# DOI Trails Geospatial Solution Architecture Plan

## Enterprise Geographic Information Management (EGIM)

Management of trails is a fundamental business requirement for most Department of the Interior (DOI) Bureaus. DOI trails occur in many forms distributed across the landscape among multiple owners, managers, and sites with no common enterprise architecture to support efficient agency-wide management of these resources. ***The goal of this plan is to create an authoritative seamless geospatial enterprise trails dataset within DOI that is not fragmented and supports seamless data developed upon solution architecture principles***. The result will be a standardized geospatial dataset upon which management information can be linked and/or integrated into the DOI supported technologies. The DOI Geospatial Modernization Blueprint (GMBP) recommended trails as a test case for an orphaned dataset (required by many organizations, but not having a definitive owner). This solution architecture (SA) will be implemented as part of the managed portfolio of DOI-wide geospatial enterprise geographic information system (EGIS) and services defined as the DOI **Trails Geospatial Solution Architecture (TGSA)**.

This SA approach provides a unique and powerful opportunity to test and apply the GMBP methodologies in the development of a DOI-wide architecture focused on management of trails geospatial data. Currently trails data are highly fragmented and need more effective management. ***Effective management of DOI trails data will demonstrate the coordination, collection, integration, maintenance, and service of an enterprise data asset.*** Trails data are maintained at many sites across the DOI, including field offices, Bureau offices, regional offices, program offices, etc. These offices have the front-line responsibilities to steward (e.g., collect, update, maintain, archive, etc.) trails data. Often, there is no coordination among the various offices, but in a few cases, coordination is provided by a central office representing the Bureau. This plan includes a comprehensive, phased solution for standardizing geospatial data layers that support the business requirements of these offices including services that can link to tabular attribute databases. The **Trails Geospatial Dataset (TGD)** will be the well-coordinated authoritative seamless gegospatial enterprise trails dataset supporting evolving DOI program requirements.

The ***benefits of creating the TGD and the linking of management information*** will allow managers to anwser questions such as:

- What are the construction costs?
- Who is responsible for maintaining this trail?
- What is the maintenance cost per mile of trail?

Many benefits will be realized as the TGD and the TGSA mature over the lifecycle of this effort.

**The TGSA plan recommends three objectives:**
1) Data Stewardship
2) Data Standards
3) Data Processes and Workflow

**Trails data can be organized into two basic categories:**
1) Geospatial Features – the foundational data model of geometric elements.
2) Business Data Attributes – attribute data similar to the Federal Trail Data Standards (FTDS).



**Numerous issues and risks must be addressed as part of the TGSA.** The following is a partial list: No Common Data Model, Standards Integration – Independent Development & FTDS Integration, Access to Data, Data Exchange Formats, Currency of Data, Tool Development, Funding/Budget. Best Management Practices, Governance, and Stewardship.

The future operation or ***concept of operations (CONOPS)*** reflects the highly distributed nature of the trails data where the solution is to continue to support and integrate these efforts in a federated manner across DOI.
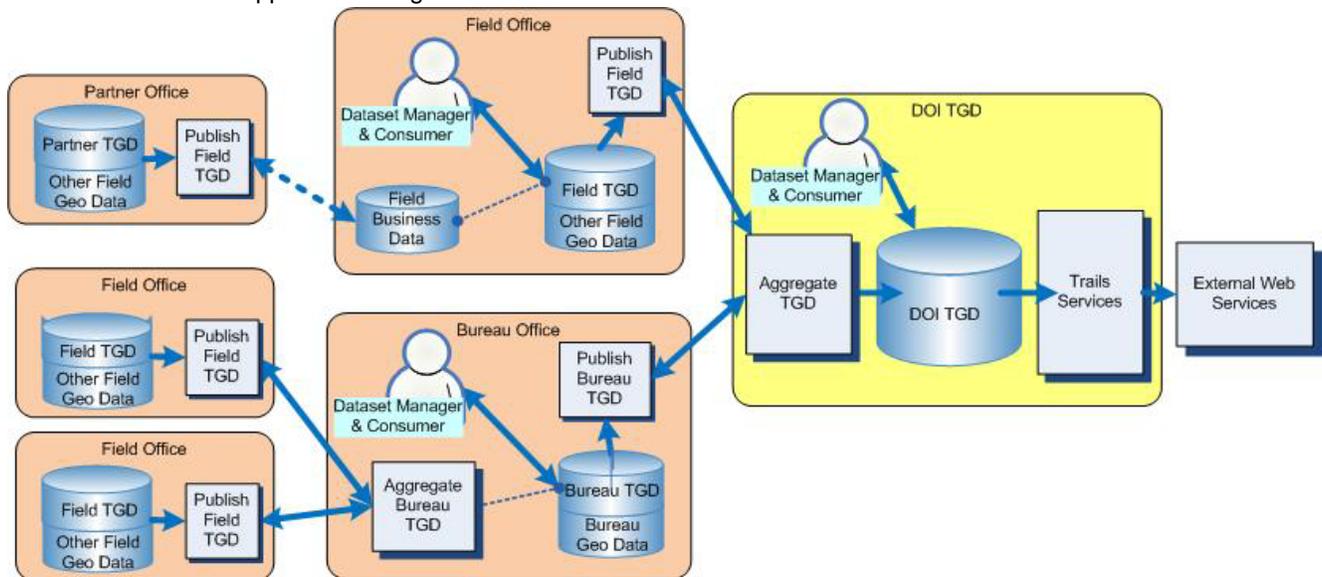


The CONOPS focuses on stewardship and data management as they relate to business and geospatial requirements. In addition, the CONOPS integrates the goals and objectives into 5 phases outlined below and documented in the TGSA plan:

**Phase 1 – Plan and Deploy Proof of Concept** - Expand upon the previous surveys in a collaborative project to gather comprehensive requirements, define governance, stewardship, standards, and processes/workflows, plan and implement enterprise stewardship and publication services.

**Phase 2 – First Adopter** - Implement the governance, stewardship, standards, and processes/workflows objectives.

**Phase 3 – Expansion** – Develop a TGD DOI-wide in conjunction with enterprise stewardship and product delivery.

**Phase 4 – Evaluation & Integration** – Expand to include other Federal Partners.

**Phase 5 – Evaluation & Integration** – Expand to State, Local and Private Trails.
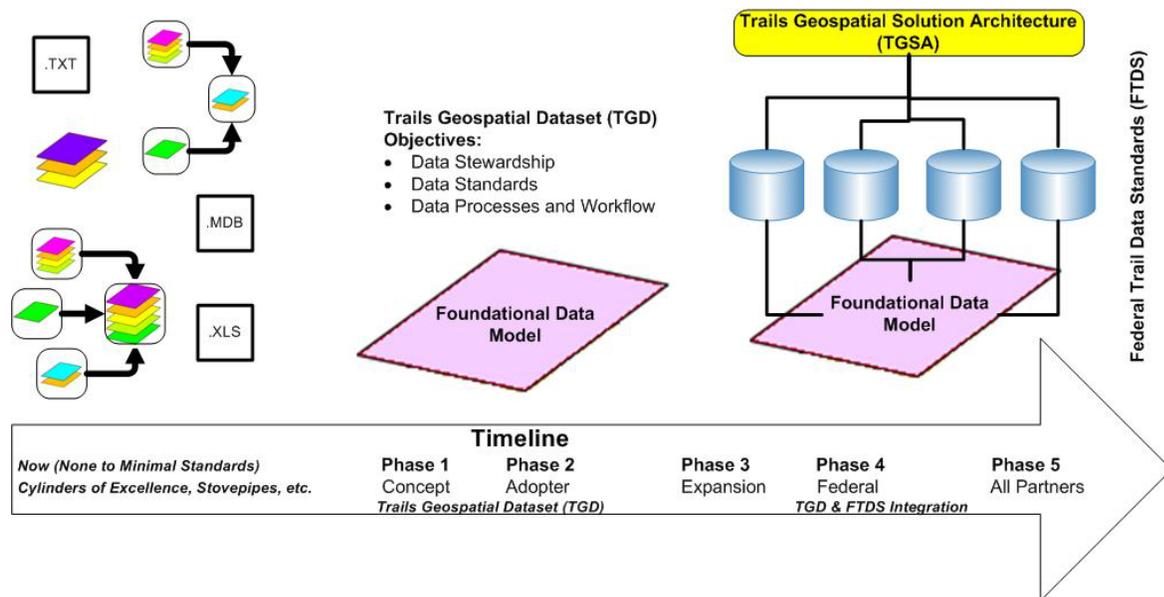


The timeline above illustrates the current distributed management of trails integrated with the roadmap and implementation phases for the Trails Geospatial Solution Architecture (TGSA). The goal of this plan is to create, maintain, and serve a well-coordinated authoritative seamless geospatial enterprise trails dataset.