultant to DHS-OIC, EDXL, Evolution Technologies, Inc.
Traver	Christopher	US DOJ
Trella	Joe	National Governors Association (NGA)
Vandame	Rich	FEMA/IMSI
Varghese	Reuben	Virginia Public Health Department
Vislocky	Mike	NENA/Net Orange
Wallace	Gary	ATX Technologies
Walton	Matt	Emergency Interoperability Consortium
Wandelt	John	Georgia Tech Research Institute
Werner	Charles	IAFC, Charlottesville, VA Fire Rescue, International Association of Fire Chiefs (IAFC)
Westpfahl	Brad	IBM
White	Bob	NENA, Maine GIS
Whittenburg	LuAnn	DOD Health Informatics/HIMMS
Wiedrich	Tim	The Association of State and Territorial Health Officials (ASTHO)
Wilk	Mark	St. Ignace, Michigan
Willett	Henry	ATS
Williams	Larry	Consultant
Williams	Brent	EMS and Trauma Systems Section Michigan Dept of Community Health
Wollack	Leslie	
Wood	Mark	
Woodhall	Judith	Consultant
Yancey	Arthur	Fulton County Department of Health & Wellness

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Last Name	First Name	Organization
Zeunik	Jennifer	Law Enforcement Information Technology Standards Council

11 APPENDIX E - References

The following lists current and previous efforts researched during the course of the TEC effort. A final research report has been published under separate cover detailing the results of this research.

PROGRAM	PROJECT CONTRIBUTION
NON PROFIT	
Red Cross Safe and Well/Family Links	<ul style="list-style-type: none"> Website designed to help those separated by conflict or disaster to find information about their loved ones in order to restore contact. Supports the reporting of missing persons and status updates of displaced persons
Red Cross National Shelter System	<ul style="list-style-type: none"> The Red Cross National Shelter System (NSS) contains information for potential shelter facilities and is used to track and report shelter information during disasters.
Sahana Disaster Victim Registry	<ul style="list-style-type: none"> The Disaster Victim Registry is a central online repository where information on all the disaster victims and families, especially identified casualties, evacuees and displaced people can be stored. Information like name, age, contact number, identity card number, displaced location, and other details are captured.
Coordinated Assistance Network (CAN)	<ul style="list-style-type: none"> The CAN Portal is a secure web site acting as a repository of citizen data collected by local and national agencies that could act as both a sender/receiver of client information and the services they are receiving.
FEDERAL	
HHS AHRQ Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System List date	<ul style="list-style-type: none"> Expands patient tracking to include evacuee movement during mass casualty incidents (MCIs)
HHS Joint Patient Assessment & Tracking System JPATS	<ul style="list-style-type: none"> JPATS is a modified application of the DoD's Joint Patient Tracking Application. It is used to track a patient's location and movement when NDMS requests help from the HHS, via air or ground transport, for medical transfer or evacuation.

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PROGRAM	PROJECT CONTRIBUTION
DoD Systems <ul style="list-style-type: none"> • TRAC2ES • JPTA • ETAS • JPATS 	<ul style="list-style-type: none"> • An example of integrated systems for tracking patients from theater to and through hospital care • Custom interfaces across systems could provide valuable input to standards efforts, especially since systems have been used for non-military events such as Hurricane Katrina/Rita. • Potential users of standard.
FCC Joint Action Committee	<ul style="list-style-type: none"> • Effort to examine the communications capabilities and needs of emergency medical and public health care facilities
National Emergency Family Registry & Locator System (NEFRLS)	<ul style="list-style-type: none"> • Developed to help family members separated after an emergency or major disaster to communicate with one another. • The system offers a mechanism for voluntary registration of displaced people over the Internet or by phone.
FEMA National Mass Evacuation Tracking System (NMETS).	<ul style="list-style-type: none"> • NMETS is an open source database system designed to track the movement of people, pets, bags, and medical equipment. • The system requires enrollment of the evacuee prior to transport.
FEMA National Shelter System (NSS)	<ul style="list-style-type: none"> • Web-based database created to support Federal, State and local government agencies and voluntary organizations responsible for Mass Care and Emergency Assistance. • The FEMA NSS allows users to identify, track, analyze, and report on data for virtually any facility associated with the congregate care of people and/or household pets following a disaster.
National Library of Medicine Lost Person Finder	The goal of the LPF project is to create a Web system that enables family, friends and neighbors to locate missing people during a disaster event. Users are able to search the LPF database, and retrieve the information on desktop and handheld computers. In addition, the system displays pictures and other information on missing persons on large monitors placed at key public locations.
	<ul style="list-style-type: none"> •
STANDARDS	
People Finder Interchange Format	<ul style="list-style-type: none"> • A data model and an XML-based exchange format for sharing data about people who are missing or displaced by natural or human-made disasters.
AIRS Data Standard	<ul style="list-style-type: none"> • The AIRS XSD is a data standard that delineates the structure of community resource databases in terms of the relationships between agency information, site information and program/service information, together with the data fields contained within each area.
Disaster Client Data Standard (DCDS)	<ul style="list-style-type: none"> • The Disaster Client Data Standard is intended to be minimal in scope, including only client data elements common to organizations involved in disaster relief including
STATE AND LOCAL	

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PROGRAM	PROJECT CONTRIBUTION
Special Needs Evacuation Tracking System (SNETS)	<ul style="list-style-type: none"> • SNETS is a complete evacuee tracking system which allows your jurisdiction to match each evacuee with a unique wristband prior to evacuation. • Evacuee enrollments are stored in a centralized database. • Evacuee wristbands are scanned either by RFID or barcode scans at key points in the evacuee's journey so that jurisdictions can know at any time where evacuees were last "seen" and repatriation can be accomplished more easily.
KNOWN VENDOR PRODUCTS	
Disaster Management Solutions	<ul style="list-style-type: none"> • Focuses on patient, equipment, and supplies tracking. • http://www.dmssolutions.com/
EMSystem	<ul style="list-style-type: none"> • Developed custom interfaces between EMS and EDs, Public Health agencies, EOCs, etc. • http://corp2.emsystem.com/?home
Raytheon	<ul style="list-style-type: none"> • Custom interfaces with EMS, EOCs, Hospitals, and Red Cross • Focuses on MCIs • http://www.raytheon.com/capabilities/products/epts/
Salamander	<ul style="list-style-type: none"> • Used to track evacuees from Houston during Hurricane Ike. • http://www.salamandertechnologies.com/Brix?pageID=1
Sydion	<ul style="list-style-type: none"> • All hazards emergency management solution • http://www.sydion.net/
Zoll Data Systems	<ul style="list-style-type: none"> • More of a Fire/Ems solution than patient tracking, but could potentially be a user of a patient tracking messaging standard. • http://www.zolldata.com/index.aspx
Radiant RFID	<ul style="list-style-type: none"> • Designed to assist Emergency Management teams with large scale evacuations by making the continuous movement of people, pets and assets easy to track without stopping people to take their name or scan a bar code.
PUBLICALLY AVAILABLE PRODUCTS	
CNN iReport	<ul style="list-style-type: none"> • Public facing, free for use • Supports the reporting of missing persons and status updates of displaced persons

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PROGRAM	PROJECT CONTRIBUTION
Google Person Finder	<ul style="list-style-type: none">• Public facing, free for use• Supports the reporting of missing persons and status updates of displaced persons
Social Networking Tools	<ul style="list-style-type: none">• Facebook, MySpace, Twitter, etc
Ushahidi	<ul style="list-style-type: none">• The Ushahidi Platform allows anyone to gather distributed data via SMS, email or web and visualize it on a map or timeline. Our goal is to create the simplest way of aggregating information from the public for use in crisis response

12 APPENDIX F – EDXL-TEC Candidate Elements

The following lists draft data requirements & candidate data elements which may be required to meet project objectives. A decision on which data elements will be included in the final practitioner requirements will not be reflected in this document. The PID simply captures all initial candidate data elements for analysis and consideration. A finalized list of data elements will be published in the Draft TEC Requirements and Specification Document based upon requirements analysis and EDXL-TEC Steering Committee negotiations and consensus. The driving objective will be a standard which contains the minimum data set required for simplicity to meet core requirements across a broad range of potential senders and recipients.

All candidate data elements have been classified into basic data type categories which generally coincide with the numbered stages of client encounters identified in Figure 5. This document is conceptual tool to facilitate project scope rather than design. These categories are relevant for initial scoping discussions and may change during later stages of design and detailed requirements definition. These "categories and their respective candidate elements will be refined into a logical model and draft message design during the design stage.

- ❖ Incident Information (12.1)
- ❖ Client Information (12.2)
- ❖ Client Transport Information (12.3)
- ❖ Client Tracking Information (12.4)
- ❖ Shelter Information (12.5)
- ❖ Client Shelter Information (12.6)
- ❖ Service Provider (12.7)
- ❖ People Finder Interchange Format (PFIF) (12.8)

Location-related elements appearing in the following tables marked with (#) will be analyzed, refined and expanded to describe more specific geopolitical, geospatial and other location-related elements in the TEC Requirements and Draft Specification document to be developed after this document.

12.1 Incident Information

Incident Information	
TEC Requirement	TEC Element-Incident Information
Incident Name	Incident Name
Incident Location	Incident Location
Incident Location	- GPSLocation
Incident Location	- StreetAddress
Incident Location	- City
Incident Location	- State
Incident Location	- Zip
Incident Location	- Country

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Incident Information	
TEC Requirement	TEC Element-Incident Information
Incident Location	- Other Geospatial Data
Incident Location	- Legal Description
Incident Identification	Incident ID
Incident Type	Incident Type
Date of Incident	Date/Time
Incident Identification	Related Disaster-Incident ID

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12.2 Client Information

Client Information	
TEC Requirement	TEC Element-Client Information
Client Unique ID	Client Unique Identification Number
Client Information	LastName
Client Information	FirstName
Client Information	MiddleInitial
Client Information	Client Address
Client Information	- StreetAddress
Client Information	- City
Client Information	- State
Client Information	- Zip
Client Information	- County
Client Information	- Country
Client Information	TelephoneNumber
Client Information	Cell Phone Number
Client Information	Email Address
Client Information	Gender
Client Information	Race
Client Information	Ethnicity
Client Information	Age
Client Information	AgeUnits
Client Information	AgeRange
Client Information	DateOfBirth
Client Information	StateDriversLicenseNumber
Client Information	State Issuing Driver's License
Client Information	SocialSecurityNumber
Client Information	Hair color
Client Information	Eye color
Client Information	Distinguishing Marks
Client Information	Photograph (URL)
Client Information	Fingerprint
Client Information	Closest Relative/Guardian
Client Information	- LastName
Client Information	- FirstName
Client Information	- Middle Initial
Client Information	- StreetAddress

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Client Information	
TEC Requirement	TEC Element-Client Information
Client Information	- City
Client Information	- State
Client Information	- Zip
Client Information	- County
Client Information	- Country
Client Information	- TelephoneNumber
Client Information	- EmailAddress
Client Information	Attachments-Generic (Photo, Fingerprint, etc)
Client Information	Special transportation needs
Client Information	Special medical needs
Client Information	Contamination/radiation/contagion status
Client Information	Security/supervision needs/status
Client Information	Reunification group code
Client Information	Family unification code
Client Information	Special communication needs

12.3 Client Transport Information

Client Transport Information	
TEC Requirement	TEC Element- Regulating Information
Client Identification	* Refer to Client ID data
Encountering Staff Info	Name - First Name - Last Name - Middle Initial Staff identification number (consider a 'common type' for Person info)
Client Encounter Date & Time	Date-Time
Client Encounter Location	Encounter Location (#)
Client Departure Date & Time	Date-Time
Client Destination Location	Destination Location (#)
Transporting Org Name	Transporting Org Name
Transporting Vehicle Info	Transportation Vehicle ID Driver Info Type of Vehicle Capacity (#people) Capacity (Weight) Communication capability (radio, cell, etc) Fuel Type

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Client Transport Information	
TEC Requirement	TEC Element- Regulating Information
	Fuel capacity/range?

12.4 Client Tracking Information

Client Tracking Information	
TEC Requirement	TEC Element- Movement & Tracking Info
Client Identification	* Refer to Client ID data
Transporting Agency Name	Agency Name
Transportation Vehicle Identification	Vehicle Identification
Client Encounter Location	Encounter Location (#)
Client Destination Location	Destination Location (#)
Transporting Org Info	* Refer to Client Regulating Info
Client Location	Location Type
Client Care Provider Encounter Date/Time	Client Care Provider Encounter D/T
Destination Transferred to ETA	Destination Transferred to ETA
Service Provider Release D/T	Client Care Provider Release D/T
Actual Client Location Arrival D/T	Actual Client Location Arrival D/T
Actual Client Location Departure D/T	Actual Client Location Departure D/T

12.5 Shelter Information

Shelter Information	
TEC Requirement	TEC Element-Shelter Data
Shelter Information	Basic Shelter Information <ul style="list-style-type: none"> - Name - Shelter Type - Sponsoring Agency
Shelter Information	Limits of Facility Use <ul style="list-style-type: none"> - Capacity - Available Beds
Shelter Information	Facility Information <ul style="list-style-type: none"> - Location - Services Offered
Shelter Information	Food Services
Shelter Information	Facility Accessibility
Shelter Information	Contact Information
Shelter Information	Population History

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12.6 Client Transport Information

Client Transport Information	
TEC Requirement	TEC Element- Regulating Information
Transportation Information	Vehicle ID
Transportation Information	Vehicle Type
Transportation Information	Vehicle Agency
Transportation Information	Vehicle State
Transportation Information	Vehicle Capacity
Transportation Information	Vehicle Availability
Transportation Information	Vehicle Staff
Transportation Information	Vehicle Location
Transportation Information	Communication capability (radio, cell, etc)
Transportation Information	Fuel Type
Transportation Information	Fuel capacity/range

12.7 Service Provider

Service Provider	
TEC Requirement	TEC Element
Service Provider Information	Service Organization id
Service Provider Information	Service organization name
Service Provider Information	Service organization state
Service Provider Information	Service Provider type
Service Provider Information	Service Personnel Name
Service Provider Information	Service Personnel State
Service Provider Information	Service Personnel Type
Service Provider Information	Service Personnel Home location

12.8 People Finder Interchange Format (PFIF)

Elements of the PFIF will be examined and used in whole or in part in the definition of TEC message elements

Elements marked with an asterisk (*) in the table below are mandatory

People Finder Interchange Format (PFIF)

**Tracking of Emergency Clients (TEC): Phase I - *Tracking of Emergency Patients (TEP)*
Project Initiation Document (PID)**

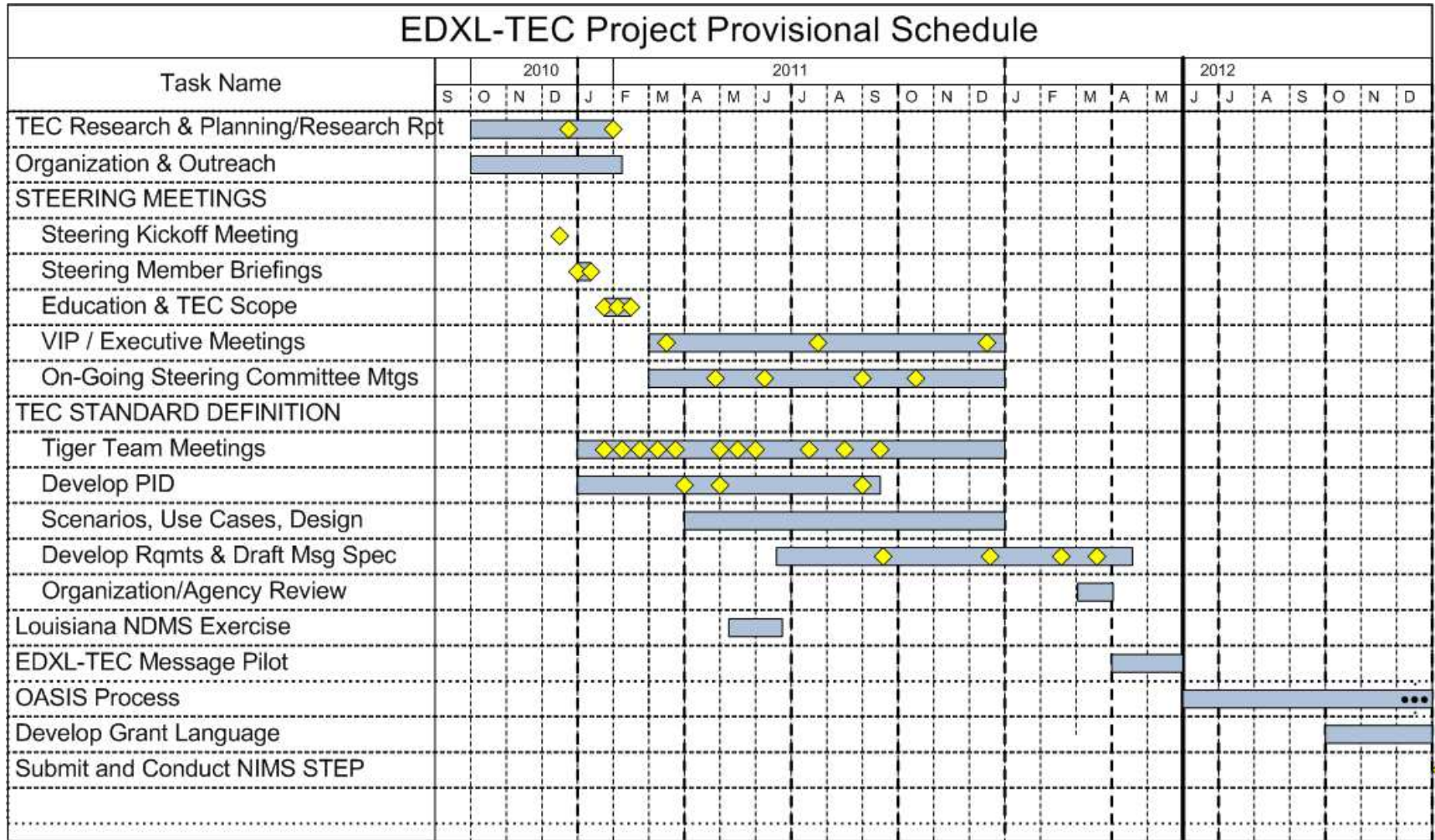
TEC Requirement	TEC Element
Person record metadata	person_record_id*
Person record metadata	entry_date
Person record metadata	expiry_date
Person record metadata	author_name
Person record metadata	authoremail
Person record metadata	author_phone
Person record metadata	source_name
Person record metadata	source_date*
Person record metadata	source_url
Person info	full_name*
Person info	first_name
Person info	last_name
Person info	sex
Person info	date_of_birth
Person info	age
Person info	home_street
Person info	home_city
Person info	home_neighborhood
Person info	home_state
Person info	home_postal_code
Person info	home_country
Person info	photo_url
Person info	other
Note record	note_record_id*
Note record	person_record_id
Note record	linked_person_record_id
Note record	entry_date
Note record	author_name*
Note record	author_email

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People Finder Interchange Format (PFIF)	
TEC Requirement	TEC Element
Note record	author_phone
Note record	source_date*
Status about person	found
Status about person	status (information_sought is_note_author believed_alive believed_missing believed_dead)
Status about person	email_of_found_person
Status about person	phone_of_found_person
Status about person	last_known_location
Status about person	text (free text)*

13 Appendix G - EDXL-TEC Project Provision Schedule (Gantt)

Tracking of Emergency Clients (TEC): Phase I - *Tracking of Emergency Patients (TEP)*
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14 APPENDIX H - List of Acronyms

ACEP	American College of Emergency Physicians
AHRQ	Agency for Healthcare Research and Quality
ASTHO	Association of State and Territorial Health Officials
CAN	Coordinated Assistance Network
CAP	Common Alert Protocol
CDC	Centers for Disease Control
DAIP	Disaster Assistance Improvement Plan
DE	Distribution Element
DHS	Department of Homeland Security
DOB	Date of Birth
DOD	Department of Defense
EAS	Emergency Alert System
ED	Emergency Department
EDXL	Emergency Data Exchange Language
EIC	Emergency Interoperability Consortium
EMS	Emergency Medical Services
EO	Executive Order
EM-TC	Emergency Management Technical Committee
FEMA	Federal Emergency Management Agency
FIPS	Federal Information Processing Standards
HAVE	Hospital Availability Exchange
HIPAA	Health Insurance Portability and Accountability Act
HITSP	Healthcare Information Technology Standards Panel
HSPD-21	Homeland Security Presidential Directives
HTTP	Hypertext Transfer Protocol
IEMRI	Integrated Emergency Medical Response Initiative
IEPD	Information Exchange Package Documentation
IT	Information Technology
MCI	Mass Casualty Incident
NAEMSP	National Association of EMS Physicians
NAEMT	National Association of Emergency Medical Technicians
NASEMSO	National Association of State EMS Officials

Tracking of Emergency Clients (TEC): Phase I - *Tracking of Emergency Patients (TEP)*
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NEMA	National Emergency Medicine Association
NEMESIS	National EMS Information System
NEMSMA	National EMS Management Association
NIEM	National Information Exchange Model
NIMS	National Incident Management System
OASIS	Organization for the Advancement of Structured Information Standards
OIC	Office for Interoperability and Compatibility
OPEN	Open Source Software
PID	Project Initiation Document
PMO	Project Management Office
PSG	Practitioner Steering Group
RM	Resource Messaging
SDO	Standards Development Organization
SitRep	Situation Reporting
SOA	Service Oriented Architecture
SOAP	Simple Object Access Protocol
SOP	Standard Operating Procedure
SSN	Social Security Number
TEP	Tracking of Emergency Patients (standard)
SWG	Standards Working Group
XML	Extensible Markup Language