Entity Relationship Diagram Description

An Entity Relationship Diagram (ERD) is created by the design team during the Detailed Design phase of the IPT process. The diagram models an application's entities and their interrelationships to provide a basis for further entity analysis, database design, file structure design, and technical design. It can represent conceptual data requirements in terms of entity types and the relationship types that exist among the entity types. The Entity-Relationship Diagram can help communicate the application's data requirements to users, application developers, database designers, and management.

IPT Name:		
Deliverable Name: Entity Relationship Diagram		**Date Completed:**
Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
Task Order Number:		

The Entity Relationship Diagram uses a variety of symbols to model the application's conceptual data requirements:

- **Entity Type** - An object about which the application stores information. This generally represents a business object that has attribute types; e.g., a customer is an entity type with such attribute types as customer name, number, and address. An entity type is represented as a box on the diagram. Each entity type displays its textual name as described by its corresponding **Entity Type Definition** object.

  Some entity types require further refinement into supertypes and subtypes. A subtype is a specialization of an entity type, e.g., a "Full-time Employee" is a subtype of an "Employee." A supertype is the reverse (a generalization) of a subtype, e.g., "Employee" can be thought of as the supertype of "Full-time Employee." Supertypes and subtypes also can be represented as entity types on the diagram. However, their labels and relationships should clearly specify whether they are supertypes, subtypes, or are related in some other way.

- **Relationship Type** - The connections among entity types. These relationships are shown as lines connecting the entity types. Each relationship is labeled with a descriptive name. Recursive relationships are also shown if entity types are related to themselves (e.g., Employee is Supervised By Employee).

- **Associative Entity Type** - In cases where information (attributes) about the relationship itself need to be maintained, associative entity types are used. On the diagram, a box with a diamond inside symbolizes an associative entity type; e.g., the associative entity type "Benefit Coverage" contains information about the relationship between a Full-time Employee and an available Benefit Plans.

- **Cardinality Indicator** - The number of instances of a relationship type that occur between entity types. Examples are one-and-only-one, zero-or-one, and one-or-many. Since the cardinality depends on the direction of the relationship, the symbols are added to each end of the relationship type.

The following figure explains the commonly used cardinality indicators: